

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.227514</b>	.1589666	7.72	<b>0.000</b>	.9159448 1.539083
ereri_cde	<b>1.228359</b>	.1589558	7.73	<b>0.000</b>	.9168111 1.539906
ereri_intref	<b>-.000925</b>	.0016655	-0.56	0.579	-.0041893 .0023392
ereri_intmed	<b>-.0005056</b>	.0018874	-0.27	0.789	-.0042048 .0031937
ereri_pie	<b>.0005855</b>	.0008471	0.69	0.489	-.0010748 .0022457

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zcpv1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04661 2.218 -.07498 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9191.4461**

Iteration 1: Log likelihood = **-9102.5906**

Iteration 2: Log likelihood = **-9093.404**

Iteration 3: Log likelihood = **-9093.3677**

Iteration 4: Log likelihood = **-9093.3677**

Refining estimates:

Iteration 0: Log likelihood = **-9093.3677**

Cox regression with Breslow method for ties

No. of subjects = 36,669 Number of obs = 36,669

No. of failures = 981

Time at risk = 445,408.887

LR chi2(9) = 196.16

Log likelihood = -9093.3677

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.250442</b>	.1601617	11.40	<b>0.000</b>	<b>1.957441</b> 2.587302
zcpvl	<b>.9523645</b>	.0352463	-1.32	<b>0.187</b>	<b>.885729</b> 1.024013
_infectionburXzcpvl_000	<b>.9925388</b>	.0674399	-0.11	<b>0.912</b>	<b>.8687824</b> 1.133924
AGE	<b>1.034365</b>	.0129602	2.70	<b>0.007</b>	<b>1.009273</b> 1.060081
SEX	<b>.761616</b>	.0494155	-4.20	<b>0.000</b>	<b>.6706687</b> .8648963
NonWhite	<b>1.093058</b>	.1861055	0.52	<b>0.601</b>	<b>.7829183</b> 1.526054
householdsize	<b>.9335303</b>	.039263	-1.64	<b>0.102</b>	<b>.8596627</b> 1.013745
SES	<b>.8211748</b>	.0402601	-4.02	<b>0.000</b>	<b>.7459392</b> .9039987
LE8_TOTALSCORE	<b>.9990602</b>	.0003537	-2.66	<b>0.008</b>	<b>.9983671</b> .9997537

-> Model for the mediator

Iteration 0: Log likelihood = **-51799.558**  
 Iteration 1: Log likelihood = **-51799.558**

Linear regression (Maximum Likelihood) Number of obs = 36,669  
 Wald chi2(7) = 464.92  
 Log likelihood = **-51799.558** Prob > chi2 = 0.0000

	zcpvl	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.0241715</b>	.015163	1.59	<b>0.111</b>	<b>-.0055475</b> .0538905
AGE		<b>.0033312</b>	.0009888	3.37	<b>0.001</b>	<b>.0013933</b> .0052692
SEX		<b>.1353064</b>	.0104908	12.90	<b>0.000</b>	<b>.1147449</b> .155868
NonWhite		<b>.2407124</b>	.0250961	9.59	<b>0.000</b>	<b>.191525</b> .2898998
householdsize		<b>.0003671</b>	.004775	0.08	<b>0.939</b>	<b>-.0089917</b> .0097258
SES		<b>-.030007</b>	.0078669	-3.81	<b>0.000</b>	<b>-.0454259</b> -.0145882
LE8_TOTALSCORE		<b>-.0006618</b>	.0000559	-11.84	<b>0.000</b>	<b>-.0007713</b> -.0005523
_cons		<b>-.0940053</b>	.0715129	-1.31	<b>0.189</b>	<b>-.2341679</b> .0461574
<b>sigma2</b>						
_cons		<b>.987453</b>	.0072926	135.40	<b>0.000</b>	<b>.9731598</b> 1.001746

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.248312</b>	.1599799	7.80	<b>0.000</b>	<b>.9347572</b> 1.561867
ereri_cde	<b>1.248769</b>	.1599337	7.81	<b>0.000</b>	<b>.9353043</b> 1.562233
ereri_intref	<b>.0026052</b>	.0078291	0.33	<b>0.739</b>	<b>-.0127396</b> .0179499
ereri_intmed	<b>-.0018825</b>	.0034515	-0.55	<b>0.585</b>	<b>-.0086474</b> .0048824
ereri_pie	<b>-.0011791</b>	.0011596	-1.02	<b>0.309</b>	<b>-.0034519</b> .0010938

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zcpxm1  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.19 1.531 .04641 2.217 -.0748 500.6

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9132.2436  
 Iteration 1: Log likelihood = -9046.2474  
 Iteration 2: Log likelihood = -9026.0729  
 Iteration 3: Log likelihood = -9025.7266  
 Iteration 4: Log likelihood = -9025.7265  
 Refining estimates:  
 Iteration 0: Log likelihood = -9025.7265

Cox regression with Breslow method for ties

No. of subjects =	36,540	Number of obs =	36,540
No. of failures =	975		
Time at risk =	443,893.259	LR chi2(9) =	213.03
Log likelihood =	-9025.7265	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.217792	.1599619	11.04	0.000	1.925424 2.554554
zcpxm1	.9147365	.0351651	-2.32	0.020	.8483468 .9863218
_infectionburXzcpxm1_000	.8633535	.0622267	-2.04	0.041	.7496142 .9943504
AGE	1.033603	.0129865	2.63	0.009	1.008461 1.059372
SEX	.7769022	.050456	-3.89	0.000	.6840454 .8823639
NonWhite	1.068428	.1840839	0.38	0.701	.762234 1.497623
householdsize	.9266209	.0395594	-1.79	0.074	.8522411 1.007492
SES	.8195417	.0403474	-4.04	0.000	.7441576 .9025622
LE8_TOTALSCORE	.9989215	.0003555	-3.03	0.002	.9982249 .9996185

-> Model for the mediator

Iteration 0: Log likelihood = -51603.397  
 Iteration 1: Log likelihood = -51603.397

Linear regression (Maximum Likelihood)  
 Number of obs = 36,540  
 Wald chi2(7) = 491.51  
 Log likelihood = -51603.397 Prob > chi2 = 0.0000

zcpxml	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	.0220678	.0151777	1.45	0.146	-.0076799 .0518156
AGE	.0037891	.0009898	3.83	0.000	.0018492 .0057291
SEX	.0844427	.0105052	8.42	0.000	.0678528 .1090325
NonWhite	-.1051241	.0251777	-4.18	0.000	-.1544715 -.0557767
householdsize	-.0167332	.0047834	-3.50	0.000	-.0261086 -.0073579
SES	-.0418703	.0078858	-5.31	0.000	-.0573263 -.0264144
LE8_TOTALSCORE	-.0009175	.0000559	-16.40	0.000	-.0010272 -.0008079
_cons	.1316497	.0715733	1.84	0.066	-.0086313 .2719308
<b>sigma2</b>					
_cons	.9867002	.0072999	135.17	0.000	.9723927 1.001008

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.259907	.1613671	7.81	0.000	.9436331 1.576181
ereri_cde	1.212699	.1592653	7.61	0.000	.9005444 1.524853
ereri_intref	.0590109	.0326899	1.81	0.071	-.0050601 .1230819
ereri_intmed	-.0098381	.0075205	-1.31	0.191	-.024578 .0049018
ereri_pie	-.0019647	.0015935	-1.23	0.218	-.005088 .0011585

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zcr2
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04645 2.216 -.0751 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9132.7834**  
 Iteration 1: Log likelihood = **-9046.0685**  
 Iteration 2: Log likelihood = **-9036.8753**  
 Iteration 3: Log likelihood = **-9036.8371**  
 Iteration 4: Log likelihood = **-9036.8371**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-9036.8371**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,596</b>	Number of obs =	<b>36,596</b>
No. of failures =	<b>975</b>		
Time at risk =	<b>444,571.57</b>	LR chi2(9) =	<b>191.89</b>
Log likelihood =	<b>-9036.8371</b>	Prob > chi2 =	<b>0.0000</b>

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.241958</b>	.1600646	<b>11.31</b>	<b>0.000</b>	<b>1.949198</b> <b>2.57869</b>
zcr2	<b>1.027945</b>	.0393776	<b>0.72</b>	<b>0.472</b>	<b>.9535922</b> <b>1.108095</b>
_infectionburXzcr2_000	<b>1.023304</b>	.0685109	<b>0.34</b>	<b>0.731</b>	<b>.8974618</b> <b>1.166791</b>
AGE	<b>1.034016</b>	.0130038	<b>2.66</b>	<b>0.008</b>	<b>1.00884</b> <b>1.059819</b>
SEX	<b>.7586684</b>	.0492784	<b>-4.25</b>	<b>0.000</b>	<b>.6679796</b> <b>.8616696</b>
NonWhite	<b>1.089809</b>	.1853103	<b>0.51</b>	<b>0.613</b>	<b>.7809314</b> <b>1.520856</b>
householdszie	<b>.9354264</b>	.039459	<b>-1.58</b>	<b>0.114</b>	<b>.8611988</b> <b>1.016052</b>
SES	<b>.8275842</b>	.0407948	<b>-3.84</b>	<b>0.000</b>	<b>.7513688</b> <b>.9115304</b>
LE8_TOTALSCORE	<b>.9990882</b>	.0003548	<b>-2.57</b>	<b>0.010</b>	<b>.9983931</b> <b>.9997837</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-51669.86**  
 Iteration 1: Log likelihood = **-51669.86**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,596</b>
	Wald chi2(7) =	<b>517.86</b>
Log likelihood =	<b>-51669.86</b>	Prob > chi2 = <b>0.0000</b>

<u>zcr2</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.0459532</b>	.01516	<b>3.03</b>	<b>0.002</b>	<b>.0162403</b> <b>.0756662</b>
AGE	<b>-.0160873</b>	.0009887	<b>-16.27</b>	<b>0.000</b>	<b>-.0180251</b> <b>-.0141496</b>
SEX	<b>.0915227</b>	.0104934	<b>8.72</b>	<b>0.000</b>	<b>.070956</b> <b>.1120894</b>
NonWhite	<b>.0698269</b>	.0251331	<b>2.78</b>	<b>0.005</b>	<b>.020567</b> <b>.1190868</b>
householdszie	<b>.0014641</b>	.0047809	<b>0.31</b>	<b>0.759</b>	<b>-.0079063</b> <b>.0108345</b>
SES	<b>-.021594</b>	.0078773	<b>-2.74</b>	<b>0.006</b>	<b>-.0370333</b> <b>-.0061547</b>
LE8_TOTALSCORE	<b>-.0005941</b>	.000056	<b>-10.61</b>	<b>0.000</b>	<b>-.0007038</b> <b>-.0004844</b>
_cons	<b>1.111076</b>	.0714627	<b>15.55</b>	<b>0.000</b>	<b>.9710114</b> <b>1.25114</b>
<b>sigma2</b>					
_cons	<b>.9860198</b>	.0072893	<b>135.27</b>	<b>0.000</b>	<b>.9717331</b> <b>1.000307</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.248843</b>	.1606292	7.77	<b>0.000</b>	.9340154 1.56367
ereri_cde	<b>1.241711</b>	.1600682	7.76	<b>0.000</b>	.9279836 1.555439
ereri_intref	<b>.0019087</b>	.0054501	0.35	<b>0.726</b>	-.0087733 .0125906
ereri_intmed	<b>.0039554</b>	.0061069	0.65	<b>0.517</b>	-.0080139 .0159247
ereri_pie	<b>.0012673</b>	.0018115	0.70	<b>0.484</b>	-.0022832 .0048179

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zcracr2a
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04669 2.217 -.07551 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -8882.1967

Iteration 1: Log likelihood = -8797.2924

Iteration 2: Log likelihood = -8788.8108

Iteration 3: Log likelihood = -8788.7827

Iteration 4: Log likelihood = -8788.7827

Refining estimates:

Iteration 0: Log likelihood = -8788.7827

Cox regression with Breslow method for ties

No. of subjects = 35,573 Number of obs = 35,573

No. of failures = 951

Time at risk = 432,088.637

LR chi2(9) = 186.83

Log likelihood = -8788.7827

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.250088	.1625882	11.22	0.000	1.952958 2.592425
zcracr2a		.9864573	.0389167	-0.35	0.730	.9130563 1.065759
_infectionburXzcracr2a_000		1.046532	.0753414	0.63	0.528	.9088109 1.205125
AGE		1.037613	.0132008	2.90	0.004	1.01206 1.063812
SEX		.7461293	.0490915	-4.45	0.000	.6558573 .8488263
NonWhite		1.107624	.1886117	0.60	0.548	.7933147 1.546462
householdsize		.9395164	.0396515	-1.48	0.139	.8649284 1.020537
SES		.8289865	.0413482	-3.76	0.000	.7517807 .9141211
LE8_TOTALSCORE		.9992253	.0003593	-2.16	0.031	.9985213 .9999298

-> Model for the mediator

Iteration 0: Log likelihood = **-50359.449**  
 Iteration 1: Log likelihood = **-50359.449**

Linear regression (Maximum Likelihood) Number of obs = 35,573  
 Wald chi2(7) = 232.66  
 Prob > chi2 = 0.0000  
 Log likelihood = **-50359.449**

	zcracr2a	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.016544	.01544	1.07	0.284	-.0137178 .0468058
AGE		-.0017894	.0010068	-1.78	0.076	-.0037627 .0001839
SEX		.043425	.0106836	4.06	0.000	.0224855 .0643646
NonWhite		.1671949	.0255329	6.55	0.000	.1171513 .2172385
householdsize		-.002993	.0048625	-0.62	0.538	-.0125234 .0065373
SES		-.0189181	.008013	-2.36	0.018	-.0346234 -.0032129
LE8_TOTALSCORE		-.0006571	.0000569	-11.55	0.000	-.0007686 -.0005455
_cons		.3652686	.0727635	5.02	0.000	.2226548 .5078824
<b>sigma2</b>						
_cons		.9934742	.0074492	133.37	0.000	.978874 1.008074

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.251966	.1626475	7.70	0.000	.9331825 1.570749
ereri_cde	1.249934	.1625527	7.69	0.000	.9313363 1.568531
ereri_intref	.0008457	.0040677	0.21	0.835	-.0071268 .0088183
ereri_intmed	.0014118	.0026868	0.53	0.599	-.0038543 .0066778
ereri_pie	-.0002256	.0006856	-0.33	0.742	-.0015694 .0011183

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zcradd  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.17 1.531 .04636 2.216 -.07448 500.7

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -8964.5425  
 Iteration 1: Log likelihood = -8871.7308  
 Iteration 2: Log likelihood = -8863.9013  
 Iteration 3: Log likelihood = -8863.8805  
 Iteration 4: Log likelihood = -8863.8805  
 Refining estimates:  
 Iteration 0: Log likelihood = -8863.8805

Cox regression with Breslow method for ties

No. of subjects =	36,107	Number of obs =	36,107
No. of failures =	958		
Time at risk =	438,744.714	LR chi2(9) =	201.32
Log likelihood =	-8863.8805	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.213782	.1601725	10.98	0.000	1.921093 2.551064
zcradd	.9027834	.0349772	-2.64	0.008	.8367676 .9740076
_infectionburXzcradd_000	1.055434	.0764627	0.74	0.456	.9157236 1.21646
AGE	1.038882	.0131462	3.01	0.003	1.013433 1.064971
SEX	.7389445	.0484204	-4.62	0.000	.6498838 .8402103
NonWhite	1.016376	.1774748	0.09	0.926	.7218075 1.431157
householdsize	.9438618	.039406	-1.38	0.166	.869703 1.024344
SES	.8109449	.0402037	-4.23	0.000	.7358544 .893698
LE8_TOTALSCORE	.998955	.0003571	-2.92	0.003	.9982553 .9996552

-> Model for the mediator

Iteration 0: Log likelihood = -51138.486  
 Iteration 1: Log likelihood = -51138.486

Linear regression (Maximum Likelihood)

Number of obs =	36,107
Wald chi2(7) =	189.75
Prob > chi2 =	0.0000

Log likelihood = -51138.486

	zcradd	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		-.0307996	.0153259	-2.01	0.044	-.0608378 -.0007614
AGE		-.0004893	.0010031	-0.49	0.626	-.0024553 .0014767
SEX		.0029998	.0106117	0.28	0.777	-.0177987 .0237983
NonWhite		-.0068845	.0254569	-0.27	0.787	-.0567791 .04301
householdsize		-.0013847	.0050318	-0.28	0.783	-.0112469 .0084776
SES		-.0067377	.0079785	-0.84	0.398	-.0223753 .0088998
LE8_TOTALSCORE		-.0007478	.0000565	-13.24	0.000	-.0008585 -.0006371
_cons		.4064023	.0726985	5.59	0.000	.2639158 .5488888
<b>sigma2</b>						
_cons		.9947447	.0074034	134.36	0.000	.9802343 1.009255

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.208647	.1592717	7.59	0.000	.8964804 1.520814
ereri_cde	1.208012	.1592408	7.59	0.000	.8959057 1.520118
ereri_intref	-.0026493	.0069989	-0.38	0.705	-.0163669 .0110683
ereri_intmed	.0001297	.0043374	0.03	0.976	-.0083715 .0086308
ereri_pie	.0031549	.0019762	1.60	0.110	-.0007183 .0070282

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zcreg1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04638 2.217 -.07524 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8897.7345**  
 Iteration 1: Log likelihood = **-8806.0227**  
 Iteration 2: Log likelihood = **-8796.7617**  
 Iteration 3: Log likelihood = **-8796.7313**  
 Iteration 4: Log likelihood = **-8796.7313**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8796.7313**

Cox regression with Breslow method for ties

No. of subjects =	<b>35,962</b>	Number of obs =	<b>35,962</b>
No. of failures =	<b>952</b>		
Time at risk =	<b>436,943.236</b>	LR chi2(9) =	<b>202.01</b>
Log likelihood =	<b>-8796.7313</b>	Prob > chi2 =	<b>0.0000</b>

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.272771</b>	.163632	<b>11.40</b>	<b>0.000</b>	<b>1.973658</b> <b>2.617215</b>
zcreg1	<b>.9045335</b>	.036663	<b>-2.48</b>	<b>0.013</b>	<b>.8354555</b> <b>.979323</b>
_infectionburXzcreg1_000	<b>1.01595</b>	.0724056	<b>0.22</b>	<b>0.824</b>	<b>.8835032</b> <b>1.168252</b>
AGE	<b>1.033631</b>	.0131643	<b>2.60</b>	<b>0.009</b>	<b>1.008148</b> <b>1.059757</b>
SEX	<b>.7624636</b>	.050115	<b>-4.13</b>	<b>0.000</b>	<b>.6703037</b> <b>.8672945</b>
NonWhite	<b>1.037912</b>	.181424	<b>0.21</b>	<b>0.831</b>	<b>.7368392</b> <b>1.462002</b>
householdszie	<b>.9287999</b>	.0400662	<b>-1.71</b>	<b>0.087</b>	<b>.8534996</b> <b>1.010744</b>
SES	<b>.8081542</b>	.0402762	<b>-4.27</b>	<b>0.000</b>	<b>.7329472</b> <b>.8910781</b>
LE8_TOTALSCORE	<b>.9988113</b>	.0003659	<b>-3.25</b>	<b>0.001</b>	<b>.9980943</b> <b>.9995287</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-49815.653**  
 Iteration 1: Log likelihood = **-49815.653**

Linear regression (Maximum Likelihood)	Number of obs =	<b>35,962</b>	
	Wald chi2(7) =	<b>2506.95</b>	
Log likelihood =	<b>-49815.653</b>	Prob > chi2 =	<b>0.0000</b>

<u>zcreg1</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.0506988</b>	.0148722	<b>3.41</b>	<b>0.001</b>	<b>.0215498</b> <b>.0798477</b>
AGE	<b>.0042823</b>	.0009708	<b>4.41</b>	<b>0.000</b>	<b>.0023796</b> <b>.006185</b>
SEX	<b>-.1511774</b>	.0103067	<b>-14.67</b>	<b>0.000</b>	<b>-.1713782</b> <b>-.1309765</b>
NonWhite	<b>-.2117476</b>	.0247126	<b>-8.57</b>	<b>0.000</b>	<b>-.2601834</b> <b>-.1633118</b>
householdszie	<b>-.0079962</b>	.0046871	<b>-1.71</b>	<b>0.088</b>	<b>-.0171828</b> <b>.0011904</b>
SES	<b>-.0615226</b>	.0077381	<b>-7.95</b>	<b>0.000</b>	<b>-.0766891</b> <b>-.0463562</b>
LE8_TOTALSCORE	<b>-.0022789</b>	.0000549	<b>-41.51</b>	<b>0.000</b>	<b>-.0023865</b> <b>-.0021713</b>
_cons	<b>1.130301</b>	.0701963	<b>16.10</b>	<b>0.000</b>	<b>.992719</b> <b>1.267884</b>
<b>sigma2</b>					
_cons	<b>.9348058</b>	.0069713	<b>134.09</b>	<b>0.000</b>	<b>.9211423</b> <b>.9484694</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.259709</b>	.1631321	7.72	<b>0.000</b>	.9399765 1.579442
ereri_cde	<b>1.2659</b>	.1628251	7.77	<b>0.000</b>	.9467682 1.585031
ereri_intref	<b>.0035127</b>	.0122804	0.29	<b>0.775</b>	-.0205565 .0275818
ereri_intmed	<b>-.0046288</b>	.0073084	-0.63	<b>0.526</b>	-.0189531 .0096954
ereri_pie	<b>-.005074</b>	.0025267	-2.01	<b>0.045</b>	-.0100262 -.0001217

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zcreld2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04634 2.216 -.07461 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9114.2295

Iteration 1: Log likelihood = -9025.0884

Iteration 2: Log likelihood = -9016.6818

Iteration 3: Log likelihood = -9016.6574

Iteration 4: Log likelihood = -9016.6574

Refining estimates:

Iteration 0: Log likelihood = -9016.6574

Cox regression with Breslow method for ties

No. of subjects = 36,537

Number of obs = 36,537

No. of failures = 973

Time at risk = 443,808.024

LR chi2(9) = 195.14

Log likelihood = -9016.6574 Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.241915	.1602973	11.29	0.000	1.948759 2.579172
zcreld2		.9277785	.0366053	-1.90	0.057	.8587373 1.002371
_infectionburXzcreld2_000		.9985303	.071579	-0.02	0.984	.8676477 1.149156
AGE		1.0366	.0130259	2.86	0.004	1.011382 1.062448
SEX		.7552082	.0490664	-4.32	0.000	.664911 .8577681
NonWhite		1.087908	.1851744	0.50	0.621	.7793057 1.518715
householdszie		.9371164	.0392897	-1.55	0.121	.8631891 1.017375
SES		.8237658	.0406131	-3.93	0.000	.7478904 .9073389
LE8_TOTALSCORE		.9989193	.0003577	-3.02	0.003	.9982184 .9996207

-> Model for the mediator

Iteration 0: Log likelihood = -51260.51  
 Iteration 1: Log likelihood = -51260.51

Linear regression (Maximum Likelihood) Number of obs = 36,537  
 Wald chi2(7) = 1184.28  
 Log likelihood = -51260.51 Prob > chi2 = 0.0000

	zcreld2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.0811442	.0150241	5.40	0.000	.0516975 .1105909
AGE		.0047874	.0009805	4.88	0.000	.0028656 .0067091
SEX		-.0728728	.0104099	-7.00	0.000	-.0932759 -.0524697
NonWhite		-.0756548	.0249592	-3.03	0.002	-.1245738 -.0267357
householdszie		.0043027	.0047386	0.91	0.364	-.0049847 .0135901
SES		-.0763958	.0078141	-9.78	0.000	-.0917113 -.0610804
LE8_TOTALSCORE		-.0014898	.0000554	-26.87	0.000	-.0015984 -.0013811
_cons		.5461448	.0708386	7.71	0.000	.4073038 .6849858
<b>sigma2</b>						
_cons		.9685779	.0071661	135.16	0.000	.9545326 .9826232

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.228331	.1594649	7.70	0.000	.9157856 1.540877
ereri_cde	1.237494	.1597415	7.75	0.000	.924406 1.550581
ereri_intref	.0047007	.0120121	0.39	0.696	-.0188427 .0282441
ereri_intmed	-.007799	.011565	-0.67	0.500	-.030466 .0148681
ereri_pie	-.0060643	.0033733	-1.80	0.072	-.0126758 .0005472

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdszie SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zcrh  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.19 1.531 .04653 2.216 -.07568 500.6

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -8872.7424  
 Iteration 1: Log likelihood = -8787.1885  
 Iteration 2: Log likelihood = -8778.9612  
 Iteration 3: Log likelihood = -8778.9414  
 Iteration 4: Log likelihood = -8778.9414  
 Refining estimates:  
 Iteration 0: Log likelihood = -8778.9414

Cox regression with Breslow method for ties

No. of subjects =	35,507	Number of obs =	35,507
No. of failures =	950		
Time at risk =	431,305.322	LR chi2(9) =	187.60
Log likelihood =	-8778.9414	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.259458	.1635638	11.26	0.000	1.960583 2.603895
zcrh	.9864005	.0388709	-0.35	0.728	.9130827 1.065605
_infectionburXzcrh_000	1.024574	.0723499	0.34	0.731	.8921463 1.176659
AGE	1.03749	.0131947	2.89	0.004	1.011948 1.063676
SEX	.7442058	.0493687	-4.45	0.000	.6534712 .8475388
NonWhite	1.112177	.1893979	0.62	0.532	.7965606 1.552848
householdsize	.9391546	.0396626	-1.49	0.137	.8645477 1.0202
SES	.828995	.0413584	-3.76	0.000	.7517712 .9141515
LE8_TOTALSCORE	.9992389	.0003608	-2.11	0.035	.998532 .9999463

-> Model for the mediator

Iteration 0: Log likelihood = -49955.15  
 Iteration 1: Log likelihood = -49955.15

Linear regression (Maximum Likelihood)  
 Number of obs = 35,507  
 Wald chi2(7) = 863.53  
 Log likelihood = -49955.15 Prob > chi2 = 0.0000

	zcrh	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>-.0869111</b>	.0153255	-5.67	<b>0.000</b>	<b>-.1169486</b> -.0568736
AGE		<b>-.0003492</b>	.0009989	-0.35	<b>0.727</b>	<b>-.0023071</b> .0016086
SEX		<b>.1186301</b>	.0106003	11.19	<b>0.000</b>	<b>.097854</b> .1394063
NonWhite		<b>-.290679</b>	.0253721	-11.46	<b>0.000</b>	<b>-.3404074</b> -.2409506
householdsize		<b>.0008147</b>	.0048243	0.17	<b>0.866</b>	<b>-.0086407</b> .0102701
SES		<b>.0149074</b>	.0079506	1.87	<b>0.061</b>	<b>-.0006755</b> .0304904
LE8_TOTALSCORE		<b>.0011738</b>	.0000565	20.79	<b>0.000</b>	<b>.0010632</b> .0012845
_cons		<b>-.723312</b>	.0721863	-10.02	<b>0.000</b>	<b>-.8647945</b> -.5818295
<b>sigma2</b>						
_cons		<b>.9762298</b>	.0073267	133.24	<b>0.000</b>	<b>.9618697</b> .9905899

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.257957</b>	.1631141	7.71	<b>0.000</b>	<b>.9382595</b> 1.577655
ereri_cde	<b>1.25955</b>	.1635743	7.70	<b>0.000</b>	<b>.9389506</b> 1.58015
ereri_intref	<b>.0004848</b>	.0030007	0.16	<b>0.872</b>	<b>-.0053965</b> .0063661
ereri_intmed	<b>-.0032688</b>	.0120841	-0.27	<b>0.787</b>	<b>-.0269531</b> .0204156
ereri_pie	<b>.0011908</b>	.0034354	0.35	<b>0.729</b>	<b>-.0055425</b> .007924

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zcrhbp
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.532 .04636 2.216 -.0746 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9073.1164**  
 Iteration 1: Log likelihood = **-8984.5858**  
 Iteration 2: Log likelihood = **-8976.5189**  
 Iteration 3: Log likelihood = **-8976.5021**  
 Iteration 4: Log likelihood = **-8976.5021**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8976.5021**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,432</b>	Number of obs =	<b>36,432</b>
No. of failures =	<b>969</b>		
Time at risk =	<b>442,512.06</b>	LR chi2(9) =	<b>193.23</b>
Log likelihood =	<b>-8976.5021</b>	Prob > chi2 =	<b>0.0000</b>

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.243065</b>	.1616799	<b>11.21</b>	<b>0.000</b>	<b>1.947544</b> <b>2.583428</b>
zcrhbp	<b>.9363958</b>	.0373656	<b>-1.65</b>	<b>0.100</b>	<b>.8659511</b> <b>1.012571</b>
_infectionburXzcrhbp_000	<b>1.013965</b>	.0712531	<b>0.20</b>	<b>0.844</b>	<b>.8835021</b> <b>1.163693</b>
AGE	<b>1.03646</b>	.0130569	<b>2.84</b>	<b>0.004</b>	<b>1.011182</b> <b>1.06237</b>
SEX	<b>.748518</b>	.0489081	<b>-4.43</b>	<b>0.000</b>	<b>.658544</b> <b>.8507846</b>
NonWhite	<b>1.084722</b>	.1847274	<b>0.48</b>	<b>0.633</b>	<b>.77689</b> <b>1.514529</b>
householdszie	<b>.9389399</b>	.0392967	<b>-1.51</b>	<b>0.132</b>	<b>.864994</b> <b>1.019207</b>
SES	<b>.8224037</b>	.0406485	<b>-3.96</b>	<b>0.000</b>	<b>.7464715</b> <b>.9060599</b>
LE8_TOTALSCORE	<b>.9989002</b>	.0003629	<b>-3.03</b>	<b>0.002</b>	<b>.9981892</b> <b>.9996117</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50035.383**  
 Iteration 1: Log likelihood = **-50035.383**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,432</b>
	Wald chi2(7) =	<b>3473.53</b>
Log likelihood =	<b>-50035.383</b>	Prob > chi2 = <b>0.0000</b>

<u>zcrhbp</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.0898157</b>	.0146142	<b>6.15</b>	<b>0.000</b>	<b>.0611723</b> <b>.1184591</b>
AGE	<b>.0128632</b>	.0009533	<b>13.49</b>	<b>0.000</b>	<b>.0109947</b> <b>.0147317</b>
SEX	<b>-.1982603</b>	.0101208	<b>-19.59</b>	<b>0.000</b>	<b>-.2180968</b> <b>-.1784239</b>
NonWhite	<b>-.1865022</b>	.024261	<b>-7.69</b>	<b>0.000</b>	<b>-.2340529</b> <b>-.1389515</b>
householdszie	<b>.0058193</b>	.0046047	<b>1.26</b>	<b>0.206</b>	<b>-.0032057</b> <b>.0148444</b>
SES	<b>-.1049183</b>	.0075966	<b>-13.81</b>	<b>0.000</b>	<b>-.1198074</b> <b>-.0900293</b>
LE8_TOTALSCORE	<b>-.0023504</b>	.0000539	<b>-43.59</b>	<b>0.000</b>	<b>-.0024561</b> <b>-.0022448</b>
_cons	<b>.6813332</b>	.0688797	<b>9.89</b>	<b>0.000</b>	<b>.5463314</b> <b>.8163349</b>
<b>sigma2</b>					
_cons	<b>.912931</b>	.0067641	<b>134.97</b>	<b>0.000</b>	<b>.8996736</b> <b>.9261885</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.230596</b>	.1607291	7.66	<b>0.000</b>	.9155732 1.54562
ereri_cde	<b>1.2396</b>	.1613734	7.68	<b>0.000</b>	.9233141 1.555886
ereri_intref	<b>.001408</b>	.0083872	0.17	<b>0.867</b>	-.0150307 .0178467
ereri_intmed	<b>-.0045267</b>	.0124214	-0.36	<b>0.716</b>	-.0288721 .0198188
ereri_pie	<b>-.005885</b>	.0036886	-1.60	<b>0.111</b>	-.0131145 .0013445

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zcrhr1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04648 2.218 -.07459 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8905.4114**

Iteration 1: Log likelihood = **-8821.4859**

Iteration 2: Log likelihood = **-8814.0358**

Iteration 3: Log likelihood = **-8814.0165**

Iteration 4: Log likelihood = **-8814.0164**

Refining estimates:

Iteration 0: Log likelihood = **-8814.0164**

Cox regression with Breslow method for ties

No. of subjects = 35,755	Number of obs = 35,755
No. of failures = 953	
Time at risk = 434,342.674	LR chi2(9) = 182.79
Log likelihood = -8814.0164	Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.198762	.1594965	10.86	0.000	1.90736 2.534683
zcrhr1	1.028609	.0381346	0.76	0.447	.9565179 1.106134
_infectionburXzcrhr1_000	.9971901	.0718312	-0.04	0.969	.8658902 1.1484
AGE	1.037214	.0131757	2.88	0.004	1.011709 1.063362
SEX	.7513982	.0493807	-4.35	0.000	.6605877 .8546923
NonWhite	1.11533	.1897419	0.64	0.521	.7990895 1.556723
householdszie	.9386359	.0396594	-1.50	0.134	.8640364 1.019676
SES	.8341104	.0414946	-3.65	0.000	.7566216 .9195352
LE8_TOTALSCORE	.9989956	.000358	-2.80	0.005	.9982942 .9996975

-> Model for the mediator

Iteration 0: Log likelihood = **-50721.487**  
 Iteration 1: Log likelihood = **-50721.487**

Linear regression (Maximum Likelihood) Number of obs = 35,755  
 Wald chi2(7) = 24.33  
 Log likelihood = **-50721.487** Prob > chi2 = 0.0010

	zcrhr1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		-.0377138	.015434	-2.44	0.015	-.0679639 -.0074638
AGE		-.0022395	.0010074	-2.22	0.026	-.0042139 -.0002651
SEX		.0323289	.0106876	3.02	0.002	.0113815 .0532763
NonWhite		-.0266765	.0255917	-1.04	0.297	-.0768354 .0234824
householdszie		-.0009855	.0048737	-0.20	0.840	-.0105379 .0085668
SES		.0061515	.0080254	0.77	0.443	-.009578 .0218809
LE8_TOTALSCORE		-.0000411	.0000569	-0.72	0.471	-.0001527 .0000706
_cons		.1149528	.0728336	1.58	0.114	-.0277985 .2577041
<b>sigma2</b>						
_cons		.9992921	.0074738	133.71	0.000	.9846438 1.01394

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.196459	.1593196	7.51	0.000	.8841985 1.50872
ereri_cde	1.198108	.1593992	7.52	0.000	.8856917 1.510525
ereri_intref	.0004554	.0043416	0.10	0.916	-.0080541 .0089648
ereri_intmed	-.0010413	.0053281	-0.20	0.845	-.0114841 .0094015
ereri_pie	-.0010633	.0014629	-0.73	0.467	-.0039304 .0018039

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdszie SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zcrim1  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.18 1.531 .04635 2.216 -.07488 500.5

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9125.8833  
 Iteration 1: Log likelihood = -9039.0367  
 Iteration 2: Log likelihood = -9026.8797  
 Iteration 3: Log likelihood = -9026.7221  
 Iteration 4: Log likelihood = -9026.722  
 Refining estimates:  
 Iteration 0: Log likelihood = -9026.722

Cox regression with Breslow method for ties

No. of subjects = 36,595	Number of obs = 36,595
No. of failures = 974	
Time at risk = 444,506.48	
Log likelihood = -9026.722	LR chi2(9) = 198.32
	Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.206756	.1656266	10.55	0.000	1.904881 2.55647
zcrim1	1.09064	.0427963	2.21	0.027	1.009905 1.177829
_infectionburXzcrim1_000	1.005049	.0671385	0.08	0.940	.8817101 1.145641
AGE	1.03154	.013031	2.46	0.014	1.006314 1.057399
SEX	.7513089	.0488267	-4.40	0.000	.6614544 .8533696
NonWhite	1.084186	.1845694	0.47	0.635	.7765996 1.513598
householdsize	.9379261	.0392826	-1.53	0.126	.8640089 1.018167
SES	.8357316	.0412897	-3.63	0.000	.7586 .9207057
LE8_TOTALSCORE	.9990593	.0003532	-2.66	0.008	.9983673 .9997518

-> Model for the mediator

Iteration 0: Log likelihood = -50919.511  
 Iteration 1: Log likelihood = -50919.511

Linear regression (Maximum Likelihood)  
 Number of obs = 36,595  
 Wald chi2(7) = 2068.43  
 Prob > chi2 = 0.0000  
 Log likelihood = -50919.511

	zcrim1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.1841214	.01484	12.41	0.000	.1550356 .2132072
AGE		.0334705	.0009685	34.56	0.000	.0315723 .0353688
SEX		.1130783	.0102824	11.00	0.000	.0929251 .1332314
NonWhite		.0643111	.0246521	2.61	0.009	.0159939 .1126283
householdsize		-.0010142	.0046816	-0.22	0.828	-.01019 .0081616
SES		-.1097585	.0077179	-14.22	0.000	-.1248853 -.0946318
LE8_TOTALSCORE		-.0000351	.0000548	-0.64	0.522	-.0001424 .0000723
_cons		-2.20458	.0699555	-31.51	0.000	-2.34169 -2.06747
<b>sigma2</b>						
_cons		.9464757	.006997	135.27	0.000	.9327618 .9601896

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.245038	.1620547	7.68	0.000	.9274171 1.56266
ereri_cde	1.205137	.1651158	7.30	0.000	.8815158 1.528758
ereri_intref	.0022736	.0076341	0.30	0.766	-.0126889 .0172362
ereri_intmed	.0215244	.0231404	0.93	0.352	-.0238301 .0668788
ereri_pie	.0161035	.0074569	2.16	0.031	.0014884 .0307187

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zcrip2
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.17 1.532 .0464 2.216 -.07458 500.7

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8985.4467**  
 Iteration 1: Log likelihood = **-8899.397**  
 Iteration 2: Log likelihood = **-8889.1339**  
 Iteration 3: Log likelihood = **-8888.9846**  
 Iteration 4: Log likelihood = **-8888.9844**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8888.9844**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,164</b>	Number of obs =	<b>36,164</b>
No. of failures =	<b>960</b>		
Time at risk =	<b>439,440.668</b>	LR chi2(9) =	<b>192.92</b>
Log likelihood =	<b>-8888.9844</b>	Prob > chi2 =	<b>0.0000</b>

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.175335</b>	<b>.1628508</b>	<b>10.38</b>	<b>0.000</b>	<b>1.878465</b> <b>2.519122</b>
zcrip2	<b>.9871087</b>	<b>.0399474</b>	<b>-0.32</b>	<b>0.748</b>	<b>.9118378</b> <b>1.068593</b>
_infectionburXzcrip2_000	<b>1.049873</b>	<b>.0741076</b>	<b>0.69</b>	<b>0.491</b>	<b>.9142241</b> <b>1.205648</b>
AGE	<b>1.037361</b>	<b>.0131485</b>	<b>2.89</b>	<b>0.004</b>	<b>1.011908</b> <b>1.063454</b>
SEX	<b>.7401265</b>	<b>.0488681</b>	<b>-4.56</b>	<b>0.000</b>	<b>.6502853</b> <b>.8423799</b>
NonWhite	<b>1.019084</b>	<b>.1779332</b>	<b>0.11</b>	<b>0.914</b>	<b>.7237515</b> <b>1.43493</b>
householdszie	<b>.9435718</b>	<b>.0393923</b>	<b>-1.39</b>	<b>0.164</b>	<b>.8694387</b> <b>1.024026</b>
SES	<b>.8105398</b>	<b>.0401905</b>	<b>-4.24</b>	<b>0.000</b>	<b>.7354746</b> <b>.8932664</b>
LE8_TOTALSCORE	<b>.9990309</b>	<b>.0003655</b>	<b>-2.65</b>	<b>0.008</b>	<b>.9983148</b> <b>.9997476</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-48882.573**  
 Iteration 1: Log likelihood = **-48882.573**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,164</b>
	Wald chi2(7) =	<b>5204.94</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

<u>zcrip2</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.0776255</b>	<b>.0143603</b>	<b>5.41</b>	<b>0.000</b>	<b>.0494798</b> <b>.1057713</b>
AGE	<b>.0257033</b>	<b>.0009396</b>	<b>27.36</b>	<b>0.000</b>	<b>.0238617</b> <b>.0275448</b>
SEX	<b>-.3001173</b>	<b>.0099403</b>	<b>-30.19</b>	<b>0.000</b>	<b>-.3195999</b> <b>-.2806348</b>
NonWhite	<b>.0040855</b>	<b>.0238353</b>	<b>0.17</b>	<b>0.864</b>	<b>-.0426308</b> <b>.0508019</b>
householdszie	<b>-.009024</b>	<b>.0047141</b>	<b>-1.91</b>	<b>0.056</b>	<b>-.0182635</b> <b>.0002155</b>
SES	<b>-.0782878</b>	<b>.0074722</b>	<b>-10.48</b>	<b>0.000</b>	<b>-.0929331</b> <b>-.0636424</b>
LE8_TOTALSCORE	<b>-.002531</b>	<b>.0000529</b>	<b>-47.85</b>	<b>0.000</b>	<b>-.0026347</b> <b>-.0024273</b>
_cons	<b>.183317</b>	<b>.0680969</b>	<b>2.69</b>	<b>0.007</b>	<b>.0498495</b> <b>.3167844</b>
<b>sigma2</b>					
_cons	<b>.8741581</b>	<b>.0065008</b>	<b>134.47</b>	<b>0.000</b>	<b>.8614168</b> <b>.8868995</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.181282</b>	.1608389	7.34	<b>0.000</b>	.8660436 1.49652
ereri_cde	<b>1.175084</b>	.1629186	7.21	<b>0.000</b>	.8557698 1.494399
ereri_intref	<b>.0001622</b>	.0028632	0.06	0.955	-.0054495 .005774
ereri_intmed	<b>.0070421</b>	.0104083	0.68	0.499	-.0133578 .027442
ereri_pie	<b>-.0010067</b>	.0031438	-0.32	0.749	-.0071684 .005155

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zcrisp2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04659 2.218 -.07483 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9201.1117

Iteration 1: Log likelihood = -9110.7846

Iteration 2: Log likelihood = -9102.1203

Iteration 3: Log likelihood = -9102.1012

Iteration 4: Log likelihood = -9102.1012

Refining estimates:

Iteration 0: Log likelihood = -9102.1012

Cox regression with Breslow method for ties

No. of subjects = 36,726 Number of obs = 36,726

No. of failures = 982

Time at risk = 446,105.322

Log likelihood = -9102.1012

LR chi2(9) = 198.02

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.251867	.160126	11.42	0.000	1.958914 2.58863
zcrisp2		.9428272	.0397132	-1.40	0.162	.868117 1.023967
_infectionburXzcrisp2_000		.9824077	.0652836	-0.27	0.789	.8624366 1.119068
AGE		1.034491	.0129607	2.71	0.007	1.009398 1.060208
SEX		.7085983	.0531307	-4.59	0.000	.6117543 .8207734
NonWhite		1.089373	.1853515	0.50	0.615	.7804564 1.520563
householdszie		.9319827	.039243	-1.67	0.094	.8581561 1.01216
SES		.8255385	.0405013	-3.91	0.000	.7498546 .9088613
LE8_TOTALSCORE		.9991426	.0003538	-2.42	0.015	.9984495 .9998362

-> Model for the mediator

Iteration 0: Log likelihood = **-46633.477**  
 Iteration 1: Log likelihood = **-46633.477**

Linear regression (Maximum Likelihood) Number of obs = 36,726  
 Wald chi2(7) = 12765.45  
 Prob > chi2 = 0.0000

Log likelihood = **-46633.477**

	zcrisp2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		-.0354334	.013131	-2.70	0.007	-.0611696 -.0096971
AGE		.0025961	.0008564	3.03	0.002	.0009176 .0042746
SEX		-1.007678	.0090869	-110.89	0.000	-1.025488 -.9898682
NonWhite		.178772	.0217413	8.22	0.000	.1361599 .2213841
householdszie		-.0067678	.0041374	-1.64	0.102	-.0148769 .0013413
SES		.0601664	.0068154	8.83	0.000	.0468084 .0735244
LE8_TOTALSCORE		.0007965	.0000484	16.46	0.000	.0007016 .0008913
_cons		1.003855	.0619324	16.21	0.000	.8824697 1.12524
<b>sigma2</b>						
_cons		.7420473	.005476	135.51	0.000	.7313146 .75278

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.259808	.1608189	7.83	0.000	.9446083 1.575007
ereri_cde	1.25062	.1600076	7.82	0.000	.9370106 1.564229
ereri_intref	.0030609	.0067324	0.45	0.649	-.0101344 .0162561
ereri_intmed	.0040387	.0049076	0.82	0.411	-.00555801 .0136575
ereri_pie	.0020882	.0016843	1.24	0.215	-.001213 .0053895

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdszie SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zcrkl  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.19 1.531 .04627 2.216 -.07468 500.5

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9102.7603  
 Iteration 1: Log likelihood = -9011.9012  
 Iteration 2: Log likelihood = -9003.4635  
 Iteration 3: Log likelihood = -9003.4372  
 Iteration 4: Log likelihood = -9003.4372  
 Refining estimates:  
 Iteration 0: Log likelihood = -9003.4372

Cox regression with Breslow method for ties

No. of subjects =	36,478	Number of obs =	36,478
No. of failures =	972		
Time at risk =	443,081.494	LR chi2(9) =	198.65
Log likelihood =	-9003.4372	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.242046	.1608581	11.25	0.000	1.947934 2.580566
zcrkl	.9034628	.0344747	-2.66	0.008	.8383585 .9736228
_infectionburXzcrkl_000	1.038588	.074475	0.53	0.597	.902413 1.195312
AGE	1.036073	.0130175	2.82	0.005	1.01087 1.061903
SEX	.7591308	.0493352	-4.24	0.000	.6683405 .8622544
NonWhite	1.092567	.1859072	0.52	0.603	.7827279 1.525055
householdsize	.9383539	.0392502	-1.52	0.128	.864494 1.018524
SES	.8238914	.0406191	-3.93	0.000	.7480048 .9074767
LE8_TOTALSCORE	.9989575	.0003552	-2.93	0.003	.9982615 .999654

-> Model for the mediator

Iteration 0: Log likelihood = -51620.044  
 Iteration 1: Log likelihood = -51620.044

Linear regression (Maximum Likelihood)  
 Number of obs = 36,478  
 Wald chi2(7) = 280.06  
 Log likelihood = -51620.044 Prob > chi2 = 0.0000

	zcrkl	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>-.0127257</b>	<b>.0152185</b>	<b>-0.84</b>	<b>0.403</b>	<b>-.0425533 .017102</b>
AGE		<b>-.002092</b>	<b>.0009933</b>	<b>-2.11</b>	<b>0.035</b>	<b>-.0040388 -.0001453</b>
SEX		<b>-.0212599</b>	<b>.0105454</b>	<b>-2.02</b>	<b>0.044</b>	<b>-.0419285 -.0005913</b>
NonWhite		<b>.0116028</b>	<b>.025299</b>	<b>0.46</b>	<b>0.647</b>	<b>-.0379824 .061188</b>
householdsize		<b>-.0013331</b>	<b>.0047989</b>	<b>-0.28</b>	<b>0.781</b>	<b>-.0107387 .0080726</b>
SES		<b>-.0171786</b>	<b>.0079177</b>	<b>-2.17</b>	<b>0.030</b>	<b>-.0326971 -.0016602</b>
LE8_TOTALSCORE		<b>-.0008637</b>	<b>.0000562</b>	<b>-15.37</b>	<b>0.000</b>	<b>-.0009739 -.0007536</b>
_cons		<b>.5936836</b>	<b>.0717555</b>	<b>8.27</b>	<b>0.000</b>	<b>.4530454 .7343219</b>
<b>sigma2</b>						
_cons		<b>.9923538</b>	<b>.0073479</b>	<b>135.05</b>	<b>0.000</b>	<b>.977952 1.006755</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.237061</b>	<b>.1599545</b>	<b>7.73</b>	<b>0.000</b>	<b>.9235559 1.550566</b>
ereri_cde	<b>1.235933</b>	<b>.1598753</b>	<b>7.73</b>	<b>0.000</b>	<b>.9225829 1.549283</b>
ereri_intref	<b>-.0006834</b>	<b>.0091364</b>	<b>-0.07</b>	<b>0.940</b>	<b>-.0185905 .0172237</b>
ereri_intmed	<b>.0005187</b>	<b>.0019048</b>	<b>0.27</b>	<b>0.785</b>	<b>-.0032146 .0042521</b>
ereri_pie	<b>.0012928</b>	<b>.0016216</b>	<b>0.80</b>	<b>0.425</b>	<b>-.0018855 .004471</b>

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zcrlf1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04635 2.216 -.07488 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9125.8833**  
 Iteration 1: Log likelihood = **-9039.1549**  
 Iteration 2: Log likelihood = **-9030.444**  
 Iteration 3: Log likelihood = **-9030.4152**  
 Iteration 4: Log likelihood = **-9030.4152**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-9030.4152**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,595</b>	Number of obs =	<b>36,595</b>
No. of failures =	<b>974</b>		
Time at risk =	<b>444,506.48</b>	LR chi2(9) =	<b>190.94</b>
Log likelihood =	<b>-9030.4152</b>	Prob > chi2 =	<b>0.0000</b>

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.239827</b>	.1599229	<b>11.29</b>	<b>0.000</b>	<b>1.947328</b> <b>2.576262</b>
zcrlf1	<b>.9861459</b>	.0393589	<b>-0.35</b>	<b>0.727</b>	<b>.911944</b> <b>1.066385</b>
_infectionburXzcrlf1_000	<b>1.012497</b>	.0713707	<b>0.18</b>	<b>0.860</b>	<b>.8818459</b> <b>1.162505</b>
AGE	<b>1.035575</b>	.0130006	<b>2.78</b>	<b>0.005</b>	<b>1.010405</b> <b>1.061371</b>
SEX	<b>.7544539</b>	.0503877	<b>-4.22</b>	<b>0.000</b>	<b>.6618864</b> <b>.8599672</b>
NonWhite	<b>1.091373</b>	.1857319	<b>0.51</b>	<b>0.607</b>	<b>.7818332</b> <b>1.523464</b>
householdszie	<b>.9364334</b>	.0393141	<b>-1.56</b>	<b>0.118</b>	<b>.8624641</b> <b>1.016747</b>
SES	<b>.8283341</b>	.0408015	<b>-3.82</b>	<b>0.000</b>	<b>.7521035</b> <b>.9122911</b>
LE8_TOTALSCORE	<b>.9990223</b>	.0003598	<b>-2.72</b>	<b>0.007</b>	<b>.9983173</b> <b>.9997278</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50387.297**  
 Iteration 1: Log likelihood = **-50387.297**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,595</b>
	Wald chi2(7) =	<b>3209.54</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

<u>zcrlf1</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.0554112</b>	.0146257	<b>3.79</b>	<b>0.000</b>	<b>.0267454</b> <b>.0840771</b>
AGE	<b>-.0159276</b>	.0009545	<b>-16.69</b>	<b>0.000</b>	<b>-.0177984</b> <b>-.0140567</b>
SEX	<b>-.4131215</b>	.010134	<b>-40.77</b>	<b>0.000</b>	<b>-.4329837</b> <b>-.3932593</b>
NonWhite	<b>-.1192572</b>	.0242961	<b>-4.91</b>	<b>0.000</b>	<b>-.1668768</b> <b>-.0716376</b>
householdszie	<b>-.0036924</b>	.004614	<b>-0.80</b>	<b>0.424</b>	<b>-.0127358</b> <b>.0053509</b>
SES	<b>.0059886</b>	.0076065	<b>0.79</b>	<b>0.431</b>	<b>-.0089198</b> <b>.0208969</b>
LE8_TOTALSCORE	<b>-.0017473</b>	.000054	<b>-32.38</b>	<b>0.000</b>	<b>-.001853</b> <b>-.0016415</b>
_cons	<b>2.472234</b>	.0689455	<b>35.86</b>	<b>0.000</b>	<b>2.337103</b> <b>2.607364</b>
<b>sigma2</b>					
_cons	<b>.9193424</b>	.0067964	<b>135.27</b>	<b>0.000</b>	<b>.9060216</b> <b>.9326631</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.239225</b>	.1600054	7.74	<b>0.000</b>	.9256204 1.55283
ereri_cde	<b>1.239583</b>	.1598831	7.75	<b>0.000</b>	.9262181 1.552948
ereri_intref	<b>-.0001681</b>	.0014417	-0.12	0.907	-.0029937 .0026576
ereri_intmed	<b>.0005827</b>	.0076563	0.08	0.939	-.0144233 .0155888
ereri_pie	<b>-.0007727</b>	.0022192	-0.35	0.728	-.0051224 .0035769

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zcrnn
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): **cox**

Model for the mediator (mreg): **linear**

Referent exposure level (a0): **0**

Actual exposure level (a1): **1**

Mediator level for the decomposition (m): **0**

Fixed values of the covariates (c): **60.19 1.53 .04689 2.215 -.075 500.5**

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8921.1719**

Iteration 1: Log likelihood = **-8837.1519**

Iteration 2: Log likelihood = **-8829.3847**

Iteration 3: Log likelihood = **-8829.368**

Iteration 4: Log likelihood = **-8829.368**

Refining estimates:

Iteration 0: Log likelihood = **-8829.368**

Cox regression with Breslow method for ties

No. of subjects = **35,381** Number of obs = **35,381**

No. of failures = **956**

Time at risk = **429,920.153**

LR chi2(9) = **183.61**

Log likelihood = **-8829.368** Prob > chi2 = **0.0000**

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.227002</b>	.1608688	<b>11.08</b>	<b>0.000</b>	<b>1.933007</b> <b>2.56571</b>
zcrnn	<b>1.03331</b>	.0407539	<b>0.83</b>	<b>0.406</b>	<b>.9564431</b> <b>1.116354</b>
_infectionburXzcrnn_000	<b>1.025676</b>	.0718406	<b>0.36</b>	<b>0.717</b>	<b>.8941084</b> <b>1.176604</b>
AGE	<b>1.031598</b>	.013117	<b>2.45</b>	<b>0.014</b>	<b>1.006206</b> <b>1.057629</b>
SEX	<b>.7478886</b>	.0519793	<b>-4.18</b>	<b>0.000</b>	<b>.6526454</b> <b>.8570311</b>
NonWhite	<b>1.099571</b>	.1871454	<b>0.56</b>	<b>0.577</b>	<b>.7876806</b> <b>1.534958</b>
householdsize	<b>.9360824</b>	.0398718	<b>-1.55</b>	<b>0.121</b>	<b>.8611082</b> <b>1.017584</b>
SES	<b>.8171119</b>	.0406498	<b>-4.06</b>	<b>0.000</b>	<b>.7412007</b> <b>.9007977</b>
LE8_TOTALSCORE	<b>.9991063</b>	.0003572	<b>-2.50</b>	<b>0.012</b>	<b>.9984064</b> <b>.9998066</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-48139.892**  
 Iteration 1: Log likelihood = **-48139.892**

Linear regression (Maximum Likelihood)                          Number of obs = **35,381**  
     Wald chi2(7) = **4376.37**  
 Log likelihood = **-48139.892**                                      Prob > chi2 = **0.0000**

	zcrnn	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>-.0099353</b>	.0146246	<b>-0.68</b>	<b>0.497</b>	<b>-.0385989</b> <b>.0187283</b>
AGE		<b>-.0042564</b>	.0009565	<b>-4.45</b>	<b>0.000</b>	<b>-.0061311</b> <b>-.0023816</b>
SEX		<b>.6553222</b>	.0101366	<b>64.65</b>	<b>0.000</b>	<b>.6354548</b> <b>.6751897</b>
NonWhite		<b>-.1558419</b>	.0241926	<b>-6.44</b>	<b>0.000</b>	<b>-.2032586</b> <b>-.1084253</b>
householdsize		<b>-.0073434</b>	.0046836	<b>-1.57</b>	<b>0.117</b>	<b>-.016523</b> <b>.0018362</b>
SES		<b>-.0009821</b>	.0076132	<b>-0.13</b>	<b>0.897</b>	<b>-.0159037</b> <b>.0139395</b>
LE8_TOTALSCORE		<b>.000073</b>	.000054	<b>1.35</b>	<b>0.176</b>	<b>-.0000328</b> <b>.0001788</b>
_cons		<b>-.758413</b>	.0692132	<b>-10.96</b>	<b>0.000</b>	<b>-.8940684</b> <b>-.6227576</b>
<b>sigma2</b>						
_cons		<b>.8898978</b>	.0066907	<b>133.01</b>	<b>0.000</b>	<b>.8767843</b> <b>.9030113</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.228077</b>	.1612588	<b>7.62</b>	<b>0.000</b>	<b>.9120158</b> <b>1.544139</b>
ereri_cde	<b>1.22636</b>	.1608199	<b>7.63</b>	<b>0.000</b>	<b>.9111589</b> <b>1.541561</b>
ereri_intref	<b>.0030041</b>	.0071903	<b>0.42</b>	<b>0.676</b>	<b>-.0110885</b> <b>.0170968</b>
ereri_intmed	<b>-.0009614</b>	.0019744	<b>-0.49</b>	<b>0.626</b>	<b>-.0048313</b> <b>.0029084</b>
ereri_pie	<b>-.0003255</b>	.0006188	<b>-0.53</b>	<b>0.599</b>	<b>-.0015384</b> <b>.0008874</b>

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zcrtac1  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.18 1.531 .04648 2.216 -.0752 500.5

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9225.1762  
 Iteration 1: Log likelihood = -9139.0886  
 Iteration 2: Log likelihood = -9127.3491  
 Iteration 3: Log likelihood = -9127.2202  
 Iteration 4: Log likelihood = -9127.2201  
 Refining estimates:  
 Iteration 0: Log likelihood = -9127.2201

Cox regression with Breslow method for ties

No. of subjects =	36,896	Number of obs =	36,896
No. of failures =	984		
Time at risk =	448,211.761	LR chi2(9) =	195.91
Log likelihood =	-9127.2201	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.254223	.1606641	11.40	0.000	1.960332 2.592174
zcrtac1	1.036307	.0409357	0.90	0.367	.9591014 1.119727
_infectionburXzcrtac1_000	.8928142	.0609688	-1.66	0.097	.7809693 1.020677
AGE	1.034537	.0129818	2.71	0.007	1.009403 1.060296
SEX	.752479	.0497302	-4.30	0.000	.6610582 .8565427
NonWhite	1.068928	.1817506	0.39	0.695	.765981 1.491691
householdsize	.9375212	.0391561	-1.54	0.122	.8638338 1.017494
SES	.824	.0403697	-3.95	0.000	.7485569 .9070465
LE8_TOTALSCORE	.999068	.0003527	-2.64	0.008	.998377 .9997594

-> Model for the mediator

Iteration 0: Log likelihood = -50983.266  
 Iteration 1: Log likelihood = -50983.266

Linear regression (Maximum Likelihood)  
 Number of obs = 36,896  
 Wald chi2(7) = 2842.99  
 Log likelihood = -50983.266 Prob > chi2 = 0.0000

	zcrtacl	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>-.0722864</b>	<b>.0146346</b>	<b>-4.94</b>	<b>0.000</b>	<b>-.1009697</b>
AGE		<b>.0332329</b>	<b>.0009554</b>	<b>34.78</b>	<b>0.000</b>	<b>.0313603</b>
SEX		<b>.3986093</b>	<b>.0101412</b>	<b>39.31</b>	<b>0.000</b>	<b>.378733</b>
NonWhite		<b>.1892471</b>	<b>.0242849</b>	<b>7.79</b>	<b>0.000</b>	<b>.1416496</b>
householdsize		<b>.0083133</b>	<b>.0046235</b>	<b>1.80</b>	<b>0.072</b>	<b>-.0007486</b>
SES		<b>.0076844</b>	<b>.0076105</b>	<b>1.01</b>	<b>0.313</b>	<b>-.0072319</b>
LE8_TOTALSCORE		<b>.000534</b>	<b>.000054</b>	<b>9.89</b>	<b>0.000</b>	<b>.0004282</b>
_cons		<b>-2.894096</b>	<b>.0690753</b>	<b>-41.90</b>	<b>0.000</b>	<b>-3.029481</b>
<b>sigma2</b>						
_cons		<b>.9284332</b>	<b>.0068356</b>	<b>135.82</b>	<b>0.000</b>	<b>.9150357</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.269357</b>	<b>.1623507</b>	<b>7.82</b>	<b>0.000</b>	<b>.9511559</b>
ereri_cde	<b>1.253033</b>	<b>.160357</b>	<b>7.81</b>	<b>0.000</b>	<b>.9387393</b>
ereri_intref	<b>.0082595</b>	<b>.044</b>	<b>0.662</b>	<b>-.0125769</b>	<b>.0197999</b>
ereri_intmed	<b>.0152873</b>	<b>.0102402</b>	<b>1.49</b>	<b>0.135</b>	<b>-.004783</b>
ereri_pie	<b>-.0025746</b>	<b>.0028953</b>	<b>-0.89</b>	<b>0.374</b>	<b>-.0082492</b>
					<b>.0031</b>

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zcrtam
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.17 1.532 .0464 2.216 -.07458 500.7

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8985.4467**  
 Iteration 1: Log likelihood = **-8895.3119**  
 Iteration 2: Log likelihood = **-8887.6007**  
 Iteration 3: Log likelihood = **-8887.5823**  
 Iteration 4: Log likelihood = **-8887.5823**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8887.5823**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,164</b>	Number of obs =	<b>36,164</b>
No. of failures =	<b>960</b>		
Time at risk =	<b>439,440.668</b>	LR chi2(9) =	<b>195.73</b>
Log likelihood =	<b>-8887.5823</b>	Prob > chi2 =	<b>0.0000</b>

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.235147</b>	.1639931	<b>10.96</b>	<b>0.000</b>	<b>1.935768</b> <b>2.580827</b>
zcrtam	<b>1.072283</b>	.0418883	<b>1.79</b>	<b>0.074</b>	<b>.9932479</b> <b>1.157608</b>
_infectionburXzcrtam_000	<b>.9170421</b>	.0637496	<b>-1.25</b>	<b>0.213</b>	<b>.8002335</b> <b>1.050901</b>
AGE	<b>1.03582</b>	.0131373	<b>2.77</b>	<b>0.006</b>	<b>1.010389</b> <b>1.061892</b>
SEX	<b>.7310506</b>	.0482773	<b>-4.74</b>	<b>0.000</b>	<b>.6422965</b> <b>.8320689</b>
NonWhite	<b>1.027832</b>	.1795636	<b>0.16</b>	<b>0.875</b>	<b>.7298209</b> <b>1.447532</b>
householdszie	<b>.9423506</b>	.0394864	<b>-1.42</b>	<b>0.156</b>	<b>.8680514</b> <b>1.023009</b>
SES	<b>.8124346</b>	.0402631	<b>-4.19</b>	<b>0.000</b>	<b>.7372319</b> <b>.8953086</b>
LE8_TOTALSCORE	<b>.9990341</b>	.0003563	<b>-2.71</b>	<b>0.007</b>	<b>.9983359</b> <b>.9997328</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50454.565**  
 Iteration 1: Log likelihood = **-50454.565**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,164</b>
	Wald chi2(7) =	<b>1760.36</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

<u>zcrtam</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.1407437</b>	.0149983	<b>9.38</b>	<b>0.000</b>	<b>.1113475</b> <b>.1701398</b>
AGE	<b>.028314</b>	.0009813	<b>28.85</b>	<b>0.000</b>	<b>.0263906</b> <b>.0302373</b>
SEX	<b>.2494013</b>	.0103819	<b>24.02</b>	<b>0.000</b>	<b>.2290532</b> <b>.2697494</b>
NonWhite	<b>-.1808495</b>	.0248942	<b>-7.26</b>	<b>0.000</b>	<b>-.2296413</b> <b>-.1320577</b>
householdszie	<b>.0225896</b>	.0049235	<b>4.59</b>	<b>0.000</b>	<b>.0129396</b> <b>.0322395</b>
SES	<b>-.0613063</b>	.0078042	<b>-7.86</b>	<b>0.000</b>	<b>-.0766022</b> <b>-.0460103</b>
LE8_TOTALSCORE	<b>-.0003514</b>	.0000552	<b>-6.36</b>	<b>0.000</b>	<b>-.0004596</b> <b>-.0002431</b>
_cons	<b>-1.975589</b>	.0711222	<b>-27.78</b>	<b>0.000</b>	<b>-2.114986</b> <b>-1.836192</b>
<b>sigma2</b>					
_cons	<b>.953556</b>	.0070913	<b>134.47</b>	<b>0.000</b>	<b>.9396574</b> <b>.9674546</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.228756</b>	.1615197	7.61	<b>0.000</b>	.9121833 1.545329
ereri_cde	<b>1.233962</b>	.1636407	7.54	<b>0.000</b>	.9132317 1.554692
ereri_intref	<b>.0000742</b>	.0050287	0.01	0.988	-.0097819 .0099303
ereri_intmed	<b>-.0151507</b>	.0191109	-0.79	0.428	-.0526075 .022306
ereri_pie	<b>.0098709</b>	.0056521	1.75	<b>0.081</b>	-.001207 .0209488

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zcrx
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04648 2.218 -.07459 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8905.4114**

Iteration 1: Log likelihood = **-8822.0091**

Iteration 2: Log likelihood = **-8814.0222**

Iteration 3: Log likelihood = **-8813.9818**

Iteration 4: Log likelihood = **-8813.9818**

Refining estimates:

Iteration 0: Log likelihood = **-8813.9818**

Cox regression with Breslow method for ties

No. of subjects = 35,755 Number of obs = 35,755

No. of failures = 953

Time at risk = 434,342.674

LR chi2(9) = 182.86

Log likelihood = -8813.9818

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.196903</b>	.1593873	<b>10.85</b>	<b>0.000</b>	<b>1.905704</b> <b>2.532598</b>
zcrx		<b>.9887697</b>	.0381882	-0.29	0.770	.916685    1.066523
_infectionburXzcrx_000		<b>1.061835</b>	.072478	0.88	0.379	.9288732    1.21383
AGE		<b>1.037322</b>	.0131801	2.88	0.004	<b>1.011809</b> <b>1.063479</b>
SEX		<b>.7519814</b>	.0494011	-4.34	0.000	.6611314    .8553157
NonWhite		<b>1.113204</b>	.1894198	0.63	0.529	.7975104    1.553863
householdszie		<b>.9385264</b>	.0396733	-1.50	0.133	.8639021    1.019597
SES		<b>.8336537</b>	.0414722	-3.66	0.000	.7562068    .9190324
LE8_TOTALSCORE		<b>.9989951</b>	.000358	-2.81	0.005	.9982937    .9996969

-> Model for the mediator

Iteration 0: Log likelihood = **-50714.566**  
 Iteration 1: Log likelihood = **-50714.566**

Linear regression (Maximum Likelihood)  
 Number of obs = 35,755  
 Wald chi2(7) = 38.18  
 Prob > chi2 = 0.0000  
 Log likelihood = **-50714.566**

	zcrx	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.0073875</b>	.015431	0.48	0.632	-.0228567    .0376317
AGE		<b>-.00308</b>	.0010072	-3.06	0.002	-.005054    -.0011059
SEX		<b>.0051418</b>	.0106856	0.48	0.630	-.0158015    .0260852
NonWhite		<b>.0923711</b>	.0255868	3.61	0.000	.042222    .1425203
householdszie		<b>.0096835</b>	.0048728	1.99	0.047	.000133    .019234
SES		<b>-.0059948</b>	.0080238	-0.75	0.455	-.0217212    .0097316
LE8_TOTALSCORE		<b>.0000941</b>	.0000569	1.65	0.098	-.0000175    .0002057
_cons		<b>.1031229</b>	.0728195	1.42	0.157	-.0396008    .2458465
<b>sigma2</b>						
_cons		<b>.9989053</b>	.0074709	133.71	<b>0.000</b>	.9842627 <b>1.013548</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.200023</b>	.1595925	7.52	<b>0.000</b>	.8872275    1.512819
ereri_cde	<b>1.196813</b>	.1593713	7.51	<b>0.000</b>	.8844504    1.509175
ereri_intref	<b>.0024191</b>	.0059512	0.41	0.684	-.0092451    .0140832
ereri_intmed	<b>.0008749</b>	.0020647	0.42	0.672	-.0031719    .0049216
ereri_pie	<b>-.0000834</b>	.0003343	-0.25	0.803	-.0007387    .0005718

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdszie SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zcsf1  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.18 1.531 .04635 2.216 -.07488 500.5

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9125.8833  
 Iteration 1: Log likelihood = -9034.4161  
 Iteration 2: Log likelihood = -9022.9123  
 Iteration 3: Log likelihood = -9022.7678  
 Iteration 4: Log likelihood = -9022.7678  
 Refining estimates:  
 Iteration 0: Log likelihood = -9022.7678

Cox regression with Breslow method for ties

No. of subjects = 36,595	Number of obs = 36,595
No. of failures = 974	
Time at risk = 444,506.48	
Log likelihood = -9022.7678	LR chi2(9) = 206.23
	Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.240922	.1679071	10.77	0.000	1.934854 2.595406
zcsf1	1.158336	.0452155	3.77	0.000	1.073021 1.250435
_infectionburXzcsf1_000	.9291268	.0612057	-1.12	0.264	.8165872 1.057176
AGE	1.032298	.0129802	2.53	0.011	1.007168 1.058054
SEX	.7523199	.0488583	-4.38	0.000	.6624034 .8544419
NonWhite	1.115531	.189866	0.64	0.521	.7991075 1.557249
householdsize	.9390634	.0391893	-1.51	0.132	.8653112 1.019102
SES	.8421347	.0416488	-3.47	0.001	.764336 .9278522
LE8_TOTALSCORE	.9992528	.0003579	-2.09	0.037	.9985516 .9999545

-> Model for the mediator

Iteration 0: Log likelihood = -50526.486  
 Iteration 1: Log likelihood = -50526.486

Linear regression (Maximum Likelihood)  
 Number of obs = 36,595  
 Wald chi2(7) = 2907.89  
 Log likelihood = -50526.486 Prob > chi2 = 0.0000

	zcsf1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.2439189	.0146814	16.61	0.000	.2151438 .272694
AGE		.0188344	.0009582	19.66	0.000	.0169564 .0207124
SEX		.0611063	.0101726	6.01	0.000	.0411685 .0810442
NonWhite		-.2005955	.0243887	-8.22	0.000	-.2483965 -.1527944
householdsize		.0027663	.0046316	0.60	0.550	-.0063115 .0118441
SES		-.1515457	.0076354	-19.85	0.000	-.1665109 -.1365806
LE8_TOTALSCORE		-.0017191	.0000542	-31.73	0.000	-.0018253 -.0016129
_cons		-.4087887	.0692082	-5.91	0.000	-.5444344 -.273143
<b>sigma2</b>						
_cons		.9263625	.0068483	135.27	0.000	.91294 .939785

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.270035	.163026	7.79	0.000	.9505095 1.58956
ereri_cde	1.234704	.1665421	7.41	0.000	.9082869 1.56112
ereri_intref	-.0049898	.0056497	-0.88	0.377	-.016063 .0060834
ereri_intmed	.0038181	.0306069	0.12	0.901	-.0561704 .0638065
ereri_pie	.0365028	.0101192	3.61	0.000	.0166696 .0563361

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zcsf2ra
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.17 1.532 .0464 2.216 -.07458 500.7

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8985.4467**  
 Iteration 1: Log likelihood = **-8896.838**  
 Iteration 2: Log likelihood = **-8889.218**  
 Iteration 3: Log likelihood = **-8889.2019**  
 Iteration 4: Log likelihood = **-8889.2019**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8889.2019**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,164</b>	Number of obs =	<b>36,164</b>
No. of failures =	<b>960</b>		
Time at risk =	<b>439,440.668</b>	LR chi2(9) =	<b>192.49</b>
Log likelihood =	<b>-8889.2019</b>	Prob > chi2 =	<b>0.0000</b>

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.20618</b>	.1595996	<b>10.94</b>	<b>0.000</b>	<b>1.914535</b> <b>2.542252</b>
zcsf2ra	<b>1.00665</b>	.0382383	<b>0.17</b>	<b>0.861</b>	<b>.9344262</b> <b>1.084456</b>
_infectionburXzcsf2ra_000	<b>.9882899</b>	.0700451	<b>-0.17</b>	<b>0.868</b>	<b>.8601127</b> <b>1.135568</b>
AGE	<b>1.037351</b>	.0131149	<b>2.90</b>	<b>0.004</b>	<b>1.011962</b> <b>1.063377</b>
SEX	<b>.7400407</b>	.0484268	<b>-4.60</b>	<b>0.000</b>	<b>.6509605</b> <b>.8413109</b>
NonWhite	<b>1.019207</b>	.1782877	<b>0.11</b>	<b>0.913</b>	<b>.7233751</b> <b>1.436023</b>
householdszie	<b>.9432813</b>	.0393953	<b>-1.40</b>	<b>0.162</b>	<b>.8691437</b> <b>1.023743</b>
SES	<b>.8102335</b>	.0401412	<b>-4.25</b>	<b>0.000</b>	<b>.7352572</b> <b>.8928553</b>
LE8_TOTALSCORE	<b>.999026</b>	.0003568	<b>-2.73</b>	<b>0.006</b>	<b>.9983269</b> <b>.9997255</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-51047.888**  
 Iteration 1: Log likelihood = **-51047.888**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,164</b>	
	Wald chi2(7) =	<b>536.15</b>	
Log likelihood =	<b>-51047.888</b>	Prob > chi2 =	<b>0.0000</b>

zcsf2ra	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.056329</b>	.0152464	<b>3.69</b>	<b>0.000</b>	<b>.0264466</b> <b>.0862115</b>
AGE	<b>.0064314</b>	.0009976	<b>6.45</b>	<b>0.000</b>	<b>.0044762</b> <b>.0083865</b>
SEX	<b>-.0397935</b>	.0105536	<b>-3.77</b>	<b>0.000</b>	<b>-.0604782</b> <b>-.0191087</b>
NonWhite	<b>-.3178584</b>	.025306	<b>-12.56</b>	<b>0.000</b>	<b>-.3674573</b> <b>-.2682595</b>
householdszie	<b>-.0051867</b>	.005005	<b>-1.04</b>	<b>0.300</b>	<b>-.0149963</b> <b>.0046229</b>
SES	<b>-.0444968</b>	.0079333	<b>-5.61</b>	<b>0.000</b>	<b>-.0600458</b> <b>-.0289478</b>
LE8_TOTALSCORE	<b>-.0007507</b>	.0000562	<b>-13.37</b>	<b>0.000</b>	<b>-.0008607</b> <b>-.0006406</b>
_cons	<b>.0648759</b>	.0722987	<b>0.90</b>	<b>0.370</b>	<b>-.076827</b> <b>.2065787</b>
<b>sigma2</b>					
_cons	<b>.9853639</b>	.0073278	<b>134.47</b>	<b>0.000</b>	<b>.9710017</b> <b>.9997262</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.205724</b>	.1592051	7.57	<b>0.000</b>	.8936878 1.51776
ereri_cde	<b>1.206216</b>	.1596061	7.56	<b>0.000</b>	.893394 1.519039
ereri_intref	<b>.0001477</b>	.0017104	0.09	0.931	-.0032045 .0035
ereri_intmed	<b>-.0010135</b>	.0077568	-0.13	0.896	-.0162166 .0141895
ereri_pie	<b>.0003734</b>	.0021429	0.17	0.862	-.0038266 .0045734

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zcsf3
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.53 .04656 2.215 -.07626 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -8913.3312

Iteration 1: Log likelihood = -8825.2494

Iteration 2: Log likelihood = -8816.4159

Iteration 3: Log likelihood = -8816.3757

Iteration 4: Log likelihood = -8816.3757

Refining estimates:

Iteration 0: Log likelihood = -8816.3757

Cox regression with Breslow method for ties

No. of subjects = 35,761 Number of obs = 35,761

No. of failures = 953

Time at risk = 434,427.923

Log likelihood = -8816.3757

LR chi2(9) = 193.91

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.24072	.1626607	11.11	0.000	1.943552 2.583324
zcsf3	.9029562	.0360829	-2.55	0.011	.8349337 .9765206
_infectionburXzcsf3_000	1.030044	.0735826	0.41	0.679	.895466 1.184848
AGE	1.035727	.013153	2.76	0.006	1.010265 1.061829
SEX	.7642403	.0505023	-4.07	0.000	.6713996 .8699189
NonWhite	1.075157	.1877677	0.41	0.678	.7635122 1.514005
householdsize	.9353009	.0397712	-1.57	0.116	.8605108 1.016591
SES	.8237189	.0409784	-3.90	0.000	.7471941 .9080811
LE8_TOTALSCORE	.9989775	.0003596	-2.84	0.004	.9982729 .9996826

-> Model for the mediator

Iteration 0: Log likelihood = -50045.088  
 Iteration 1: Log likelihood = -50045.088

Linear regression (Maximum Likelihood)  
 Number of obs = 35,761  
 Wald chi2(7) = 1421.68  
 Log likelihood = -50045.088 Prob > chi2 = 0.0000

	zcsf3	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr	.0430363	.0151545	2.84	0.005	.013334	.0727386
AGE	-.0104358	.000987	-10.57	0.000	-.0123704	-.0085013
SEX	.2541852	.0104823	24.25	0.000	.2336402	.2747301
NonWhite	.2615376	.0250809	10.43	0.000	.2123799	.3106954
householdsize	.0029374	.0047678	0.62	0.538	-.0064074	.0122821
SES	-.0600659	.0078592	-7.64	0.000	-.0754696	-.0446623
LE8_TOTALSCORE	-.0011543	.0000558	-20.67	0.000	-.0012638	-.0010448
_cons	.7877591	.0712952	11.05	0.000	.648023	.9274951
<b>sigma2</b>						
_cons	.9617381	.0071923	133.72	0.000	.9476415	.9758348

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.227805	.1612375	7.61	0.000	.9117849 1.543824
ereri_cde	1.233767	.1614492	7.64	0.000	.9173325 1.550202
ereri_intref	.0009975	.0108558	0.09	0.927	-.0202795 .0222745
ereri_intmed	-.0025764	.0060506	-0.43	0.670	-.0144354 .0092826
ereri_pie	-.0043836	.002303	-1.90	0.057	-.0088974 .0001303

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zcst3  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.19 1.531 .04647 2.216 -.07519 500.6

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9131.0569  
 Iteration 1: Log likelihood = -9046.7073  
 Iteration 2: Log likelihood = -9034.6249  
 Iteration 3: Log likelihood = -9034.4735  
 Iteration 4: Log likelihood = -9034.4734  
 Refining estimates:  
 Iteration 0: Log likelihood = -9034.4734

Cox regression with Breslow method for ties

No. of subjects = 36,537	Number of obs = 36,537
No. of failures = 975	
Time at risk = 443,865.44	
Log likelihood = -9034.4734	LR chi2(9) = 193.17
	Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.227087	.1699142	10.49	0.000	1.917765 2.586301
zcst3	1.041349	.0422764	1.00	0.318	.9616998 1.127595
_infectionburXzcst3_000	1.007837	.065526	0.12	0.904	.8872546 1.144808
AGE	1.031791	.0130463	2.48	0.013	1.006535 1.057681
SEX	.7688005	.050351	-4.01	0.000	.6761858 .8741004
NonWhite	1.094633	.1861052	0.53	0.595	.7844239 1.527519
householdsize	.9360161	.0393569	-1.57	0.116	.8619709 1.016422
SES	.8318417	.0411677	-3.72	0.000	.7549443 .9165718
LE8_TOTALSCORE	.9991603	.0003627	-2.31	0.021	.9984497 .9998713

-> Model for the mediator

Iteration 0: Log likelihood = -48642.85  
 Iteration 1: Log likelihood = -48642.85

Linear regression (Maximum Likelihood)

Number of obs = 36,537
Wald chi2(7) = 6995.71
Prob > chi2 = 0.0000

Log likelihood = -48642.85

	zcst3	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.2377188	.0140011	16.98	0.000	.2102772 .2651604
AGE		.0357372	.000913	39.14	0.000	.0339477 .0375267
SEX		-.2998565	.0096889	-30.95	0.000	-.3188464 -.2808666
NonWhite		-.068778	.0232015	-2.96	0.003	-.1142521 -.0233039
householdsize		-.000097	.0044128	-0.02	0.982	-.0087458 .0085519
SES		-.1266584	.007273	-17.41	0.000	-.1409133 -.1124036
LE8_TOTALSCORE		-.0024089	.0000517	-46.60	0.000	-.0025102 -.0023076
_cons		-.5250156	.0659979	-7.96	0.000	-.6543691 -.395662
<b>sigma2</b>						
_cons		.8392769	.0062095	135.16	0.000	.8271066 .8514473

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.252895	.1646807	7.61	0.000	.9301265 1.575663
ereri_cde	1.22788	.1700175	7.22	0.000	.8946515 1.561108
ereri_intref	-.0007168	.0009952	-0.72	0.471	-.0026674 .0012338
ereri_intmed	.0160537	.0288022	0.56	0.577	-.0403976 .072505
ereri_pie	.0096782	.0097611	0.99	0.321	-.0094531 .0288095

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zcst5
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.532 .04654 2.216 -.07429 500.7

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8871.0085**  
 Iteration 1: Log likelihood = **-8776.9105**  
 Iteration 2: Log likelihood = **-8763.3673**  
 Iteration 3: Log likelihood = **-8763.2218**  
 Iteration 4: Log likelihood = **-8763.2217**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8763.2217**

Cox regression with Breslow method for ties

No. of subjects =	<b>35,752</b>	Number of obs =	<b>35,752</b>
No. of failures =	<b>949</b>		
Time at risk =	<b>434,387.154</b>	LR chi2(9) =	<b>215.57</b>
Log likelihood =	<b>-8763.2217</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.22604</b>	.1613189	<b>11.04</b>	<b>0.000</b>	<b>1.931289</b> 2.565776
zcst5		<b>.8456594</b>	.034082	<b>-4.16</b>	<b>0.000</b>	<b>.78143</b> .9151681
_infectionburXzcst5_000		<b>.9855998</b>	.0709456	<b>-0.20</b>	<b>0.840</b>	<b>.8559123</b> 1.134938
AGE		<b>1.040929</b>	.0132795	<b>3.14</b>	<b>0.002</b>	<b>1.015224</b> 1.067284
SEX		<b>.7252893</b>	.0477909	<b>-4.87</b>	<b>0.000</b>	<b>.6374172</b> .8252751
NonWhite		<b>1.145009</b>	.2012476	<b>0.77</b>	<b>0.441</b>	<b>.8113368</b> 1.615908
householdszie		<b>.9426744</b>	.0397512	<b>-1.40</b>	<b>0.162</b>	<b>.8678962</b> 1.023895
SES		<b>.8156952</b>	.0406633	<b>-4.09</b>	<b>0.000</b>	<b>.7397663</b> .8994173
LE8_TOTALSCORE		<b>.9992309</b>	.0003596	<b>-2.14</b>	<b>0.033</b>	<b>.9985263</b> .9999359

-> Model for the mediator

Iteration 0: Log likelihood = **-50015.717**  
 Iteration 1: Log likelihood = **-50015.717**

Linear regression (Maximum Likelihood)	Number of obs =	<b>35,752</b>
	Wald chi2(7) =	<b>1456.22</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	zcst5	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.0342462</b>	.0151361	<b>2.26</b>	<b>0.024</b>	<b>.0045801</b> .0639124
AGE		<b>.0256415</b>	.0009907	<b>25.88</b>	<b>0.000</b>	<b>.0236998</b> .0275833
SEX		<b>-.0831405</b>	.0104829	<b>-7.93</b>	<b>0.000</b>	<b>-.1036867</b> -.0625943
NonWhite		<b>.6365006</b>	.0251011	<b>25.36</b>	<b>0.000</b>	<b>.5873033</b> .6856978
householdszie		<b>-.0197944</b>	.0049624	<b>-3.99</b>	<b>0.000</b>	<b>-.0295206</b> -.0100682
SES		<b>.0212578</b>	.0078801	<b>2.70</b>	<b>0.007</b>	<b>.0058132</b> .0367024
LE8_TOTALSCORE		<b>.0005356</b>	.0000558	<b>9.60</b>	<b>0.000</b>	<b>.0004262</b> .000645
_cons		<b>-1.672848</b>	.0718013	<b>-23.30</b>	<b>0.000</b>	<b>-1.813576</b> -1.53212
<b>sigma2</b>						
_cons		<b>.960836</b>	.0071864	<b>133.70</b>	<b>0.000</b>	<b>.9467509</b> .9749212

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.21775</b>	.1614543	7.54	<b>0.000</b>	.9013052 1.534194
ereri_cde	<b>1.208635</b>	.1590196	7.60	<b>0.000</b>	.8969624 1.520308
ereri_intref	<b>.0229915</b>	.0250457	0.92	0.359	-.0260972 .0720801
ereri_intmed	<b>-.0081524</b>	.0061373	-1.33	0.184	-.0201814 .0038765
ereri_pie	<b>-.0057245</b>	.0028719	-1.99	0.046	-.0113534 -.0000956

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zcst6
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.17 1.531 .04682 2.217 -.07523 500.4

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -8751.3908

Iteration 1: Log likelihood = -8667.7878

Iteration 2: Log likelihood = -8653.9733

Iteration 3: Log likelihood = -8653.7891

Iteration 4: Log likelihood = -8653.789

Refining estimates:

Iteration 0: Log likelihood = -8653.789

Cox regression with Breslow method for ties

No. of subjects = 35,480 Number of obs = 35,480

No. of failures = 937

Time at risk = 430,997.782

LR chi2(9) = 195.20

Log likelihood = -8653.789

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.267814</b>	.1650704	11.25	<b>0.000</b>	<b>1.966301</b> 2.615562
zcst6	<b>1.020616</b>	.0407479	0.51	0.609	.9437959    1.103688
_infectionburXzcst6_000	<b>1.0657</b>	.0718997	0.94	0.346	.933699    1.216363
AGE	<b>1.034323</b>	.0132555	2.63	<b>0.008</b>	<b>1.008667</b> 1.060633
SEX	<b>.7617262</b>	.0533028	-3.89	<b>0.000</b>	.6641023    .873701
NonWhite	<b>1.051881</b>	.1837772	0.29	0.772	.7468794    1.481435
householdsize	<b>.9446973</b>	.0397618	-1.35	0.176	.8698934    1.025934
SES	<b>.8148233</b>	.0408671	-4.08	<b>0.000</b>	.7385362    .8989905
LE8_TOTALSCORE	<b>.9991365</b>	.0003615	-2.39	0.017	.9984283    .9998453

-> Model for the mediator

Iteration 0: Log likelihood = **-48740.932**  
 Iteration 1: Log likelihood = **-48740.932**

Linear regression (Maximum Likelihood)                          Number of obs = **35,480**  
     Wald chi2(7) = **3354.23**  
 Log likelihood = **-48740.932**                                      Prob > chi2 = **0.0000**

zcst6	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.0299046</b>	.0148284	2.02	<b>0.044</b>	<b>.0008415</b> .0589677
AGE	<b>-.0159955</b>	.0009651	-16.57	<b>0.000</b>	-.017887    -.014104
SEX	<b>-.5712019</b>	.0102587	-55.68	<b>0.000</b>	-.5913085    -.5510953
NonWhite	<b>-.141018</b>	.0244831	-5.76	<b>0.000</b>	-.1890039    -.093032
householdsize	<b>.0017627</b>	.0046512	0.38	0.705	-.0073534    .0108789
SES	<b>-.0020478</b>	.0076989	-0.27	0.790	-.0171373    .0130417
LE8_TOTALSCORE	<b>.000319</b>	.0000546	5.84	<b>0.000</b>	.0002119    .0004261
_cons	<b>1.675793</b>	.0697426	24.03	<b>0.000</b>	1.5391    1.812486
<b>sigma2</b>					
_cons	<b>.9136012</b>	.0068593	<b>133.19</b>	<b>0.000</b>	<b>.9001572</b> .9270451

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.279832</b>	.1654807	7.73	<b>0.000</b>	<b>.9554959</b> 1.604168
ereri_cde	<b>1.26768</b>	.165064	7.68	<b>0.000</b>	.9441607    1.5912
ereri_intref	<b>.0064297</b>	.0093285	0.69	0.491	-.0118538    .0247131
ereri_intmed	<b>.0051119</b>	.0047242	1.08	0.279	-.0041473    .0143711
ereri_pie	<b>.0006104</b>	.0012324	0.50	0.620	-.0018051    .0030259

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zcst7  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.18 1.532 .04637 2.216 -.07533 500.4

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9084.7985  
 Iteration 1: Log likelihood = -8996.8147  
 Iteration 2: Log likelihood = -8988.5187  
 Iteration 3: Log likelihood = -8988.4968  
 Iteration 4: Log likelihood = -8988.4968  
 Refining estimates:  
 Iteration 0: Log likelihood = -8988.4968

Cox regression with Breslow method for ties

No. of subjects =	36,488	Number of obs =	36,488
No. of failures =	970		
Time at risk =	443,259.342	LR chi2(9) =	192.60
Log likelihood =	-8988.4968	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.236856	.1606359	11.21	0.000	1.943169 2.574931
zcst7	.9819817	.0384514	-0.46	0.642	.9094376 1.060312
_infectionburXzcst7_000	1.012497	.0711886	0.18	0.860	.8821568 1.162095
AGE	1.036908	.0130556	2.88	0.004	1.011633 1.062815
SEX	.75313	.0490279	-4.36	0.000	.6629148 .8556225
NonWhite	1.061708	.1830406	0.35	0.728	.7572801 1.488518
householdsize	.9381097	.0393796	-1.52	0.128	.8640169 1.018556
SES	.824877	.0407069	-3.90	0.000	.74883 .908647
LE8_TOTALSCORE	.9989844	.000358	-2.84	0.005	.998283 .9996863

-> Model for the mediator

Iteration 0: Log likelihood = -51255.957  
 Iteration 1: Log likelihood = -51255.957

Linear regression (Maximum Likelihood)

Number of obs =	36,488
Wald chi2(7) =	1050.38
Prob > chi2 =	0.0000

Log likelihood = -51255.957

	zcst7	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.0830763	.0150528	5.52	0.000	.0535733 .1125792
AGE		.00087	.0009828	0.89	0.376	-.0010563 .0027964
SEX		-.0711302	.0104352	-6.82	0.000	-.0915829 -.0506775
NonWhite		-.0753928	.0250127	-3.01	0.003	-.1244168 -.0263688
householdsize		-3.59e-06	.0047488	-0.00	0.999	-.009311 .0093038
SES		-.0750481	.0078311	-9.58	0.000	-.0903968 -.0596995
LE8_TOTALSCORE		-.0014221	.0000556	-25.59	0.000	-.0015311 -.0013132
_cons		.7545585	.0709915	10.63	0.000	.6154178 .8936992
<b>sigma2</b>						
_cons		.9719919	.0071962	135.07	0.000	.9578876 .9860962

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.235142	.1600328	7.72	0.000	.921483 1.5488
ereri_cde	1.236398	.1606006	7.70	0.000	.9216263 1.551169
ereri_intref	-.0001857	.0025217	-0.07	0.941	-.0051281 .0047566
ereri_intmed	.000439	.0113762	0.04	0.969	-.021858 .022736
ereri_pie	-.0015094	.0032596	-0.46	0.643	-.0078981 .0048793

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zcstb
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .0463 2.215 -.07645 500.3

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8952.0633**  
 Iteration 1: Log likelihood = **-8866.2636**  
 Iteration 2: Log likelihood = **-8856.3478**  
 Iteration 3: Log likelihood = **-8856.2783**  
 Iteration 4: Log likelihood = **-8856.2783**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8856.2783**

Cox regression with Breslow method for ties

No. of subjects =	<b>35,965</b>	Number of obs =	<b>35,965</b>
No. of failures =	<b>958</b>		
Time at risk =	<b>436,813.333</b>	LR chi2(9) =	<b>191.57</b>
Log likelihood =	<b>-8856.2783</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.225417</b>	.1658577	<b>10.73</b>	<b>0.000</b>	<b>1.922969</b> <b>2.575434</b>
zcstb		<b>1.047625</b>	.0416542	<b>1.17</b>	<b>0.242</b>	<b>.9690841</b> <b>1.132531</b>
_infectionburXzcstb_000		<b>.9974916</b>	.0706014	<b>-0.04</b>	<b>0.972</b>	<b>.8682846</b> <b>1.145926</b>
AGE		<b>1.034724</b>	.0131907	<b>2.68</b>	<b>0.007</b>	<b>1.009191</b> <b>1.060903</b>
SEX		<b>.7514471</b>	.0492346	<b>-4.36</b>	<b>0.000</b>	<b>.6608882</b> <b>.854415</b>
NonWhite		<b>1.064914</b>	.1835363	<b>0.36</b>	<b>0.715</b>	<b>.7596463</b> <b>1.492856</b>
householdszie		<b>.9471019</b>	.0392356	<b>-1.31</b>	<b>0.190</b>	<b>.8732407</b> <b>1.02721</b>
SES		<b>.8290704</b>	.0411733	<b>-3.77</b>	<b>0.000</b>	<b>.7521752</b> <b>.9138266</b>
LE8_TOTALSCORE		<b>.9991089</b>	.000363	<b>-2.45</b>	<b>0.014</b>	<b>.9983976</b> <b>.9998206</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-49633.574**  
 Iteration 1: Log likelihood = **-49633.574**

Linear regression (Maximum Likelihood)	Number of obs =	<b>35,965</b>
	Wald chi2(7) =	<b>2907.67</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	zcstb	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.1738534</b>	.0148057	<b>11.74</b>	<b>0.000</b>	<b>.1448348</b> <b>.202872</b>
AGE		<b>.0190841</b>	.0009661	<b>19.75</b>	<b>0.000</b>	<b>.0171907</b> <b>.0209775</b>
SEX		<b>-.0298393</b>	.0102537	<b>-2.91</b>	<b>0.004</b>	<b>-.0499363</b> <b>-.0097424</b>
NonWhite		<b>-.1510277</b>	.0246012	<b>-6.14</b>	<b>0.000</b>	<b>-.1992451</b> <b>-.1028102</b>
householdszie		<b>-.0082356</b>	.0047254	<b>-1.74</b>	<b>0.081</b>	<b>-.0174972</b> <b>.0010259</b>
SES		<b>-.0921953</b>	.0076967	<b>-11.98</b>	<b>0.000</b>	<b>-.1072805</b> <b>-.0771102</b>
LE8_TOTALSCORE		<b>-.0021157</b>	.0000546	<b>-38.75</b>	<b>0.000</b>	<b>-.0022227</b> <b>-.0020087</b>
_cons		<b>-.050128</b>	.0698922	<b>-0.72</b>	<b>0.473</b>	<b>-.1871141</b> <b>.0868581</b>
<b>sigma2</b>						
_cons		<b>.9251745</b>	.0068992	<b>134.10</b>	<b>0.000</b>	<b>.9116524</b> <b>.9386967</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.242411</b>	.1626545	<b>7.64</b>	<b>0.000</b>	.923614 1.561208
ereri_cde	<b>1.225566</b>	.1658089	<b>7.39</b>	<b>0.000</b>	.9005865 1.550545
ereri_intref	<b>-.0002485</b>	.0023288	<b>-0.11</b>	<b>0.915</b>	-.0048128 .0043159
ereri_intmed	<b>.008972</b>	.0238076	<b>0.38</b>	<b>0.706</b>	-.03769 .055634
ereri_pie	<b>.0081214</b>	.0070032	<b>1.16</b>	<b>0.246</b>	-.0056045 .0218474

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zctf1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04648 2.218 -.07459 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8905.4114**

Iteration 1: Log likelihood = **-8820.6873**

Iteration 2: Log likelihood = **-8812.17**

Iteration 3: Log likelihood = **-8812.1312**

Iteration 4: Log likelihood = **-8812.1312**

Refining estimates:

Iteration 0: Log likelihood = **-8812.1312**

Cox regression with Breslow method for ties

No. of subjects = 35,755	Number of obs = 35,755
No. of failures = 953	
Time at risk = 434,342.674	LR chi2(9) = 186.56
Log likelihood = -8812.1312	Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.188944	.1596788	10.74	0.000	1.897323
	zctf1	.9424765	.0370561	-1.51	0.132	.8725758
_infectionburXzctf1_000		.9676093	.0712155	-0.45	0.655	.8376297
	AGE	1.036873	.0131688	2.85	0.004	1.011381
	SEX	.7521963	.0494182	-4.33	0.000	.6613153
	NonWhite	1.110819	.1889916	0.62	0.537	.7958334
	householdsize	.9383584	.039706	-1.50	0.133	.8636757
	SES	.8331892	.0414515	-3.67	0.000	.7557811
	LE8_TOTALSCORE	.9989493	.0003582	-2.93	0.003	.9982474
						.9996516

-> Model for the mediator

Iteration 0: Log likelihood = -50626.787  
Iteration 1: Log likelihood = -50626.787

Linear regression (Maximum Likelihood) Number of obs = 35,755  
Log likelihood = -50626.787 Wald chi2(7) = 214.36  
Prob > chi2 = 0.0000

	zctf1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0127678	.0153932	-0.83	0.407	-.0429379 .0174022
AGE		-.005441	.0010047	-5.42	0.000	-.0074102 -.0034717
SEX		.0015291	.0106594	0.14	0.886	-.0193628 .0224211
NonWhite		-.0708885	.025524	-2.78	0.005	-.1209147 -.0208623
householdszie		.0017938	.0048609	0.37	0.712	-.0077333 .0113209
SES		-.0174401	.0080042	-2.18	0.029	-.0331279 -.0017522
LE8_TOTALSCORE		-.0007269	.0000568	-12.80	0.000	-.0008382 -.0006155
_cons		.6887078	.072641	9.48	0.000	.5463341 .8310815
sigma2						
_cons		.9940127	.0074343	133.71	0.000	.9794418 1.008584

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]	
tereri	<b>1.196831</b>	.1593648	<b>7.51</b>	<b>0.000</b>	<b>.8844814</b>	<b>1.50918</b>
ereri_cde	<b>1.186997</b>	.159329	<b>7.45</b>	<b>0.000</b>	<b>.8747176</b>	<b>1.499276</b>
ereri_intref	<b>.0072502</b>	.0124602	<b>0.58</b>	<b>0.561</b>	<b>-.0171714</b>	<b>.0316718</b>
ereri_intmed	<b>.0018271</b>	.0028598	<b>0.64</b>	<b>0.523</b>	<b>-.003778</b>	<b>.0074322</b>
ereri_pie	<b>.0007567</b>	.0010418	<b>0.73</b>	<b>0.468</b>	<b>-.0012852</b>	<b>.0027986</b>

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intre to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
Warning: this analysis assumes a rare outcome.  
Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zctrb1  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.19 1.531 .04638 2.215 -.07464 500.5

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9121.8147  
 Iteration 1: Log likelihood = -9035.1595  
 Iteration 2: Log likelihood = -9024.5717  
 Iteration 3: Log likelihood = -9024.488  
 Iteration 4: Log likelihood = -9024.488  
 Refining estimates:  
 Iteration 0: Log likelihood = -9024.488

Cox regression with Breslow method for ties

No. of subjects =	36,459	Number of obs =	36,459
No. of failures =	974		
Time at risk =	442,828.345	LR chi2(9) =	194.65
Log likelihood =	-9024.488	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.219779	.1595555	11.09	0.000	1.928085 2.555602
zctrb1	.9758177	.0376735	-0.63	0.526	.9047035 1.052522
_infectionburXzctrb1_000	.9492934	.0622258	-0.79	0.427	.8348425 1.079435
AGE	1.035	.0130098	2.74	0.006	1.009813 1.060816
SEX	.7568126	.0492551	-4.28	0.000	.6661779 .8597783
NonWhite	1.103746	.1880244	0.58	0.562	.7904345 1.541247
householdsize	.9393985	.0393112	-1.49	0.135	.865425 1.019695
SES	.825858	.0406241	-3.89	0.000	.7499541 .9094443
LE8_TOTALSCORE	.999022	.0003542	-2.76	0.006	.9983279 .9997165

-> Model for the mediator

Iteration 0: Log likelihood = -51616.484  
 Iteration 1: Log likelihood = -51616.484

Linear regression (Maximum Likelihood)  
 Number of obs = 36,459  
 Wald chi2(7) = 232.93  
 Log likelihood = -51616.484 Prob > chi2 = 0.0000

	zctrb1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.0103606	.0152337	0.68	0.496	-.019497 .0402182
AGE		-.0003138	.0009971	-0.31	0.753	-.002268 .0016404
SEX		.1155012	.0105562	10.94	0.000	.0948115 .1361909
NonWhite		.2505691	.0253084	9.90	0.000	.2009656 .3001726
householdsize		-.0017376	.0050163	-0.35	0.729	-.0115693 .0080941
SES		.0200981	.0079287	2.53	0.011	.0045582 .0356381
LE8_TOTALSCORE		.0001032	.0000562	1.84	0.066	-6.97e-06 .0002133
_cons		-.2173194	.0723063	-3.01	0.003	-.3590372 -.0756017
<b>sigma2</b>						
_cons		.9936244	.0073593	135.02	0.000	.9792005 1.008048

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.223986	.1591455	7.69	0.000	.9120662 1.535905
ereri_cde	1.219373	.1594688	7.65	0.000	.90682 1.531926
ereri_intref	.0063762	.0092056	0.69	0.489	-.0116663 .0244188
ereri_intmed	-.0015102	.002565	-0.59	0.556	-.0065376 .0035172
ereri_pie	-.0002536	.0005467	-0.46	0.643	-.0013251 .000818

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zctrbc
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.532 .04629 2.216 -.07444 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9054.4218**  
 Iteration 1: Log likelihood = **-8967.2136**  
 Iteration 2: Log likelihood = **-8958.4482**  
 Iteration 3: Log likelihood = **-8958.4085**  
 Iteration 4: Log likelihood = **-8958.4085**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8958.4085**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,419</b>	Number of obs =	<b>36,419</b>
No. of failures =	<b>967</b>		
Time at risk =	<b>442,353.333</b>	LR chi2(9) =	<b>192.03</b>
Log likelihood =	<b>-8958.4085</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.232357</b>	.161776	<b>11.08</b>	<b>0.000</b>	<b>1.936771</b>	<b>2.573055</b>
zctr	<b>.9358927</b>	.0356901	<b>-1.74</b>	<b>0.082</b>	<b>.8684916</b>	<b>1.008525</b>
_infectionburXzctr_000	<b>1.037261</b>	.0701869	<b>0.54</b>	<b>0.589</b>	<b>.9084292</b>	<b>1.184364</b>
AGE	<b>1.03475</b>	.0130464	<b>2.71</b>	<b>0.007</b>	<b>1.009493</b>	<b>1.060639</b>
SEX	<b>.766859</b>	.0503606	<b>-4.04</b>	<b>0.000</b>	<b>.6742424</b>	<b>.8721979</b>
NonWhite	<b>1.076744</b>	.185733	<b>0.43</b>	<b>0.668</b>	<b>.7678646</b>	<b>1.509874</b>
householdszie	<b>.9400599</b>	.0393146	<b>-1.48</b>	<b>0.139</b>	<b>.8660781</b>	<b>1.020361</b>
SES	<b>.8269283</b>	.0409052	<b>-3.84</b>	<b>0.000</b>	<b>.7505195</b>	<b>.9111161</b>
LE8_TOTALSCORE	<b>.9990559</b>	.000356	<b>-2.65</b>	<b>0.008</b>	<b>.9983584</b>	<b>.9997538</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-51189.486**  
 Iteration 1: Log likelihood = **-51189.486**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,419</b>	
	Wald chi2(7) =	<b>985.78</b>	
Log likelihood =	<b>-51189.486</b>	Prob > chi2 =	<b>0.0000</b>

	zctr	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>-.0521635</b>	.0150857	<b>-3.46</b>	<b>0.001</b>	<b>-.0817308</b>
AGE		<b>-.0042642</b>	.0009847	<b>-4.33</b>	<b>0.000</b>	<b>-.0061942</b>
SEX		<b>.2502224</b>	.010454	<b>23.94</b>	<b>0.000</b>	<b>.229733</b>
NonWhite		<b>.1407949</b>	.0250743	<b>5.62</b>	<b>0.000</b>	<b>.0916502</b>
householdszie		<b>-.0001211</b>	.0047568	<b>-0.03</b>	<b>0.980</b>	<b>-.0094442</b>
SES		<b>.046964</b>	.0078483	<b>5.98</b>	<b>0.000</b>	<b>.0315816</b>
LE8_TOTALSCORE		<b>.0007373</b>	.0000557	<b>13.24</b>	<b>0.000</b>	<b>.0006282</b>
_cons		<b>-.4911187</b>	.0711584	<b>-6.90</b>	<b>0.000</b>	<b>-.6305866</b>
<b>sigma2</b>						
_cons		<b>.9736189</b>	.0072151	<b>134.94</b>	<b>0.000</b>	<b>.9594777</b>
						<b>.9877602</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.232591</b>	.1606212	<b>7.67</b>	<b>0.000</b>	.9177791 1.547403
ereri_cde	<b>1.230318</b>	.1613481	<b>7.63</b>	<b>0.000</b>	.9140811 1.546554
ereri_intref	<b>-.0011794</b>	.00346	<b>-0.34</b>	<b>0.733</b>	-.0079609 .005602
ereri_intmed	<b>-9.27e-06</b>	.0068094	<b>-0.00</b>	<b>0.999</b>	-.0133555 .013337
ereri_pie	<b>.003462</b>	.0022339	<b>1.55</b>	<b>0.121</b>	-.0009164 .0078405

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zctsb
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04634 2.214 -.07544 500.4

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9118.9718**

Iteration 1: Log likelihood = **-9029.8208**

Iteration 2: Log likelihood = **-9021.586**

Iteration 3: Log likelihood = **-9021.5687**

Iteration 4: Log likelihood = **-9021.5687**

Refining estimates:

Iteration 0: Log likelihood = **-9021.5687**

Cox regression with Breslow method for ties

No. of subjects = 36,491 Number of obs = 36,491

No. of failures = 974

Time at risk = 443,292.271

Log likelihood = **-9021.5687**

LR chi2(9) = 194.81

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.250126	.1608571	11.34	0.000	1.955942
zctsb		1.050167	.0397506	1.29	0.196	.9750771
_infectionburXzctsb_000		.9646353	.0674127	-0.52	0.606	.8411582
AGE		1.034354	.013037	2.68	0.007	1.009115
SEX		.7521571	.0488669	-4.38	0.000	.662227
NonWhite		1.069931	.1848354	0.39	0.696	.7626176
householdsize		.9402223	.0393209	-1.47	0.141	.8662286
SES		.8196164	.0403395	-4.04	0.000	.7442462
LE8_TOTALSCORE		.9990304	.0003552	-2.73	0.006	.9983345

### -> Model for the mediator

Iteration 0: Log likelihood = -51086.827  
Iteration 1: Log likelihood = -51086.827

Linear regression (Maximum Likelihood) Number of obs = 36,491  
Log likelihood = -51086.827 Wald chi2(7) = 1408.83  
Prob > chi2 = 0.0000

	zctsb	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.009965	.0149744	0.67	0.506	-.193843 .0393143
AGE		.0157352	.0009795	16.07	0.000	.0138155 .0176549
SEX		.059114	.010386	5.69	0.000	.0387578 .0794702
NonWhite		-.5025529	.0249119	-20.17	0.000	-.5513794 -.4537265
householdsiz		-.0086691	.0047993	-1.81	0.071	-.0180756 .0007374
SES		-.0073237	.007802	-0.94	0.348	-.0226154 .0079679
LE8_TOTALSCORE		.0012756	.0000553	23.06	0.000	.0011671 .001384
_cons		-1.635263	.0708686	-23.07	0.000	-1.774163 -1.496363
sigma2						
_cons		.962801	.0071279	135.08	0.000	.9488307 .9767714

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.248115</b>	.1604909	<b>7.78</b>	<b>0.000</b>	.9335591 1.562672
ereri_cde	<b>1.24877</b>	.1605823	<b>7.78</b>	<b>0.000</b>	.934034 1.563505
ereri_intref	<b>-.000944</b>	.0022633	<b>-0.42</b>	<b>0.677</b>	-.00538 .003492
ereri_intmed	<b>-.0001979</b>	.0014039	<b>-0.14</b>	<b>0.888</b>	-.0029495 .0025537
ereri_pie	<b>.0004879</b>	.0008247	<b>0.59</b>	<b>0.554</b>	-.0011286 .0021044

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intre to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
Warning: this analysis assumes a rare outcome.  
Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zctsc  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.19 1.532 .04624 2.215 -.07566 500.5

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9066.5942  
 Iteration 1: Log likelihood = -8977.6684  
 Iteration 2: Log likelihood = -8969.338  
 Iteration 3: Log likelihood = -8969.3201  
 Iteration 4: Log likelihood = -8969.3201  
 Refining estimates:  
 Iteration 0: Log likelihood = -8969.3201

Cox regression with Breslow method for ties

No. of subjects =	36,355	Number of obs =	36,355
No. of failures =	968		
Time at risk =	441,565.979	LR chi2(9) =	194.55
Log likelihood =	-8969.3201	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.249176	.1611744	11.31	0.000	1.954461 2.588332
zctsc	.9550964	.0380303	-1.15	0.249	.8833928 1.03262
_infectionburXzctsc_000	.9998798	.0717335	-0.00	0.999	.868722 1.15084
AGE	1.037009	.0130568	2.89	0.004	1.011731 1.062918
SEX	.7481288	.0491754	-4.41	0.000	.6576969 .8509948
NonWhite	1.094445	.186365	0.53	0.596	.7838786 1.528054
householdsize	.9383844	.0392713	-1.52	0.129	.8644862 1.018599
SES	.8207152	.0405065	-4.00	0.000	.7450429 .9040734
LE8_TOTALSCORE	.9990318	.0003567	-2.71	0.007	.9983329 .9997312

-> Model for the mediator

Iteration 0: Log likelihood = -50907.272  
 Iteration 1: Log likelihood = -50907.272

Linear regression (Maximum Likelihood)  
 Number of obs = 36,355  
 Wald chi2(7) = 1381.06  
 Log likelihood = -50907.272 Prob > chi2 = 0.0000

	zctsc	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.0319825	.0150181	2.13	0.033	.0025476 .0614173
AGE		.0101712	.0009802	10.38	0.000	.0082501 .0120923
SEX		-.26183	.0104085	-25.16	0.000	-.2822303 -.2414298
NonWhite		-.2323047	.024981	-9.30	0.000	-.2812666 -.1833427
householdsize		-.0172187	.0047374	-3.63	0.000	-.0265037 -.0079337
SES		.0092478	.0078141	1.18	0.237	-.0060675 .0245631
LE8_TOTALSCORE		-.0010247	.0000555	-18.48	0.000	-.0011334 -.000916
_cons		.3468711	.0708089	4.90	0.000	.2080881 .485654
<b>sigma2</b>						
_cons		.9633755	.0071454	134.82	0.000	.9493707 .9773803

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.245878	.1612388	7.73	0.000	.929856 1.5619
ereri_cde	1.247652	.1610594	7.75	0.000	.9319811 1.563322
ereri_intref	.0015375	.0068897	0.22	0.823	-.0119661 .0150412
ereri_intmed	-.0018428	.004605	-0.40	0.689	-.0108684 .0071828
ereri_pie	-.0014683	.0014463	-1.02	0.310	-.0043029 .0013663

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zctsd
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.53 .04669 2.217 -.0737 500.3

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8300.6588**  
 Iteration 1: Log likelihood = **-8216.0735**  
 Iteration 2: Log likelihood = **-8208.6609**  
 Iteration 3: Log likelihood = **-8208.6447**  
 Iteration 4: Log likelihood = **-8208.6447**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8208.6447**

Cox regression with Breslow method for ties

No. of subjects =	<b>34,094</b>	Number of obs =	<b>34,094</b>
No. of failures =	<b>892</b>		
Time at risk =	<b>414,159.389</b>	LR chi2(9) =	<b>184.03</b>
Log likelihood =	<b>-8208.6447</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.226293</b>	<b>.1679674</b>	<b>10.61</b>	<b>0.000</b>	<b>1.920267</b>	<b>2.58109</b>
zctsd	<b>.9083849</b>	<b>.0401271</b>	<b>-2.18</b>	<b>0.030</b>	<b>.8330457</b>	<b>.9905376</b>
_infectionburXzctsd_000	<b>1.042997</b>	<b>.0783176</b>	<b>0.56</b>	<b>0.575</b>	<b>.9002584</b>	<b>1.208367</b>
AGE	<b>1.035297</b>	<b>.0136381</b>	<b>2.63</b>	<b>0.008</b>	<b>1.008909</b>	<b>1.062375</b>
SEX	<b>.7347142</b>	<b>.0501975</b>	<b>-4.51</b>	<b>0.000</b>	<b>.6426318</b>	<b>.839991</b>
NonWhite	<b>1.13205</b>	<b>.1955597</b>	<b>0.72</b>	<b>0.473</b>	<b>.8069045</b>	<b>1.588215</b>
householdsize	<b>.9307361</b>	<b>.0410664</b>	<b>-1.63</b>	<b>0.104</b>	<b>.8536294</b>	<b>1.014808</b>
SES	<b>.8068043</b>	<b>.0415521</b>	<b>-4.17</b>	<b>0.000</b>	<b>.7293392</b>	<b>.8924972</b>
LE8_TOTALSCORE	<b>.9988602</b>	<b>.0003843</b>	<b>-2.96</b>	<b>0.003</b>	<b>.9981073</b>	<b>.9996136</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-46178.758**  
 Iteration 1: Log likelihood = **-46178.758**

Linear regression (Maximum Likelihood)	Number of obs =	<b>34,094</b>
	Wald chi2(7) =	<b>4692.06</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	zctsd	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.1055467</b>	<b>.0147865</b>	<b>7.14</b>	<b>0.000</b>	<b>.0765658</b>
AGE		<b>.0137319</b>	<b>.0009674</b>	<b>14.19</b>	<b>0.000</b>	<b>.0118358</b>
SEX		<b>-.238879</b>	<b>.010265</b>	<b>-23.27</b>	<b>0.000</b>	<b>-.258998</b>
NonWhite		<b>-.052401</b>	<b>.0245262</b>	<b>-2.14</b>	<b>0.033</b>	<b>-.1004716</b>
householdsize		<b>-.0152632</b>	<b>.0046433</b>	<b>-3.29</b>	<b>0.001</b>	<b>-.0243639</b>
SES		<b>-.08097</b>	<b>.007714</b>	<b>-10.50</b>	<b>0.000</b>	<b>-.0960891</b>
LE8_TOTALSCORE		<b>-.0029146</b>	<b>.0000548</b>	<b>-53.19</b>	<b>0.000</b>	<b>-.003022</b>
_cons		<b>1.012702</b>	<b>.0698296</b>	<b>14.50</b>	<b>0.000</b>	<b>.8758384</b>
<b>sigma2</b>						
_cons		<b>.8790013</b>	<b>.0067323</b>	<b>130.56</b>	<b>0.000</b>	<b>.8658062</b>
						<b>.8921965</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.206136</b>	.1663405	7.25	<b>0.000</b>	.8801145 1.532157
ereri_cde	<b>1.219599</b>	.1673026	7.29	<b>0.000</b>	.891692 1.547506
ereri_intref	<b>-.000856</b>	.0095783	-0.09	0.929	-.0196291 .017917
ereri_intmed	<b>-.0025168</b>	.015347	-0.16	0.870	-.0325963 .0275627
ereri_pie	<b>-.0100904</b>	.0048249	-2.09	0.037	-.0195471 -.0006337

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zctsf
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04641 2.217 -.0748 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9132.2436

Iteration 1: Log likelihood = -9044.8697

Iteration 2: Log likelihood = -9033.6504

Iteration 3: Log likelihood = -9033.564

Iteration 4: Log likelihood = -9033.564

Refining estimates:

Iteration 0: Log likelihood = -9033.564

Cox regression with Breslow method for ties

No. of subjects = 36,540 Number of obs = 36,540

No. of failures = 975

Time at risk = 443,893.259

Log likelihood = -9033.564

LR chi2(9) = 197.36

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.260754	.1612224	11.44	0.000	1.965853
	zctsf	.9375399	.0370999	-1.63	0.103	.8675737
_infectionburXzctsf_000		.9755197	.0694404	-0.35	0.728	.8484867
	AGE	1.035297	.0130256	2.76	0.006	1.010079
	SEX	.7827819	.051307	-3.74	0.000	.6884133
	NonWhite	1.079763	.1860972	0.45	0.656	.7702355
	householdsize	.9301464	.0394542	-1.71	0.088	.8559447
	SES	.823308	.0405744	-3.95	0.000	.7475036
	LE8_TOTALSCORE	.9990747	.0003539	-2.61	0.009	.9983814
						.9997685

-> Model for the mediator

Iteration 0: Log likelihood = -51230.187  
Iteration 1: Log likelihood = -51230.187

Linear regression (Maximum Likelihood)  
Number of obs = 36,540  
Log likelihood = -51230.187 Wald chi2(7) = 1255.75  
Prob > chi2 = 0.0000

	zctsf	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0162938	.0150235	1.08	0.278	-.0131516 .0457392
AGE		.0202808	.0009797	20.70	0.000	.0183606 .0222011
SEX		.2716581	.0103985	26.12	0.000	.2512774 .2920387
NonWhite		.1783632	.0249219	7.16	0.000	.1295172 .2272091
householdsiz		-.0206817	.0047348	-4.37	0.000	-.0299618 -.0114016
SES		.0078724	.0078057	1.01	0.313	-.0074266 .0231713
LE8_TOTALSCORE		.0003439	.0000554	6.21	0.000	.0002354 .0004524
_cons		-1.772908	.070846	-25.02	0.000	-1.911763 -1.634052
sigma2						
_cons		.9667489	.0071523	135.17	0.000	.9527307 .9807671

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.261757</b>	.161902	<b>7.79</b>	<b>0.000</b>	<b>.9444345</b> <b>1.579079</b>
ereri_cde	<b>1.258038</b>	.1609261	<b>7.82</b>	<b>0.000</b>	<b>.9426285</b> <b>1.573447</b>
ereri_intref	<b>.0070115</b>	.012272	<b>0.57</b>	<b>0.568</b>	<b>-.0170413</b> <b>.0310642</b>
ereri_intmed	<b>-.0022423</b>	.0031061	<b>-0.72</b>	<b>0.470</b>	<b>-.0083302</b> <b>.0038456</b>
ereri_pie	<b>-.0010503</b>	.0011626	<b>-0.90</b>	<b>0.366</b>	<b>-.0033291</b> <b>.0012284</b>

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intre to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
Warning: this analysis assumes a rare outcome.  
Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zctsh  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.18 1.531 .04647 2.218 -.07429 500.6

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -8873.749  
 Iteration 1: Log likelihood = -8789.76  
 Iteration 2: Log likelihood = -8782.3313  
 Iteration 3: Log likelihood = -8782.3153  
 Iteration 4: Log likelihood = -8782.3153  
 Refining estimates:  
 Iteration 0: Log likelihood = -8782.3153

Cox regression with Breslow method for ties

No. of subjects = 35,638	Number of obs = 35,638
No. of failures = 950	
Time at risk = 432,920.9	
Log likelihood = -8782.3153	LR chi2(9) = 182.87 Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.220018	.1619263	10.93	0.000	1.924291 2.561194
zctsh	1.031268	.0399119	0.80	0.426	.9559353 1.112537
_infectionburXzctsh_000	.9458791	.0675318	-0.78	0.436	.8223627 1.087947
AGE	1.036701	.01319	2.83	0.005	1.011169 1.062878
SEX	.7561472	.0499553	-4.23	0.000	.6643107 .8606795
NonWhite	1.112099	.1902905	0.62	0.535	.7952344 1.555221
householdsize	.935532	.0398633	-1.56	0.118	.860575 1.017018
SES	.8374199	.0417759	-3.56	0.000	.7594163 .9234358
LE8_TOTALSCORE	.9990024	.0003598	-2.77	0.006	.9982974 .9997078

-> Model for the mediator

Iteration 0: Log likelihood = -49854.53  
 Iteration 1: Log likelihood = -49854.53

Linear regression (Maximum Likelihood)  
 Number of obs = 35,638  
 Wald chi2(7) = 1455.12  
 Prob > chi2 = 0.0000  
 Log likelihood = -49854.53

	zctsh	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.045348	.0151632	2.99	0.003	.0156286 .0750674
AGE		.0101446	.0009892	10.26	0.000	.0082059 .0120834
SEX		-.1718184	.0104966	-16.37	0.000	-.1923914 -.1512455
NonWhite		.5963155	.0251363	23.72	0.000	.5470492 .6455818
householdsize		-.0158695	.0047832	-3.32	0.001	-.0252445 -.0064945
SES		-.034163	.0078817	-4.33	0.000	-.0496109 -.0187151
LE8_TOTALSCORE		-.0009142	.0000559	-16.34	0.000	-.0010239 -.0008046
_cons		.1089286	.0715237	1.52	0.128	-.0312552 .2491124
<b>sigma2</b>						
_cons		.9607441	.0071972	133.49	0.000	.9466377 .9748504

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.217942	.161515	7.54	0.000	.9013788 1.534506
ereri_cde	1.219699	.1618229	7.54	0.000	.9025322 1.536866
ereri_intref	.000744	.0041997	0.18	0.859	-.0074872 .0089753
ereri_intmed	-.0038981	.0064704	-0.60	0.547	-.01658 .0087837
ereri_pie	.0013972	.0018186	0.77	0.442	-.0021672 .0049616

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zctsl
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04649 2.218 -.07578 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9064.8284**  
 Iteration 1: Log likelihood = **-8978.2946**  
 Iteration 2: Log likelihood = **-8965.2509**  
 Iteration 3: Log likelihood = **-8965.0901**  
 Iteration 4: Log likelihood = **-8965.0901**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8965.0901**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,441</b>	Number of obs =	<b>36,441</b>
No. of failures =	<b>968</b>		
Time at risk =	<b>442,700.115</b>	LR chi2(9) =	<b>199.48</b>
Log likelihood =	<b>-8965.0901</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.235314</b>	.1670744	<b>10.76</b>	<b>0.000</b>	<b>1.93071</b> <b>2.587974</b>
zctsl		<b>1.03958</b>	.0406839	<b>0.99</b>	<b>0.321</b>	<b>.962822</b> <b>1.122456</b>
_infectionburXzctsl_000		<b>1.036744</b>	.0689417	<b>0.54</b>	<b>0.587</b>	<b>.9100559</b> <b>1.181068</b>
AGE		<b>1.031954</b>	.013037	<b>2.49</b>	<b>0.013</b>	<b>1.006716</b> <b>1.057825</b>
SEX		<b>.7568111</b>	.0495177	<b>-4.26</b>	<b>0.000</b>	<b>.6657234</b> <b>.8603617</b>
NonWhite		<b>1.011375</b>	.1789965	<b>0.06</b>	<b>0.949</b>	<b>.7149308</b> <b>1.43074</b>
householdszie		<b>.9282777</b>	.0398827	<b>-1.73</b>	<b>0.083</b>	<b>.8533098</b> <b>1.009832</b>
SES		<b>.8309992</b>	.0411886	<b>-3.74</b>	<b>0.000</b>	<b>.7540682</b> <b>.9157788</b>
LE8_TOTALSCORE		<b>.9990968</b>	.0003564	<b>-2.53</b>	<b>0.011</b>	<b>.9983985</b> <b>.9997956</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50647.22**  
 Iteration 1: Log likelihood = **-50647.22**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,441</b>
	Wald chi2(7) =	<b>2182.50</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	zctsl	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.1974984</b>	.0148444	<b>13.30</b>	<b>0.000</b>	<b>.1684039</b> <b>.226593</b>
AGE		<b>.0219032</b>	.0009695	<b>22.59</b>	<b>0.000</b>	<b>.020003</b> <b>.0238034</b>
SEX		<b>-.2218875</b>	.0102866	<b>-21.57</b>	<b>0.000</b>	<b>-.2420488</b> <b>-.2017262</b>
NonWhite		<b>-.0188243</b>	.0246306	<b>-0.76</b>	<b>0.445</b>	<b>-.0670995</b> <b>.0294509</b>
householdszie		<b>-.0098865</b>	.0046813	<b>-2.11</b>	<b>0.035</b>	<b>-.0190616</b> <b>-.0007114</b>
SES		<b>-.0908681</b>	.0077192	<b>-11.77</b>	<b>0.000</b>	<b>-.1059974</b> <b>-.0757387</b>
LE8_TOTALSCORE		<b>-.0009598</b>	.0000548	<b>-17.50</b>	<b>0.000</b>	<b>-.0010673</b> <b>-.0008523</b>
_cons		<b>-.5095962</b>	.0700709	<b>-7.27</b>	<b>0.000</b>	<b>-.6469327</b> <b>-.3722597</b>
<b>sigma2</b>						
_cons		<b>.9434672</b>	.0069895	<b>134.98</b>	<b>0.000</b>	<b>.929768</b> <b>.9571663</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.270772</b>	.1637424	7.76	<b>0.000</b>	.9498429 1.591701
ereri_cde	<b>1.235752</b>	.1670975	7.40	<b>0.000</b>	.9082467 1.563257
ereri_intref	<b>.0016762</b>	.0052798	0.32	<b>0.751</b>	-.0086719 .0120243
ereri_intmed	<b>.0256485</b>	.0249971	1.03	<b>0.305</b>	-.0233449 .0746419
ereri_pie	<b>.0076956</b>	.0078102	0.99	<b>0.324</b>	-.0076121 .0230033

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zctso
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .0466 2.218 -.07544 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9166.3755

Iteration 1: Log likelihood = -9074.6356

Iteration 2: Log likelihood = -9064.8451

Iteration 3: Log likelihood = -9064.8075

Iteration 4: Log likelihood = -9064.8075

Refining estimates:

Iteration 0: Log likelihood = -9064.8075

Cox regression with Breslow method for ties

No. of subjects = 36,824 Number of obs = 36,824

No. of failures = 978

Time at risk = 447,356.911

LR chi2(9) = 203.14

Log likelihood = -9064.8075

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.309325</b>	.1646805	11.74	0.000	2.008098 2.655737
zctso	<b>.9728294</b>	.0387517	-0.69	0.489	.8997666 1.051825
_infectionburXzctso_000	<b>.9287226</b>	.0647056	-1.06	0.289	.8101799 1.06461
AGE	<b>1.036188</b>	.0129987	2.83	0.005	1.011021 1.06198
SEX	<b>.7487691</b>	.048604	-4.46	0.000	.6593178 .8503563
NonWhite	<b>1.04519</b>	.1801344	0.26	0.798	.7455791 1.465198
householdsize	<b>.9365418</b>	.039106	-1.57	0.116	.8629481 1.016412
SES	<b>.8156535</b>	.0400494	-4.15	0.000	.7408169 .8980501
LE8_TOTALSCORE	<b>.9989618</b>	.000361	-2.87	0.004	.9982544 .9996696

-> Model for the mediator

Iteration 0: Log likelihood = **-50865.148**  
 Iteration 1: Log likelihood = **-50865.148**

Linear regression (Maximum Likelihood) Number of obs = 36,824  
 Wald chi2(7) = 2877.59  
 Log likelihood = **-50865.148** Prob > chi2 = 0.0000

	zctso	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.1224287</b>	.0146536	8.35	0.000	.0937083 .1511491
AGE		<b>.0124671</b>	.0009558	13.04	0.000	.0105939 .0143404
SEX		<b>-.1170635</b>	.0101464	-11.54	0.000	-.13695 -.097177
NonWhite		<b>-.1397957</b>	.0242716	-5.76	0.000	-.1873671 -.0922243
householdsize		<b>.0018961</b>	.0046257	0.41	0.682	-.0071702 .0109623
SES		<b>-.0834386</b>	.0076085	-10.97	0.000	-.0983509 -.0685263
LE8_TOTALSCORE		<b>-.0022673</b>	.000054	-41.98	0.000	-.0023731 -.0021614
_cons		<b>.5427518</b>	.0690874	7.86	0.000	.4073429 .6781607
<b>sigma2</b>						
_cons		<b>.9274944</b>	.0068354	135.69	0.000	.9140973 .9408914

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.293802</b>	.1636993	7.90	0.000	.972957 1.614646
ereri_cde	<b>1.308252</b>	.1646572	7.95	0.000	.9855294 1.630974
ereri_intref	<b>.0142295</b>	.0152501	0.93	0.351	-.0156601 .0441192
ereri_intmed	<b>-.0253127</b>	.0176933	-1.43	0.153	-.0599909 .0093656
ereri_pie	<b>-.0033668</b>	.004877	-0.69	0.490	-.0129256 .006192

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zctss  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.16 1.531 .04623 2.217 -.07764 500.8

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -6979.2565  
 Iteration 1: Log likelihood = -6907.3882  
 Iteration 2: Log likelihood = -6899.9749  
 Iteration 3: Log likelihood = -6899.9451  
 Iteration 4: Log likelihood = -6899.9451  
 Refining estimates:  
 Iteration 0: Log likelihood = -6899.9451

Cox regression with Breslow method for ties

No. of subjects =	28,572	Number of obs =	28,572
No. of failures =	762		
Time at risk =	347,166.663	LR chi2(9) =	158.62
Log likelihood =	-6899.9451	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.239314	.1848099	9.77	0.000	1.904871 2.632476
zctss	1.012415	.044823	0.28	0.780	.9282667 1.10419
_infectionburXzctss_000	1.001238	.0807224	0.02	0.988	.8548921 1.172637
AGE	1.029429	.0144326	2.07	0.039	1.001526 1.058108
SEX	.758768	.0557347	-3.76	0.000	.6570292 .8762606
NonWhite	1.14868	.2139794	0.74	0.457	.7973241 1.654868
householdsize	.9278939	.0440748	-1.58	0.115	.845408 1.018428
SES	.8011546	.0442678	-4.01	0.000	.7189243 .8927904
LE8_TOTALSCORE	.9989452	.0004037	-2.61	0.009	.9981543 .9997367

-> Model for the mediator

Iteration 0: Log likelihood = -39715.006  
 Iteration 1: Log likelihood = -39715.006

Linear regression (Maximum Likelihood)

Number of obs =	28,572
Wald chi2(7) =	1701.55
Prob > chi2 =	0.0000

Log likelihood = -39715.006

	zctss	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.1225047	.0167609	7.31	0.000	.089654 .1553554
AGE		.0172724	.0011004	15.70	0.000	.0151157 .019429
SEX		-.0355958	.0116196	-3.06	0.002	-.0583698 -.0128219
NonWhite		.0863285	.02792	3.09	0.002	.0316063 .1410506
householdsize		-.0016491	.0054814	-0.30	0.764	-.0123924 .0090943
SES		-.0712804	.0087012	-8.19	0.000	-.0883346 -.0542263
LE8_TOTALSCORE		-.0018847	.0000618	-30.48	0.000	-.0020059 -.0017635
_cons		-.0635643	.0796968	-0.80	0.425	-.2197671 .0926385
<b>sigma2</b>						
_cons		.9437611	.007896	119.52	0.000	.9282852 .9592369

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.243028	.1826611	6.81	0.000	.885019 1.601037
ereri_cde	1.239486	.1848533	6.71	0.000	.8771798 1.601791
ereri_intref	-.0001846	.0006865	-0.27	0.788	-.00153 .0011608
ereri_intmed	.0022146	.0193533	0.11	0.909	-.0357172 .0401464
ereri_pie	.0015126	.0054359	0.28	0.781	-.0091415 .0121667

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zctsv
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04655 2.218 -.07463 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9179.4352**  
 Iteration 1: Log likelihood = **-9089.9447**  
 Iteration 2: Log likelihood = **-9077.5642**  
 Iteration 3: Log likelihood = **-9077.4464**  
 Iteration 4: Log likelihood = **-9077.4464**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-9077.4464**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,604</b>	Number of obs =	<b>36,604</b>
No. of failures =	<b>980</b>		
Time at risk =	<b>444,596.287</b>	LR chi2(9) =	<b>203.98</b>
Log likelihood =	<b>-9077.4464</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.212153</b>	<b>.1663549</b>	<b>10.56</b>	<b>0.000</b>	<b>1.908993</b>	<b>2.563456</b>
zctsv	<b>.9078747</b>	<b>.0368798</b>	<b>-2.38</b>	<b>0.017</b>	<b>.8383943</b>	<b>.9831131</b>
_infectionburXzctsv_000	<b>.9752655</b>	<b>.0691915</b>	<b>-0.35</b>	<b>0.724</b>	<b>.8486589</b>	<b>1.12076</b>
AGE	<b>1.030869</b>	<b>.0129825</b>	<b>2.41</b>	<b>0.016</b>	<b>1.005735</b>	<b>1.056631</b>
SEX	<b>.7508227</b>	<b>.0486412</b>	<b>-4.42</b>	<b>0.000</b>	<b>.661292</b>	<b>.8524748</b>
NonWhite	<b>1.117923</b>	<b>.1903503</b>	<b>0.65</b>	<b>0.513</b>	<b>.800713</b>	<b>1.5608</b>
householdszie	<b>.935748</b>	<b>.0391634</b>	<b>-1.59</b>	<b>0.113</b>	<b>.862053</b>	<b>1.015743</b>
SES	<b>.8230987</b>	<b>.0403225</b>	<b>-3.97</b>	<b>0.000</b>	<b>.7477437</b>	<b>.9060478</b>
LE8_TOTALSCORE	<b>.9990754</b>	<b>.000353</b>	<b>-2.62</b>	<b>0.009</b>	<b>.9983839</b>	<b>.9997675</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50880.524**  
 Iteration 1: Log likelihood = **-50880.524**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,604</b>
	Wald chi2(7) =	<b>2177.94</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	zctsv	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>-.1347863</b>	<b>.0148385</b>	<b>-9.08</b>	<b>0.000</b>	<b>-.1638692</b>
AGE		<b>-.0388271</b>	<b>.0009676</b>	<b>-40.13</b>	<b>0.000</b>	<b>-.0407235</b>
SEX		<b>-.033184</b>	<b>.010265</b>	<b>-3.23</b>	<b>0.001</b>	<b>-.0533029</b>
NonWhite		<b>.3073106</b>	<b>.0245672</b>	<b>12.51</b>	<b>0.000</b>	<b>.2591597</b>
householdszie		<b>-.0045397</b>	<b>.0046721</b>	<b>-0.97</b>	<b>0.331</b>	<b>-.0136968</b>
SES		<b>.0224339</b>	<b>.0076974</b>	<b>2.91</b>	<b>0.004</b>	<b>.0073473</b>
LE8_TOTALSCORE		<b>-.0001668</b>	<b>.0000547</b>	<b>-3.05</b>	<b>0.002</b>	<b>-.0002739</b>
_cons		<b>2.48711</b>	<b>.069982</b>	<b>35.54</b>	<b>0.000</b>	<b>2.349948</b>
<b>sigma2</b>						
_cons		<b>.9438156</b>	<b>.0069765</b>	<b>135.28</b>	<b>0.000</b>	<b>.9301419</b>
						<b>.9574893</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.253494</b>	.1623877	7.72	<b>0.000</b>	.9352199 1.571768
ereri_cde	<b>1.209</b>	.1655121	7.30	<b>0.000</b>	.8846028 1.533398
ereri_intref	<b>.0078314</b>	.0126207	0.62	0.535	-.0169047 .0325674
ereri_intmed	<b>.0235498</b>	.018308	1.29	0.198	-.0123333 .0594329
ereri_pie	<b>.0131122</b>	.0057342	2.29	0.022	.0018733 .024351

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zctsz
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04641 2.216 -.07481 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9110.0933

Iteration 1: Log likelihood = -9023.1218

Iteration 2: Log likelihood = -9014.6264

Iteration 3: Log likelihood = -9014.6014

Iteration 4: Log likelihood = -9014.6014

Refining estimates:

Iteration 0: Log likelihood = -9014.6014

Cox regression with Breslow method for ties

No. of subjects = 36,482 Number of obs = 36,482

No. of failures = 973

Time at risk = 443,179.247

LR chi2(9) = 190.98

Log likelihood = -9014.6014

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.233766	.162848	11.02	0.000	1.936345
	zctsz	.9498132	.0374859	-1.30	0.192	.8791119
_infectionburXzctsz_000		1.036274	.0699738	0.53	0.598	.9078158
	AGE	1.034123	.0130349	2.66	0.008	1.008888
	SEX	.7579665	.0494343	-4.25	0.000	.667014
	NonWhite	1.087524	.1849583	0.49	0.622	.779242
	householdsize	.9365802	.0394065	-1.56	0.119	.8624437
	SES	.825018	.0407486	-3.89	0.000	.7488962
	LE8_TOTALSCORE	.998937	.0003609	-2.94	0.003	.9982299
						.9996446

### -> Model for the mediator

Iteration 0: Log likelihood = -50244.118  
Iteration 1: Log likelihood = -50244.118

Linear regression (Maximum Likelihood)  
Number of obs = 36,482  
Log likelihood = -50244.118 Wald chi2(7) = 3172.64  
Prob > chi2 = 0.0000

	zctsz	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.1533411	.0146618	10.46	0.000	.1246044 .1820777
AGE		.0174036	.0009564	18.20	0.000	.0155291 .0192782
SEX		-.2052365	.0101514	-20.22	0.000	-.225133 -.1853401
NonWhite		-.1647348	.0243273	-6.77	0.000	-.2124155 -.1170541
householdszie		-.0043298	.0046229	-0.94	0.349	-.0133904 .0047308
SES		-.0884551	.0076246	-11.60	0.000	-.103399 -.0735113
LE8_TOTALSCORE		-.0020275	.0000542	-37.43	0.000	-.0021337 -.0019213
_cons		.2709549	.0691216	3.92	0.000	.1354791 .4064306
<b>sigma2</b>						
_cons		.919968	.0068116	135.06	0.000	.9066176 .9333185

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.224196	.1603608	7.63	0.000	.9098944 1.538497
ereri_cde	1.230913	.1626472	7.57	0.000	.9121307 1.549696
ereri_intref	-.0013024	.0051746	-0.25	0.801	-.0114445 .0088397
ereri_intmed	.0024492	.0199094	0.12	0.902	-.0365724 .0414708
ereri_pie	-.0078644	.0060508	-1.30	0.194	-.0197238 .0039949

Warning: this analysis assumes a rare outcome.  
Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zcx3c11  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.17 1.532 .0464 2.216 -.07458 500.7

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -8985.4467  
 Iteration 1: Log likelihood = -8887.5602  
 Iteration 2: Log likelihood = -8879.58  
 Iteration 3: Log likelihood = -8879.5464  
 Iteration 4: Log likelihood = -8879.5464  
 Refining estimates:  
 Iteration 0: Log likelihood = -8879.5464

Cox regression with Breslow method for ties

No. of subjects = 36,164	Number of obs = 36,164
No. of failures = 960	
Time at risk = 439,440.668	
Log likelihood = -8879.5464	LR chi2(9) = 211.80
	Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.234568	.1639611	10.96	0.000	1.935249 2.580182
zcx3c11	1.174677	.0436075	4.34	0.000	1.092244 1.263332
_infectionburXzcx3c11_000	.9071624	.0602553	-1.47	0.142	.7964285 1.033293
AGE	1.03366	.0130832	2.62	0.009	1.008333 1.059623
SEX	.7228916	.0474761	-4.94	0.000	.6355801 .8221973
NonWhite	1.007649	.1759233	0.04	0.965	.715649 1.418792
householdsize	.9487144	.0392451	-1.27	0.203	.8748311 1.028838
SES	.8113804	.0401433	-4.22	0.000	.7363953 .894001
LE8_TOTALSCORE	.9989821	.0003557	-2.86	0.004	.9982852 .9996795

-> Model for the mediator

Iteration 0: Log likelihood = -50875.604  
 Iteration 1: Log likelihood = -50875.604

Linear regression (Maximum Likelihood)

Number of obs = 36,164
Wald chi2(7) = 887.49
Prob > chi2 = 0.0000

Log likelihood = -50875.604

	zcx3c11	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.1032731	.015174	6.81	0.000	.0735327 .1330136
AGE		.0192357	.0009928	19.37	0.000	.0172898 .0211816
SEX		.1727832	.0105035	16.45	0.000	.1521968 .1933696
NonWhite		-.0313706	.0251858	-1.25	0.213	-.0807337 .0179926
householdsize		-.0168427	.0049812	-3.38	0.001	-.0266056 -.0070797
SES		-.037825	.0078956	-4.79	0.000	-.0533001 -.0223499
LE8_TOTALSCORE		.0003297	.0000559	5.90	0.000	.0002201 .0004393
_cons		-1.565558	.0719551	-21.76	0.000	-1.706588 -1.424529
<b>sigma2</b>						
_cons		.9760201	.0072583	134.47	0.000	.961794 .9902461

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.228503	.1608758	7.64	0.000	.9131926 1.543814
ereri_cde	1.221865	.1616586	7.56	0.000	.9050199 1.53871
ereri_intref	-.0079415	.007807	-1.02	0.309	-.023243 .0073599
ereri_intmed	-.0021853	.0132084	-0.17	0.869	-.0280732 .0237026
ereri_pie	.0167653	.0046222	3.63	0.000	.007706 .0258246

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zcxadr
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04646 2.216 -.07503 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9036.4379**  
 Iteration 1: Log likelihood = **-8949.0662**  
 Iteration 2: Log likelihood = **-8939.8406**  
 Iteration 3: Log likelihood = **-8939.8008**  
 Iteration 4: Log likelihood = **-8939.8008**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8939.8008**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,352</b>	Number of obs =	<b>36,352</b>
No. of failures =	<b>965</b>		
Time at risk =	<b>441,650.762</b>	LR chi2(9) =	<b>193.27</b>
Log likelihood =	<b>-8939.8008</b>	Prob > chi2 =	<b>0.0000</b>

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.247587</b>	.1624011	<b>11.21</b>	<b>0.000</b>	<b>1.950798</b> <b>2.589529</b>
_zcxadr	<b>.9880524</b>	.0394762	<b>-0.30</b>	<b>0.764</b>	<b>.9136323</b> <b>1.068534</b>
_infectionburXzcxadr_000	<b>1.039792</b>	.0731364	<b>0.55</b>	<b>0.579</b>	<b>.9058895</b> <b>1.193488</b>
AGE	<b>1.032479</b>	.0130153	<b>2.54</b>	<b>0.011</b>	<b>1.007282</b> <b>1.058306</b>
SEX	<b>.7588349</b>	.0495042	<b>-4.23</b>	<b>0.000</b>	<b>.6677553</b> <b>.8623376</b>
NonWhite	<b>1.056447</b>	.1821227	<b>0.32</b>	<b>0.750</b>	<b>.7535423</b> <b>1.481112</b>
householdszie	<b>.9334124</b>	.0397216	<b>-1.62</b>	<b>0.105</b>	<b>.8587179</b> <b>1.014604</b>
SES	<b>.8196088</b>	.04053	<b>-4.02</b>	<b>0.000</b>	<b>.7438997</b> <b>.9030231</b>
LE8_TOTALSCORE	<b>.9990196</b>	.0003564	<b>-2.75</b>	<b>0.006</b>	<b>.9983214</b> <b>.9997183</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-51224.675**  
 Iteration 1: Log likelihood = **-51224.675**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,352</b>	
	Wald chi2(7) =	<b>719.18</b>	
Log likelihood =	<b>-51224.675</b>	Prob > chi2 =	<b>0.0000</b>

zcxadr	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.1471907</b>	.0151696	<b>9.70</b>	<b>0.000</b>	<b>.1174587</b> <b>.1769226</b>
AGE	<b>.0031397</b>	.0009902	<b>3.17</b>	<b>0.002</b>	<b>.0011989</b> <b>.0050805</b>
SEX	<b>-.0843629</b>	.0104993	<b>-8.04</b>	<b>0.000</b>	<b>-.1049411</b> <b>-.0637847</b>
NonWhite	<b>-.114698</b>	.0251598	<b>-4.56</b>	<b>0.000</b>	<b>-.1640102</b> <b>-.0653858</b>
householdszie	<b>-.0239492</b>	.0048594	<b>-4.93</b>	<b>0.000</b>	<b>-.0334734</b> <b>-.014425</b>
SES	<b>-.0643195</b>	.007875	<b>-8.17</b>	<b>0.000</b>	<b>-.0797542</b> <b>-.0488849</b>
LE8_TOTALSCORE	<b>-.0008753</b>	.0000559	<b>-15.66</b>	<b>0.000</b>	<b>-.0009849</b> <b>-.0007658</b>
_cons	<b>.4116002</b>	.0716348	<b>5.75</b>	<b>0.000</b>	<b>.2711986</b> <b>.5520017</b>
<b>sigma2</b>					
_cons	<b>.9805731</b>	.0072733	<b>134.82</b>	<b>0.000</b>	<b>.9663177</b> <b>.9948285</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.255388</b>	.1615773	7.77	<b>0.000</b>	.9387022 1.572074
ereri_cde	<b>1.247193</b>	.1623704	7.68	<b>0.000</b>	.9289524 1.565433
ereri_intref	<b>-.0007506</b>	.00157	-0.48	0.633	-.0038277 .0023264
ereri_intmed	<b>.0107135</b>	.020091	0.53	0.594	-.0286642 .0500913
ereri_pie	<b>-.0017676</b>	.0058732	-0.30	0.763	-.0132789 .0097437

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zcxcl1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04634 2.216 -.07544 500.4

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9047.9787**

Iteration 1: Log likelihood = **-8957.8411**

Iteration 2: Log likelihood = **-8949.4707**

Iteration 3: Log likelihood = **-8949.4494**

Iteration 4: Log likelihood = **-8949.4494**

Refining estimates:

Iteration 0: Log likelihood = **-8949.4494**

Cox regression with Breslow method for ties

No. of subjects = 36,383 Number of obs = 36,383

No. of failures = 966

Time at risk = 441,974.762

Log likelihood = -8949.4494

LR chi2(9) = 197.06

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.239132	.1607212	11.23	0.000	1.945279 2.577375
zcxcl1	.9381821	.037276	-1.61	0.108	.8678948 1.014162
_infectionburXzcxcl1_000	1.024869	.0738805	0.34	0.733	.8898304 1.180401
AGE	1.03787	.0130858	2.95	0.003	1.012537 1.063837
SEX	.7556463	.0493959	-4.29	0.000	.6647775 .8589359
NonWhite	1.105434	.1914218	0.58	0.563	.7872901 1.552139
householdsize	.9384634	.0393522	-1.51	0.130	.8644189 1.01885
SES	.8198578	.040479	-4.02	0.000	.7442383 .9031608
LE8_TOTALSCORE	.9989986	.0003556	-2.81	0.005	.9983019 .9996958

-> Model for the mediator

Iteration 0: Log likelihood = -51266.723  
 Iteration 1: Log likelihood = -51266.723

Linear regression (Maximum Likelihood)  
 Number of obs = 36,383  
 Wald chi2(7) = 723.13  
 Prob > chi2 = 0.0000  
 Log likelihood = -51266.723

zcxcl1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	-.0130423	.0151398	-0.86	0.389	-.0427157 .0166311
AGE	.0001431	.0009886	0.14	0.885	-.0017944 .0020806
SEX	.1255453	.0104959	11.96	0.000	.1049738 .1461169
NonWhite	.5073826	.0251664	20.16	0.000	.4580575 .5567078
householdsize	.0007667	.0047743	0.16	0.872	-.0085908 .0101242
SES	-.0269947	.0078754	-3.43	0.001	-.0424303 -.0115592
LE8_TOTALSCORE	-.0005637	.0000559	-10.09	0.000	-.0006733 -.0004542
_cons	.0557965	.0713927	0.78	0.434	-.0841306 .1957236
<b>sigma2</b>					
_cons	.9804849	.0072695	134.88	0.000	.9662369 .994733

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.2376	.1603542	7.72	0.000	.923311 1.551888
ereri_cde	1.236804	.1603628	7.71	0.000	.9224989 1.551109
ereri_intref	-.0003497	.0054935	-0.06	0.949	-.0111167 .0104173
ereri_intmed	.0003125	.0018713	0.17	0.867	-.0033552 .0039801
ereri_pie	.0008326	.0010972	0.76	0.448	-.0013179 .0029831

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zcxcl10  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.18 1.531 .04635 2.216 -.07488 500.5

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9125.8833  
 Iteration 1: Log likelihood = -9039.1724  
 Iteration 2: Log likelihood = -9028.0233  
 Iteration 3: Log likelihood = -9027.9573  
 Iteration 4: Log likelihood = -9027.9573  
 Refining estimates:  
 Iteration 0: Log likelihood = -9027.9573

Cox regression with Breslow method for ties

No. of subjects =	36,595	Number of obs =	36,595
No. of failures =	974		
Time at risk =	444,506.48	LR chi2(9) =	195.85
Log likelihood =	-9027.9573	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.292357	.1647752	11.54	0.000	1.991121 2.639166
zcxcl10	.995258	.0398975	-0.12	0.906	.9200535 1.07661
_infectionburXzcxcl10_000	.8786157	.0639693	-1.78	0.076	.761773 1.01338
AGE	1.036747	.0130512	2.87	0.004	1.01148 1.062645
SEX	.7641073	.0498132	-4.13	0.000	.6724553 .868251
NonWhite	1.094817	.1862951	0.53	0.594	.7843323 1.528209
householdsize	.9360896	.0393629	-1.57	0.116	.8620333 1.016508
SES	.8268466	.0407156	-3.86	0.000	.7507754 .9106256
LE8_TOTALSCORE	.999007	.0003557	-2.79	0.005	.9983102 .9997044

-> Model for the mediator

Iteration 0: Log likelihood = -50852.342  
 Iteration 1: Log likelihood = -50852.342

Linear regression (Maximum Likelihood)  
 Number of obs = 36,595  
 Wald chi2(7) = 2210.62  
 Log likelihood = -50852.342 Prob > chi2 = 0.0000

	zcxcl10	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr	.1260297	.0148128	8.51	0.000	.0969973	.1550622
AGE	.0319422	.0009667	33.04	0.000	.0300474	.033837
SEX	.1460983	.0102636	14.23	0.000	.1259821	.1662145
NonWhite	-.0356942	.0246069	-1.45	0.147	-.0839228	.0125344
householdsize	-.006378	.004673	-1.36	0.172	-.015537	.002781
SES	-.0190664	.0077037	-2.47	0.013	-.0341654	-.0039674
LE8_TOTALSCORE	-.0013017	.0000547	-23.82	0.000	-.0014089	-.0011946
_cons	-1.497816	.0698272	-21.45	0.000	-1.634675	-1.360957
<b>sigma2</b>						
_cons	.9430076	.0069714	135.27	0.000	.929344	.9566713

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.278267	.1642435	7.78	0.000	.9563551 1.600178
ereri_cde	1.292235	.1648523	7.84	0.000	.9691309 1.61534
ereri_intref	.0248802	.0207892	1.20	0.231	-.0158659 .0656262
ereri_intmed	-.0382502	.0196217	-1.95	0.051	-.076708 .0002076
ereri_pie	-.0005989	.0050497	-0.12	0.906	-.0104961 .0092983

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zcxcl11
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04637 2.216 -.07448 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9160.406**  
 Iteration 1: Log likelihood = **-9072.3215**  
 Iteration 2: Log likelihood = **-9061.7453**  
 Iteration 3: Log likelihood = **-9061.6819**  
 Iteration 4: Log likelihood = **-9061.6819**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-9061.6819**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,751</b>	Number of obs =	<b>36,751</b>
No. of failures =	<b>977</b>		
Time at risk =	<b>446,451.479</b>	LR chi2(9) =	<b>197.45</b>
Log likelihood =	<b>-9061.6819</b>	Prob > chi2 =	<b>0.0000</b>

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.243185</b>	<b>.1600886</b>	<b>11.32</b>	<b>0.000</b>	<b>1.950373</b> <b>2.579957</b>
_zcxcl11	<b>1.024698</b>	<b>.0383115</b>	<b>0.65</b>	<b>0.514</b>	<b>.9522944</b> <b>1.102607</b>
_infectionburXzcxl11_000	<b>.8653064</b>	<b>.0641324</b>	<b>-1.95</b>	<b>0.051</b>	<b>.7483124</b> <b>1.000592</b>
AGE	<b>1.03401</b>	<b>.0129647</b>	<b>2.67</b>	<b>0.008</b>	<b>1.008909</b> <b>1.059735</b>
SEX	<b>.7568523</b>	<b>.0493572</b>	<b>-4.27</b>	<b>0.000</b>	<b>.6660412</b> <b>.860045</b>
NonWhite	<b>1.089335</b>	<b>.1852939</b>	<b>0.50</b>	<b>0.615</b>	<b>.7805011</b> <b>1.52037</b>
householdszie	<b>.9339085</b>	<b>.0394689</b>	<b>-1.62</b>	<b>0.106</b>	<b>.859668</b> <b>1.01456</b>
SES	<b>.816397</b>	<b>.0401184</b>	<b>-4.13</b>	<b>0.000</b>	<b>.7414343</b> <b>.8989389</b>
LE8_TOTALSCORE	<b>.9990191</b>	<b>.0003543</b>	<b>-2.77</b>	<b>0.006</b>	<b>.998325</b> <b>.9997137</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-51620.828**  
 Iteration 1: Log likelihood = **-51620.828**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,751</b>
	Wald chi2(7) =	<b>1067.37</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

<u>zcxl11</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.0726509</b>	<b>.0150092</b>	<b>4.84</b>	<b>0.000</b>	<b>.0432334</b> <b>.1020683</b>
AGE	<b>.0129874</b>	<b>.0009822</b>	<b>13.22</b>	<b>0.000</b>	<b>.0110624</b> <b>.0149124</b>
SEX	<b>.2258907</b>	<b>.0103969</b>	<b>21.73</b>	<b>0.000</b>	<b>.2055131</b> <b>.2462684</b>
NonWhite	<b>.1419999</b>	<b>.0249424</b>	<b>5.69</b>	<b>0.000</b>	<b>.0931137</b> <b>.1908861</b>
householdszie	<b>-.0016374</b>	<b>.0049386</b>	<b>-0.33</b>	<b>0.740</b>	<b>-.0113169</b> <b>.0080421</b>
SES	<b>-.0518394</b>	<b>.007808</b>	<b>-6.64</b>	<b>0.000</b>	<b>-.0671429</b> <b>-.036536</b>
LE8_TOTALSCORE	<b>-.0008326</b>	<b>.0000554</b>	<b>-15.04</b>	<b>0.000</b>	<b>-.0009411</b> <b>-.000724</b>
_cons	<b>-.7275747</b>	<b>.0712144</b>	<b>-10.22</b>	<b>0.000</b>	<b>-.8671523</b> <b>-.587997</b>
<b>sigma2</b>					
_cons	<b>.9717499</b>	<b>.0071686</b>	<b>135.56</b>	<b>0.000</b>	<b>.9576997</b> <b>.9858002</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.241975</b>	.1600985	7.76	<b>0.000</b>	.9281877 1.555762
ereri_cde	<b>1.243131</b>	.1600555	7.77	<b>0.000</b>	.9294283 1.556834
ereri_intref	<b>.0185198</b>	.018585	1.00	0.319	-.0179062 .0549458
ereri_intmed	<b>-.0214503</b>	.0118946	-1.80	0.071	-.0447633 .0018628
ereri_pie	<b>.0017741</b>	.0027457	0.65	0.518	-.0036074 .0071556

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zcxcl12
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.53 .04656 2.215 -.07626 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -8913.3312

Iteration 1: Log likelihood = -8828.1503

Iteration 2: Log likelihood = -8820.3834

Iteration 3: Log likelihood = -8820.3662

Iteration 4: Log likelihood = -8820.3662

Refining estimates:

Iteration 0: Log likelihood = -8820.3662

Cox regression with Breslow method for ties

No. of subjects = 35,761 Number of obs = 35,761

No. of failures = 953

Time at risk = 434,427.923

Log likelihood = -8820.3662

LR chi2(9) = 185.93

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.221588	.1607894	11.03	0.000	1.927778 2.560177
zcxcl12		1.008038	.0392043	0.21	0.837	.9340544 1.087881
_infectionburXzcxcl12_000		.9853533	.0707578	-0.21	0.837	.8559878 1.13427
AGE		1.036898	.0131649	2.85	0.004	1.011413 1.063024
SEX		.7487197	.0493201	-4.39	0.000	.658034 .851903
NonWhite		1.055514	.1843438	0.31	0.757	.7495541 1.486363
householdsize		.9350757	.0397913	-1.58	0.115	.86025 1.01641
SES		.8271482	.041181	-3.81	0.000	.7502479 .9119307
LE8_TOTALSCORE		.9990641	.0003585	-2.61	0.009	.9983618 .9997669

-> Model for the mediator

Iteration 0: Log likelihood = -50580.323  
 Iteration 1: Log likelihood = -50580.323

Linear regression (Maximum Likelihood)  
 Number of obs = 35,761  
 Wald chi2(7) = 325.15  
 Log likelihood = -50580.323 Prob > chi2 = 0.0000

	zcxcl12	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.0141568	.015383	0.92	0.357	-.0159934 .044307
AGE		.0085462	.0010019	8.53	0.000	.0065825 .0105099
SEX		.0992225	.0106404	9.33	0.000	.0783678 .1200772
NonWhite		-.2196492	.0254592	-8.63	0.000	-.2695482 -.1697502
householdsize		-.0034901	.0048397	-0.72	0.471	-.0129758 .0059956
SES		-.0432397	.0079777	-5.42	0.000	-.0588757 -.0276038
LE8_TOTALSCORE		.0003035	.0000567	5.35	0.000	.0001923 .0004146
_cons		-.8053503	.0723703	-11.13	0.000	-.9471935 -.6635071
<b>sigma2</b>						
_cons		.990962	.0074108	133.72	0.000	.9764371 1.005487

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.22142	.1607722	7.60	0.000	.9063122 1.536528
ereri_cde	1.221569	.1607787	7.60	0.000	.9064481 1.536689
ereri_intref	.0000635	.0011933	0.05	0.958	-.0022753 .0024023
ereri_intmed	-.0003256	.0020103	-0.16	0.871	-.0042657 .0036145
ereri_pie	.0001133	.0005642	0.20	0.841	-.0009926 .0012192

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```

Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zcxcl13
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

Model for the outcome (yreg): cox
Model for the mediator (mreg): linear

Referent exposure level (a0):          0
Actual exposure level (a1):           1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c):    60.18 1.531 .04637 2.216 -.07448 500.6

```

-> Model for the outcome

```

Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid

Iteration 0: Log likelihood = -9160.406
Iteration 1: Log likelihood = -9071.4617
Iteration 2: Log likelihood = -9063.2901
Iteration 3: Log likelihood = -9063.2719
Iteration 4: Log likelihood = -9063.2719
Refining estimates:
Iteration 0: Log likelihood = -9063.2719

```

Cox regression with Breslow method for ties

No. of subjects =	36,751	Number of obs =	36,751
No. of failures =	977		
Time at risk =	446,451.479	LR chi2(9) =	194.27
Log likelihood =	-9063.2719	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.252183	.1626128	11.24	0.000	1.954992 2.594552
zcxcl13	.9956194	.0388364	-0.11	0.910	.9223384 1.074723
_infectionburXzcxcl13_000	.9574123	.0630923	-0.66	0.509	.8414064 1.089412
AGE	1.034467	.0129886	2.70	0.007	1.009321 1.06024
SEX	.7540464	.0489021	-4.35	0.000	.6640414 .8562507
NonWhite	1.084545	.1843934	0.48	0.633	.77719 1.51345
householdsize	.9331484	.0394252	-1.64	0.101	.8589893 1.01371
SES	.8159007	.0401318	-4.14	0.000	.7409164 .8984739
LE8_TOTALSCORE	.9990077	.0003567	-2.78	0.005	.9983089 .999707

-> Model for the mediator

Iteration 0: Log likelihood = -51207.231	Number of obs = 36,751
Iteration 1: Log likelihood = -51207.231	Wald chi2(7) = 1928.24
Linear regression (Maximum Likelihood)	Prob > chi2 = 0.0000
Log likelihood = -51207.231	

	zcxcl13	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.1855278	.0148412	12.50	0.000	.1564395 .214616
AGE		.0173069	.0009712	17.82	0.000	.0154035 .0192104
SEX		-.0040482	.0102806	-0.39	0.694	-.0241978 .0161014
NonWhite		-.0517407	.0246633	-2.10	0.036	-.1000798 -.0034015
householdsize		.0067887	.0048833	1.39	0.164	-.0027825 .0163599
SES		-.0830766	.0077206	-10.76	0.000	-.0982088 -.0679444
LE8_TOTALSCORE		-.0016286	.0000548	-29.74	0.000	-.0017359 -.0015213
_cons		-.2646771	.0704174	-3.76	0.000	-.4026927 -.1266615
<b>sigma2</b>						
_cons		.9501221	.0070091	135.56	0.000	.9363846 .9638596

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.237173	.1602621	7.72	0.000	.9230654 1.551281
ereri_cde	1.25203	.1626753	7.70	0.000	.9331918 1.570867
ereri_intref	.0051185	.008772	0.58	0.560	-.0120744 .0223113
ereri_intmed	-.0191605	.0237031	-0.81	0.419	-.0656176 .0272967
ereri_pie	-.0008142	.0072313	-0.11	0.910	-.0149874 .013359

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zcxcl14
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.53 .04656 2.215 -.07626 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8913.3312**  
 Iteration 1: Log likelihood = **-8824.715**  
 Iteration 2: Log likelihood = **-8817.0597**  
 Iteration 3: Log likelihood = **-8817.0414**  
 Iteration 4: Log likelihood = **-8817.0414**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8817.0414**

Cox regression with Breslow method for ties

No. of subjects =	<b>35,761</b>	Number of obs =	<b>35,761</b>
No. of failures =	<b>953</b>		
Time at risk =	<b>434,427.923</b>	LR chi2(9) =	<b>192.58</b>
Log likelihood =	<b>-8817.0414</b>	Prob > chi2 =	<b>0.0000</b>

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.297099</b>	.1694256	<b>11.28</b>	<b>0.000</b>	<b>1.987916</b> <b>2.654368</b>
_zcxcl14	<b>1.091257</b>	.0398139	<b>2.39</b>	<b>0.017</b>	<b>1.015948</b> <b>1.172149</b>
_infectionburXzcxl14_000	<b>.8513677</b>	.0641852	<b>-2.13</b>	<b>0.033</b>	<b>.73442</b> <b>.9869379</b>
AGE	<b>1.03582</b>	.0131893	<b>2.76</b>	<b>0.006</b>	<b>1.01029</b> <b>1.061996</b>
SEX	<b>.7598842</b>	.0505695	<b>-4.13</b>	<b>0.000</b>	<b>.6669616</b> <b>.8657529</b>
NonWhite	<b>1.090536</b>	.192533	<b>0.49</b>	<b>0.623</b>	<b>.771545</b> <b>1.541412</b>
householdszie	<b>.9341561</b>	.0398993	<b>-1.59</b>	<b>0.111</b>	<b>.8591386</b> <b>1.015724</b>
SES	<b>.8277778</b>	.0412131	<b>-3.80</b>	<b>0.000</b>	<b>.7508176</b> <b>.9126266</b>
LE8_TOTALSCORE	<b>.9990637</b>	.0003584	<b>-2.61</b>	<b>0.009</b>	<b>.9983616</b> <b>.9997663</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-49239.213**  
 Iteration 1: Log likelihood = **-49239.213**

Linear regression (Maximum Likelihood)	Number of obs =	<b>35,761</b>	
	Wald chi2(7) =	<b>3135.84</b>	
Log likelihood =	<b>-49239.213</b>	Prob > chi2 =	<b>0.0000</b>

<u>zcxl14</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.0337418</b>	.0148168	<b>2.28</b>	<b>0.023</b>	<b>.0047013</b> <b>.0627823</b>
AGE	<b>.0317549</b>	.000965	<b>32.91</b>	<b>0.000</b>	<b>.0298635</b> <b>.0336464</b>
SEX	<b>-.2549706</b>	.0102487	<b>-24.88</b>	<b>0.000</b>	<b>-.2750577</b> <b>-.2348835</b>
NonWhite	<b>-.7626762</b>	.0245221	<b>-31.10</b>	<b>0.000</b>	<b>-.8107386</b> <b>-.7146138</b>
householdszie	<b>.0023757</b>	.0046616	<b>0.51</b>	<b>0.610</b>	<b>-.0067609</b> <b>.0115122</b>
SES	<b>-.017067</b>	.007684	<b>-2.22</b>	<b>0.026</b>	<b>-.0321274</b> <b>-.0020065</b>
LE8_TOTALSCORE	<b>-2.08e-06</b>	.0000546	<b>-0.04</b>	<b>0.970</b>	<b>-.0001091</b> <b>.0001049</b>
_cons	<b>-1.495604</b>	.0697065	<b>-21.46</b>	<b>0.000</b>	<b>-1.632226</b> <b>-1.358982</b>
<b>sigma2</b>					
_cons	<b>.9193549</b>	.0068753	<b>133.72</b>	<b>0.000</b>	<b>.9058795</b> <b>.9328303</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.290796</b>	.1693271	7.62	<b>0.000</b>	.9589207 1.622671
ereri_cde	<b>1.293087</b>	.1685021	7.67	<b>0.000</b>	.9628289 1.623345
ereri_intref	<b>.0034032</b>	.0117268	0.29	<b>0.772</b>	-.0195809 .0263874
ereri_intmed	<b>-.0086456</b>	.0066098	-1.31	<b>0.191</b>	-.0216006 .0043095
ereri_pie	<b>.002951</b>	.0017913	1.65	<b>0.099</b>	-.0005598 .0064619

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zcxcl16
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04645 2.216 -.07553 500.4

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9195.2898

Iteration 1: Log likelihood = -9106.6397

Iteration 2: Log likelihood = -9097.9827

Iteration 3: Log likelihood = -9097.953

Iteration 4: Log likelihood = -9097.953

Refining estimates:

Iteration 0: Log likelihood = -9097.953

Cox regression with Breslow method for ties

No. of subjects = 36,835

Number of obs = 36,835

No. of failures = 981

Time at risk = 447,504.254

LR chi2(9) = 194.67

Log likelihood = -9097.953

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.222569	.1603973	11.07	0.000	1.929417 2.560261
zcxcl16		1.02238	.0405578	0.56	0.577	.9459003 1.105044
_infectionburXzcxcl16_000		1.008777	.0688702	0.13	0.898	.8824355 1.153208
AGE		1.034781	.0129852	2.72	0.006	1.00964 1.060547
SEX		.7459256	.0488807	-4.47	0.000	.6560185 .8481546
NonWhite		1.060656	.1808824	0.35	0.730	.7592977 1.481621
householdszie		.9372479	.0392785	-1.55	0.122	.8633403 1.017482
SES		.822287	.0403793	-3.98	0.000	.7468342 .9053628
LE8_TOTALSCORE		.9990898	.0003581	-2.54	0.011	.9983882 .9997919

-> Model for the mediator

Iteration 0: Log likelihood = -50679.516  
 Iteration 1: Log likelihood = -50679.516

Linear regression (Maximum Likelihood) Number of obs = 36,835  
 Wald chi2(7) = 3313.86  
 Log likelihood = -50679.516 Prob > chi2 = 0.0000

	zcxcl16	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.1254824	.0145552	8.62	0.000	.0969547 .1540101
AGE		.0127678	.0009504	13.43	0.000	.010905 .0146306
SEX		.2882433	.0100897	28.57	0.000	.268468 .3080187
NonWhite		.3970495	.0241669	16.43	0.000	.3496834 .4444157
householdszie		-.0258922	.0045989	-5.63	0.000	-.0349058 -.0168786
SES		-.0820943	.0075717	-10.84	0.000	-.0969345 -.0672541
LE8_TOTALSCORE		-.0019921	.0000537	-37.07	0.000	-.0020975 -.0018868
_cons		-.1974454	.0687172	-2.87	0.004	-.3321287 -.0627621
<b>sigma2</b>						
_cons		.9174358	.0067602	135.71	0.000	.904186 .9306856

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.231329	.1592069	7.73	0.000	.9192896 1.543369
ereri_cde	1.222766	.1604172	7.62	0.000	.9083544 1.537178
ereri_intref	-.0000644	.0014007	-0.05	0.963	-.0028097 .002681
ereri_intmed	.0058461	.0164637	0.36	0.723	-.0264221 .0381144
ereri_pie	.0027812	.0050022	0.56	0.578	-.0070228 .0125853

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdszie SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zcxcl17  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.18 1.531 .0466 2.218 -.07544 500.5

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9166.3755  
 Iteration 1: Log likelihood = -9074.2973  
 Iteration 2: Log likelihood = -9065.2704  
 Iteration 3: Log likelihood = -9065.2496  
 Iteration 4: Log likelihood = -9065.2496  
 Refining estimates:  
 Iteration 0: Log likelihood = -9065.2496

Cox regression with Breslow method for ties

No. of subjects =	<b>36,824</b>	Number of obs =	<b>36,824</b>
No. of failures =	<b>978</b>		
Time at risk =	<b>447,356.911</b>	LR chi2(9) =	<b>202.25</b>
Log likelihood =	<b>-9065.2496</b>	Prob > chi2 =	<b>0.0000</b>

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.316951</b>	<b>.1706738</b>	<b>11.41</b>	<b>0.000</b>	<b>2.005464</b> <b>2.676819</b>
zcxcl17	<b>.9584092</b>	<b>.0413351</b>	<b>-0.98</b>	<b>0.325</b>	<b>.8807237</b> <b>1.042947</b>
_infectionburXzcxcl17_000	<b>.9619531</b>	<b>.0714616</b>	<b>-0.52</b>	<b>0.602</b>	<b>.8316102</b> <b>1.112725</b>
AGE	<b>1.037454</b>	<b>.0130837</b>	<b>2.92</b>	<b>0.004</b>	<b>1.012125</b> <b>1.063417</b>
SEX	<b>.7523778</b>	<b>.0487678</b>	<b>-4.39</b>	<b>0.000</b>	<b>.6626171</b> <b>.854298</b>
NonWhite	<b>1.031301</b>	<b>.1780925</b>	<b>0.18</b>	<b>0.858</b>	<b>.7351797</b> <b>1.446695</b>
householdsize	<b>.9349021</b>	<b>.0393296</b>	<b>-1.60</b>	<b>0.110</b>	<b>.8609098</b> <b>1.015254</b>
SES	<b>.8106282</b>	<b>.0400669</b>	<b>-4.25</b>	<b>0.000</b>	<b>.7357825</b> <b>.8930875</b>
LE8_TOTALSCORE	<b>.9989801</b>	<b>.0003598</b>	<b>-2.83</b>	<b>0.005</b>	<b>.9982752</b> <b>.9996855</b>

-> Model for the mediator

Iteration 0: Log likelihood = -49466.846  
 Iteration 1: Log likelihood = -49466.846

Linear regression (Maximum Likelihood)  
 Number of obs = 36,824  
 Wald chi2(7) = 6010.18  
 Prob > chi2 = 0.0000  
 Log likelihood = -49466.846

	zcxcl17	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.1176071	.0141076	8.34	0.000	.0899568 .1452574
AGE		.0401432	.0009202	43.63	0.000	.0383397 .0419466
SEX		-.0139738	.0097683	-1.43	0.153	-.0331194 .0051717
NonWhite		-.2882144	.0233672	-12.33	0.000	-.3340132 -.2424156
householdsize		-.0202892	.0044534	-4.56	0.000	-.0290176 -.0115607
SES		-.1752279	.007325	-23.92	0.000	-.1895846 -.1608712
LE8_TOTALSCORE		-.0021176	.000052	-40.72	0.000	-.0022195 -.0020156
_cons		-1.305624	.0665132	-19.63	0.000	-1.435987 -1.17526
<b>sigma2</b>						
_cons		.859664	.0063355	135.69	0.000	.8472467 .8720812

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.301108	.1691875	7.69	0.000	.9695062 1.632709
ereri_cde	1.315018	.1707851	7.70	0.000	.9802859 1.649751
ereri_intref	.0081884	.0127951	0.64	0.522	-.0168895 .0332663
ereri_intmed	-.0171157	.0181181	-0.94	0.345	-.0526266 .0183952
ereri_pie	-.0049835	.0050821	-0.98	0.327	-.0149442 .0049772

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zcxcl3
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04636 2.216 -.07507 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9073.1492**  
 Iteration 1: Log likelihood = **-8984.0952**  
 Iteration 2: Log likelihood = **-8974.1632**  
 Iteration 3: Log likelihood = **-8974.0969**  
 Iteration 4: Log likelihood = **-8974.0968**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8974.0968**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,430</b>	Number of obs =	<b>36,430</b>
No. of failures =	<b>969</b>		
Time at risk =	<b>442,560.887</b>	LR chi2(9) =	<b>198.10</b>
Log likelihood =	<b>-8974.0968</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.219871</b>	<b>.1598848</b>	<b>11.07</b>	<b>0.000</b>	<b>1.927616</b> <b>2.556437</b>
_zcxcl3		<b>.9259719</b>	<b>.0352095</b>	<b>-2.02</b>	<b>0.043</b>	<b>.8594713</b> <b>.997618</b>
_infectionburXzcxl3_000		<b>.9812656</b>	<b>.0695166</b>	<b>-0.27</b>	<b>0.790</b>	<b>.8540517</b> <b>1.127428</b>
AGE		<b>1.036527</b>	<b>.013062</b>	<b>2.85</b>	<b>0.004</b>	<b>1.01124</b> <b>1.062447</b>
SEX		<b>.7621342</b>	<b>.0497418</b>	<b>-4.16</b>	<b>0.000</b>	<b>.6706201</b> <b>.8661365</b>
NonWhite		<b>1.064447</b>	<b>.1834576</b>	<b>0.36</b>	<b>0.717</b>	<b>.7593105</b> <b>1.492206</b>
householdszie		<b>.9387806</b>	<b>.0393449</b>	<b>-1.51</b>	<b>0.132</b>	<b>.8647482</b> <b>1.019151</b>
SES		<b>.8222032</b>	<b>.0405613</b>	<b>-3.97</b>	<b>0.000</b>	<b>.7464269</b> <b>.9056723</b>
LE8_TOTALSCORE		<b>.9989485</b>	<b>.0003547</b>	<b>-2.96</b>	<b>0.003</b>	<b>.9982537</b> <b>.9996439</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-51539.466**  
 Iteration 1: Log likelihood = **-51539.466**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,430</b>
	Wald chi2(7) =	<b>305.20</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	<u>zcxl3</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>-.0369046</b>	<b>.0152164</b>	<b>-2.43</b>	<b>0.015</b>	<b>-.0667282</b> <b>-.007081</b>
AGE		<b>-.0039633</b>	<b>.0009935</b>	<b>-3.99</b>	<b>0.000</b>	<b>-.0059105</b> <b>-.002016</b>
SEX		<b>.1206727</b>	<b>.0105486</b>	<b>11.44</b>	<b>0.000</b>	<b>.0999978</b> <b>.1413475</b>
NonWhite		<b>.0184711</b>	<b>.0252858</b>	<b>0.73</b>	<b>0.465</b>	<b>-.0310882</b> <b>.0680304</b>
householdszie		<b>-.0012774</b>	<b>.0047992</b>	<b>-0.27</b>	<b>0.790</b>	<b>-.0106837</b> <b>.0081289</b>
SES		<b>-.0232274</b>	<b>.0079167</b>	<b>-2.93</b>	<b>0.003</b>	<b>-.0387438</b> <b>-.007711</b>
LE8_TOTALSCORE		<b>-.0006622</b>	<b>.0000562</b>	<b>-11.79</b>	<b>0.000</b>	<b>-.0007723</b> <b>-.0005521</b>
_cons		<b>.3904867</b>	<b>.0717784</b>	<b>5.44</b>	<b>0.000</b>	<b>.2498037</b> <b>.5311697</b>
<b>sigma2</b>						
_cons		<b>.9916646</b>	<b>.0073477</b>	<b>134.96</b>	<b>0.000</b>	<b>.9772635</b> <b>1.006066</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.23113</b>	.1597656	7.71	<b>0.000</b>	.917995 1.544265
ereri_cde	<b>1.216779</b>	.1593907	7.63	<b>0.000</b>	.9043788 1.529179
ereri_intref	<b>.0064749</b>	.0122426	0.53	0.597	-.0175202 .03047
ereri_intmed	<b>.0050337</b>	.0055462	0.91	0.364	-.0058367 .015904
ereri_pie	<b>.0028424</b>	.0018324	1.55	0.121	-.0007491 .0064339

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zcxcl5
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04652 2.218 -.07628 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9026.3814**

Iteration 1: Log likelihood = **-8937.1819**

Iteration 2: Log likelihood = **-8920.6177**

Iteration 3: Log likelihood = **-8920.3755**

Iteration 4: Log likelihood = **-8920.3754**

Refining estimates:

Iteration 0: Log likelihood = **-8920.3754**

Cox regression with Breslow method for ties

No. of subjects = 36,328 Number of obs = 36,328

No. of failures = 964

Time at risk = 441,317.503

Log likelihood = -8920.3754

LR chi2(9) = 212.01

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.271609	.1635647	11.40	0.000	1.972621 2.615913
zcxc15	.9029447	.035508	-2.60	0.009	.8359646 .9752914
_infectionburXzcxc15_000	.9346799	.0664726	-0.95	0.342	.8130685 1.074481
AGE	1.033874	.0130498	2.64	0.008	1.008611 1.05977
SEX	.7890995	.0525979	-3.55	0.000	.6924597 .8992265
NonWhite	1.050193	.1860452	0.28	0.782	.7421231 1.486149
householdsize	.9256807	.0399135	-1.79	0.073	.8506661 1.00731
SES	.8205204	.0406252	-4.00	0.000	.7446379 .9041357
LE8_TOTALSCORE	.9989502	.0003579	-2.93	0.003	.9982491 .9996519

-> Model for the mediator

Iteration 0: Log likelihood = -50439.895  
 Iteration 1: Log likelihood = -50439.895

Linear regression (Maximum Likelihood)  
 Number of obs = 36,328  
 Wald chi2(7) = 2282.44  
 Log likelihood = -50439.895 Prob > chi2 = 0.0000

zcxc15	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	-.0134428	.0148443	-0.91	0.365	-.042537 .0156514
AGE	.0014239	.0009696	1.47	0.142	-.0004765 .0033243
SEX	.4154786	.0102884	40.38	0.000	.3953137 .4356434
NonWhite	.3208806	.0246273	13.03	0.000	.272612 .3691491
householdsize	-.0037846	.0046791	-0.81	0.419	-.0129554 .0053862
SES	-.0479629	.007721	-6.21	0.000	-.0630958 -.0328299
LE8_TOTALSCORE	-.0010929	.0000549	-19.92	0.000	-.0012004 -.0009854
_cons	-.1832926	.0700639	-2.62	0.009	-.3206152 -.0459699
<b>sigma2</b>					
_cons	.9408595	.006981	134.77	0.000	.9271769 .954542

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.296251	.164004	7.90	0.000	.9748089 1.617693
ereri_cde	1.26563	.1626861	7.78	0.000	.9467711 1.584489
ereri_intref	.0253902	.0218978	1.16	0.246	-.0175286 .068309
ereri_intmed	.0038573	.0046932	0.82	0.411	-.0053412 .0130558
ereri_pie	.0013734	.0016073	0.85	0.393	-.0017768 .0045236

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zcxcl6  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.18 1.531 .0466 2.218 -.07544 500.5

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9166.3755  
 Iteration 1: Log likelihood = -9069.6428  
 Iteration 2: Log likelihood = -9060.261  
 Iteration 3: Log likelihood = -9060.2308  
 Iteration 4: Log likelihood = -9060.2308  
 Refining estimates:  
 Iteration 0: Log likelihood = -9060.2308

Cox regression with Breslow method for ties

No. of subjects =	36,824	Number of obs =	36,824
No. of failures =	978		
Time at risk =	447,356.911	LR chi2(9) =	212.29
Log likelihood =	-9060.2308	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.285865	.1629917	11.59	0.000	1.987725 2.628722
zcxcl6	.8753675	.0340445	-3.42	0.001	.8111212 .9447025
_infectionburXzcxcl6_000	1.077193	.078583	1.02	0.308	.9336777 1.242768
AGE	1.034869	.012978	2.73	0.006	1.009743 1.060621
SEX	.7641448	.0496369	-4.14	0.000	.6727965 .8678958
NonWhite	1.039721	.1790872	0.23	0.821	.7418249 1.457245
householdsize	.9362413	.0392811	-1.57	0.116	.8623323 1.016485
SES	.815003	.0399513	-4.17	0.000	.7403438 .8971912
LE8_TOTALSCORE	.9989437	.0003554	-2.97	0.003	.9982474 .9996405

-> Model for the mediator

Iteration 0: Log likelihood = -51923.615  
 Iteration 1: Log likelihood = -51923.615

Linear regression (Maximum Likelihood)  
 Number of obs = 36,824  
 Wald chi2(7) = 659.59  
 Log likelihood = -51923.615 Prob > chi2 = 0.0000

	zcxcl6	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>-.0122108</b>	<b>.0150809</b>	<b>-0.81</b>	<b>0.418</b>	<b>-.0417688</b>
AGE		<b>-.0005259</b>	<b>.0009836</b>	<b>-0.53</b>	<b>0.593</b>	<b>-.0024538</b>
SEX		<b>.0817988</b>	<b>.0104423</b>	<b>7.83</b>	<b>0.000</b>	<b>.0613323</b>
NonWhite		<b>-.087071</b>	<b>.0249793</b>	<b>-3.49</b>	<b>0.000</b>	<b>-.1360296</b>
householdsize		<b>-.0013849</b>	<b>.0047606</b>	<b>-0.29</b>	<b>0.771</b>	<b>-.0107156</b>
SES		<b>-.0299288</b>	<b>.0078303</b>	<b>-3.82</b>	<b>0.000</b>	<b>-.045276</b>
LE8_TOTALSCORE		<b>-.001291</b>	<b>.0000556</b>	<b>-23.22</b>	<b>0.000</b>	<b>-.0014</b>
_cons		<b>.5591604</b>	<b>.0711021</b>	<b>7.86</b>	<b>0.000</b>	<b>.4198028</b>
<b>sigma2</b>						
_cons		<b>.9823765</b>	<b>.0072398</b>	<b>135.69</b>	<b>0.000</b>	<b>.9681867</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.271817</b>	<b>.1614667</b>	<b>7.88</b>	<b>0.000</b>	<b>.9553485</b>
ereri_cde	<b>1.27501</b>	<b>.1613779</b>	<b>7.90</b>	<b>0.000</b>	<b>.9587147</b>
ereri_intref	<b>-.0048215</b>	<b>.0092869</b>	<b>-0.52</b>	<b>0.604</b>	<b>-.0230235</b>
ereri_intmed	<b>2.54e-06</b>	<b>.0017857</b>	<b>0.00</b>	<b>0.999</b>	<b>-.0034973</b>
ereri_pie	<b>.0016267</b>	<b>.0020662</b>	<b>0.79</b>	<b>0.431</b>	<b>-.002423</b>

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zcxcl8
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04657 2.217 -.07452 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9052.9849**  
 Iteration 1: Log likelihood = **-8963.6276**  
 Iteration 2: Log likelihood = **-8955.1141**  
 Iteration 3: Log likelihood = **-8955.0941**  
 Iteration 4: Log likelihood = **-8955.0941**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8955.0941**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,141</b>	Number of obs =	<b>36,141</b>
No. of failures =	<b>968</b>		
Time at risk =	<b>439,118.74</b>	LR chi2(9) =	<b>195.78</b>
Log likelihood =	<b>-8955.0941</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.253813</b>	<b>.1617551</b>	<b>11.32</b>	<b>0.000</b>	<b>1.958066</b> <b>2.594228</b>
_zcxcl8		<b>.9055032</b>	<b>.037104</b>	<b>-2.42</b>	<b>0.015</b>	<b>.8356243</b> <b>.9812257</b>
_infectionburXzcxl8_000		<b>1.046761</b>	<b>.0761533</b>	<b>0.63</b>	<b>0.530</b>	<b>.9076564</b> <b>1.207184</b>
AGE		<b>1.032461</b>	<b>.013044</b>	<b>2.53</b>	<b>0.011</b>	<b>1.007209</b> <b>1.058345</b>
SEX		<b>.7634716</b>	<b>.0497351</b>	<b>-4.14</b>	<b>0.000</b>	<b>.671959</b> <b>.8674471</b>
NonWhite		<b>1.078288</b>	<b>.1859651</b>	<b>0.44</b>	<b>0.662</b>	<b>.7690132</b> <b>1.511945</b>
householdszie		<b>.9256383</b>	<b>.0398058</b>	<b>-1.80</b>	<b>0.072</b>	<b>.8508178</b> <b>1.007038</b>
SES		<b>.8172011</b>	<b>.0404554</b>	<b>-4.08</b>	<b>0.000</b>	<b>.7416352</b> <b>.9004666</b>
LE8_TOTALSCORE		<b>.9990305</b>	<b>.0003565</b>	<b>-2.72</b>	<b>0.007</b>	<b>.9983319</b> <b>.9997295</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50942.227**  
 Iteration 1: Log likelihood = **-50942.227**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,141</b>
	Wald chi2(7) =	<b>684.67</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	<u>zcxl8</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.0814554</b>	<b>.0152215</b>	<b>5.35</b>	<b>0.000</b>	<b>.0516218</b> <b>.111289</b>
AGE		<b>.0126907</b>	<b>.0009934</b>	<b>12.77</b>	<b>0.000</b>	<b>.0107436</b> <b>.0146378</b>
SEX		<b>.0058069</b>	<b>.0105333</b>	<b>0.55</b>	<b>0.581</b>	<b>-.014838</b> <b>.0264517</b>
NonWhite		<b>.0559105</b>	<b>.0252097</b>	<b>2.22</b>	<b>0.027</b>	<b>.0065004</b> <b>.1053206</b>
householdszie		<b>-.0201997</b>	<b>.0048284</b>	<b>-4.18</b>	<b>0.000</b>	<b>-.0296632</b> <b>-.0107361</b>
SES		<b>-.061925</b>	<b>.0079053</b>	<b>-7.83</b>	<b>0.000</b>	<b>-.0774192</b> <b>-.0464309</b>
LE8_TOTALSCORE		<b>-.0007769</b>	<b>.0000561</b>	<b>-13.85</b>	<b>0.000</b>	<b>-.0008869</b> <b>-.000667</b>
_cons		<b>-.3575378</b>	<b>.0718635</b>	<b>-4.98</b>	<b>0.000</b>	<b>-.4983877</b> <b>-.216688</b>
<b>sigma2</b>						
_cons		<b>.9813808</b>	<b>.0073005</b>	<b>134.43</b>	<b>0.000</b>	<b>.9670721</b> <b>.9956895</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.235169	.1604972	7.70	0.000	.9206007 1.549738
ereri_cde	1.246367	.1608176	7.75	0.000	.9311705 1.561564
ereri_intref	-.0014244	.0097266	-0.15	0.884	-.0204882 .0176394
ereri_intmed	-.0017205	.0115699	-0.15	0.882	-.0243971 .0209562
ereri_pie	-.008053	.0036343	-2.22	0.027	-.0151761 -.0009299

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zcxcl9
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04635 2.216 -.07488 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9125.8833

Iteration 1: Log likelihood = -9033.2271

Iteration 2: Log likelihood = -9025.0819

Iteration 3: Log likelihood = -9025.061

Iteration 4: Log likelihood = -9025.061

Refining estimates:

Iteration 0: Log likelihood = -9025.061

Cox regression with Breslow method for ties

No. of subjects = 36,595

Number of obs = 36,595

No. of failures = 974

Time at risk = 444,506.48

LR chi2(9) = 201.64

Log likelihood = -9025.061

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.338901	.1741876	11.41	0.000	2.021247 2.706477
zcxc19	1.132057	.0425403	3.30	0.001	1.051676 1.218582
_infectionburXzcxc19_000	.851027	.0591219	-2.32	0.020	.742693 .9751634
AGE	1.031577	.0130453	2.46	0.014	1.006323 1.057465
SEX	.748367	.0487656	-4.45	0.000	.65864 .8503176
NonWhite	1.114706	.1898747	0.64	0.524	.7983068 1.556505
householdsize	.9377065	.0393979	-1.53	0.126	.863582 1.018193
SES	.832379	.0410091	-3.72	0.000	.7557613 .9167641
LE8_TOTALSCORE	.9990561	.0003542	-2.66	0.008	.9983621 .9997506

-> Model for the mediator

Iteration 0: Log likelihood = -50300.93  
 Iteration 1: Log likelihood = -50300.93

Linear regression (Maximum Likelihood) Number of obs = 36,595  
 Wald chi2(7) = 3397.87  
 Prob > chi2 = 0.0000  
 Log likelihood = -50300.93

zcxc19	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	.171147	.0145912	11.73	0.000	.1425487 .1997453
AGE	.0460986	.0009523	48.41	0.000	.0442322 .0479651
SEX	.1435527	.0101101	14.20	0.000	.1237373 .1633681
NonWhite	-.187257	.0242389	-7.73	0.000	-.2347644 -.1397497
householdsize	-.0043882	.0046032	-0.95	0.340	-.0134102 .0046338
SES	-.0709686	.0075885	-9.35	0.000	-.0858418 -.0560954
LE8_TOTALSCORE	-.0002111	.0000538	-3.92	0.000	-.0003167 -.0001056
_cons	-2.899302	.068783	-42.15	0.000	-3.034114 -2.76449
<b>sigma2</b>					
_cons	.9150132	.0067644	135.27	0.000	.9017551 .9282712

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.318071	.1685139	7.82	0.000	.98779 1.648352
ereri_cde	1.333438	.1728565	7.71	0.000	.9946454 1.672231
ereri_intref	-.0005314	.0088536	-0.06	0.952	-.0178841 .0168213
ereri_intmed	-.0362908	.024812	-1.46	0.144	-.0849214 .0123398
ereri_pie	.0214554	.0068245	3.14	0.002	.0080797 .0348312

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zdab2  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.18 1.531 .04659 2.218 -.07483 500.6

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9201.1117  
 Iteration 1: Log likelihood = -9108.897  
 Iteration 2: Log likelihood = -9100.2504  
 Iteration 3: Log likelihood = -9100.23  
 Iteration 4: Log likelihood = -9100.23  
 Refining estimates:  
 Iteration 0: Log likelihood = -9100.23

Cox regression with Breslow method for ties

No. of subjects =	36,726	Number of obs =	36,726
No. of failures =	982		
Time at risk =	446,105.322	LR chi2(9) =	201.76
Log likelihood =	-9100.23	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.264107	.1612269	11.48	0.000	1.969169 2.603221
zdab2	.907444	.0345172	-2.55	0.011	.8422519 .9776821
_infectionburXzdab2_000	1.055327	.074903	0.76	0.448	.9182735 1.212836
AGE	1.034428	.0129485	2.70	0.007	1.009359 1.060121
SEX	.7579796	.0490322	-4.28	0.000	.6677209 .8604388
NonWhite	1.078947	.1834045	0.45	0.655	.7732303 1.505537
householdsize	.9331129	.0392898	-1.64	0.100	.8591983 1.013386
SES	.81962	.0401666	-4.06	0.000	.7445576 .9022499
LE8_TOTALSCORE	.9990329	.0003539	-2.73	0.006	.9983396 .9997267

-> Model for the mediator

Iteration 0: Log likelihood = -51945.941  
 Iteration 1: Log likelihood = -51945.941

Linear regression (Maximum Likelihood)

Number of obs =	36,726
Wald chi2(7) =	332.49
Prob > chi2 =	0.0000

Log likelihood = -51945.941

	z dab2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>-.0090085</b>	<b>.0151747</b>	<b>-0.59</b>	<b>0.553</b>	<b>-.0387503</b>
AGE		<b>-.0018825</b>	<b>.0009897</b>	<b>-1.90</b>	<b>0.057</b>	<b>-.0038223</b>
SEX		<b>-.0156953</b>	<b>.0105012</b>	<b>-1.49</b>	<b>0.135</b>	<b>-.0362772</b>
NonWhite		<b>.031364</b>	<b>.025125</b>	<b>1.25</b>	<b>0.212</b>	<b>-.0178801</b>
householdsize		<b>.001361</b>	<b>.0047813</b>	<b>0.28</b>	<b>0.776</b>	<b>-.0080102</b>
SES		<b>-.0264741</b>	<b>.0078762</b>	<b>-3.36</b>	<b>0.001</b>	<b>-.0419111</b>
LE8_TOTALSCORE		<b>-.0009208</b>	<b>.0000559</b>	<b>-16.46</b>	<b>0.000</b>	<b>-.0010304</b>
_cons		<b>.5930391</b>	<b>.0715714</b>	<b>8.29</b>	<b>0.000</b>	<b>.4527618</b>
<b>sigma2</b>						
_cons		<b>.9910011</b>	<b>.0073131</b>	<b>135.51</b>	<b>0.000</b>	<b>.9766676</b>
						<b>1.005335</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.256672</b>	<b>.1604049</b>	<b>7.83</b>	<b>0.000</b>	<b>.9422845</b>
ereri_cde	<b>1.258365</b>	<b>.1603444</b>	<b>7.85</b>	<b>0.000</b>	<b>.9440957</b>
ereri_intref	<b>-.0025721</b>	<b>.0066763</b>	<b>-0.39</b>	<b>0.700</b>	<b>-.0156575</b>
ereri_intmed	<b>4.21e-06</b>	<b>.0012695</b>	<b>0.00</b>	<b>0.997</b>	<b>-.0024841</b>
ereri_pie	<b>.0008753</b>	<b>.0015144</b>	<b>0.58</b>	<b>0.563</b>	<b>-.0020929</b>

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zdag1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04635 2.216 -.07488 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9125.8833**  
 Iteration 1: Log likelihood = **-9034.8323**  
 Iteration 2: Log likelihood = **-9025.7299**  
 Iteration 3: Log likelihood = **-9025.6927**  
 Iteration 4: Log likelihood = **-9025.6927**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-9025.6927**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,595</b>	Number of obs =	<b>36,595</b>
No. of failures =	<b>974</b>		
Time at risk =	<b>444,506.48</b>	LR chi2(9) =	<b>200.38</b>
Log likelihood =	<b>-9025.6927</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.242894</b>	<b>.1602764</b>	<b>11.30</b>	<b>0.000</b>	<b>1.949765</b>	<b>2.580093</b>
_zdag1	<b>.9028591</b>	<b>.0359288</b>	<b>-2.57</b>	<b>0.010</b>	<b>.8351161</b>	<b>.9760972</b>
_infectionburXzdag1_000	<b>.9927831</b>	<b>.0737551</b>	<b>-0.10</b>	<b>0.922</b>	<b>.8582574</b>	<b>1.148395</b>
AGE	<b>1.03601</b>	<b>.0129977</b>	<b>2.82</b>	<b>0.005</b>	<b>1.010846</b>	<b>1.061801</b>
SEX	<b>.7530316</b>	<b>.0489178</b>	<b>-4.37</b>	<b>0.000</b>	<b>.6630071</b>	<b>.8552799</b>
NonWhite	<b>1.091665</b>	<b>.1857215</b>	<b>0.52</b>	<b>0.606</b>	<b>.7821267</b>	<b>1.523707</b>
householdszie	<b>.9356015</b>	<b>.0393602</b>	<b>-1.58</b>	<b>0.114</b>	<b>.8615517</b>	<b>1.016016</b>
SES	<b>.8252421</b>	<b>.0406515</b>	<b>-3.90</b>	<b>0.000</b>	<b>.749292</b>	<b>.9088908</b>
LE8_TOTALSCORE	<b>.9988917</b>	<b>.0003572</b>	<b>-3.10</b>	<b>0.002</b>	<b>.9981919</b>	<b>.999592</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-51446.537**  
 Iteration 1: Log likelihood = **-51446.537**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,595</b>	
	Wald chi2(7) =	<b>970.69</b>	
Log likelihood =	<b>-51446.537</b>	Prob > chi2 =	<b>0.0000</b>

	zdag1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.0178696</b>	<b>.0150552</b>	<b>1.19</b>	<b>0.235</b>	<b>-.0116381</b>
AGE		<b>.0020093</b>	<b>.0009826</b>	<b>2.04</b>	<b>0.041</b>	<b>.0000835</b>
SEX		<b>-.0929729</b>	<b>.0104316</b>	<b>-8.91</b>	<b>0.000</b>	<b>-.1134184</b>
NonWhite		<b>-.0031595</b>	<b>.0250097</b>	<b>-0.13</b>	<b>0.899</b>	<b>-.0521776</b>
householdszie		<b>-.0069092</b>	<b>.0047495</b>	<b>-1.45</b>	<b>0.146</b>	<b>-.0162181</b>
SES		<b>-.0310954</b>	<b>.0078298</b>	<b>-3.97</b>	<b>0.000</b>	<b>-.0464416</b>
LE8_TOTALSCORE		<b>-.0014857</b>	<b>.0000556</b>	<b>-26.74</b>	<b>0.000</b>	<b>-.0015946</b>
_cons		<b>.7757056</b>	<b>.0709703</b>	<b>10.93</b>	<b>0.000</b>	<b>.6366064</b>
<b>sigma2</b>						
_cons		<b>.9741337</b>	<b>.0072015</b>	<b>135.27</b>	<b>0.000</b>	<b>.960019</b>
						<b>.9882483</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.240225</b>	.160121	7.75	<b>0.000</b>	.9263934 1.554056
ereri_cde	<b>1.236275</b>	.1593467	7.76	<b>0.000</b>	.9239612 1.548589
ereri_intref	<b>.0083348</b>	.0159648	0.52	<b>0.602</b>	-.0229556 .0396253
ereri_intmed	<b>-.0025606</b>	.0034215	-0.75	<b>0.454</b>	-.0092667 .0041455
ereri_pie	<b>-.0018244</b>	.0016918	-1.08	<b>0.281</b>	-.0051402 .0014914

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zdapp1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04646 2.216 -.07503 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9036.4379

Iteration 1: Log likelihood = -8947.6305

Iteration 2: Log likelihood = -8938.7072

Iteration 3: Log likelihood = -8938.6761

Iteration 4: Log likelihood = -8938.6761

Refining estimates:

Iteration 0: Log likelihood = -8938.6761

Cox regression with Breslow method for ties

No. of subjects = 36,352 Number of obs = 36,352

No. of failures = 965

Time at risk = 441,650.762

Log likelihood = -8938.6761

LR chi2(9) = 195.52

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.254194	.1617784	11.33	0.000	1.958405 2.594658
zdapp1	.9515872	.0355295	-1.33	0.184	.8844376 1.023835
_infectionburXzdapp1_000	.9957628	.0694677	-0.06	0.951	.8685069 1.141665
AGE	1.032389	.0130073	2.53	0.011	1.007207 1.0582
SEX	.7596489	.0495473	-4.21	0.000	.6684888 .8632402
NonWhite	1.056939	.1821617	0.32	0.748	.7539576 1.481676
householdsize	.9331916	.0397421	-1.62	0.104	.8584607 1.014428
SES	.8185645	.0404271	-4.05	0.000	.743043 .9017617
LE8_TOTALSCORE	.998995	.0003555	-2.83	0.005	.9982985 .999692

-> Model for the mediator

Iteration 0: Log likelihood = **-51540.798**  
 Iteration 1: Log likelihood = **-51540.798**

Linear regression (Maximum Likelihood) Number of obs = 36,352  
 Wald chi2(7) = 80.00  
 Log likelihood = **-51540.798** Prob > chi2 = 0.0000

zdapp1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	-.03302	.0153021	-2.16	0.031	-.0630116 -.0030284
AGE	-.00163	.0009989	-1.63	0.103	-.0035878 .0003277
SEX	.0038047	.010591	0.36	0.719	-.0169532 .0245626
NonWhite	-.0067463	.0253795	-0.27	0.790	-.0564892 .0429966
householdsize	-.001356	.0049018	-0.28	0.782	-.0109633 .0082514
SES	-.0172203	.0079437	-2.17	0.030	-.0327898 -.0016509
LE8_TOTALSCORE	-.0004424	.0000564	-7.84	0.000	-.0005529 -.0003319
_cons	.3203547	.0722604	4.43	0.000	.1787269 .4619825
<b>sigma2</b>					
_cons	.9977767	.0074009	134.82	0.000	.9832712 1.012282

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.258658	.161709	7.78	0.000	.9417144 1.575602
ereri_cde	1.252938	.1615726	7.75	0.000	.936262 1.569615
ereri_intref	.0017058	.0067508	0.25	0.801	-.0115255 .014937
ereri_intmed	.0023742	.0047	0.51	0.613	-.0068377 .011586
ereri_pie	.0016399	.0014503	1.13	0.258	-.0012027 .0044825

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zdars1  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.17 1.531 .04636 2.216 -.07448 500.7

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -8964.5425  
 Iteration 1: Log likelihood = -8873.2477  
 Iteration 2: Log likelihood = -8865.4381  
 Iteration 3: Log likelihood = -8865.4181  
 Iteration 4: Log likelihood = -8865.4181  
 Refining estimates:  
 Iteration 0: Log likelihood = -8865.4181

Cox regression with Breslow method for ties

No. of subjects =	36,107	Number of obs =	36,107
No. of failures =	958		
Time at risk =	438,744.714	LR chi2(9) =	198.25
Log likelihood =	-8865.4181	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.211638	.1599179	10.98	0.000	1.919402 2.548369
zdars1	.9257942	.0356331	-2.00	0.045	.8585239 .9983356
_infectionburXzdars1_000	1.035092	.0738718	0.48	0.629	.8999755 1.190493
AGE	1.038739	.0131428	3.00	0.003	1.013296 1.064821
SEX	.735578	.04821	-4.69	0.000	.6469054 .8364052
NonWhite	1.028262	.1795826	0.16	0.873	.7302038 1.447983
householdsize	.9437339	.0393891	-1.39	0.165	.8696059 1.024181
SES	.8115877	.0402368	-4.21	0.000	.7364354 .8944092
LE8_TOTALSCORE	.9989957	.0003565	-2.82	0.005	.9982973 .9996947

-> Model for the mediator

Iteration 0: Log likelihood = -51167.952  
 Iteration 1: Log likelihood = -51167.952

Linear regression (Maximum Likelihood)

Number of obs =	36,107
Wald chi2(7) =	130.56
Prob > chi2 =	0.0000

Log likelihood = -51167.952

zdars1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	-.0338633	.0153384	-2.21	0.027	-.063926 -.0038006
AGE	-.0008716	.0010039	-0.87	0.385	-.0028392 .001096
SEX	-.0620209	.0106203	-5.84	0.000	-.0828363 -.0412054
NonWhite	.1427706	.0254776	5.60	0.000	.0928354 .1927059
householdsize	-.0005248	.0050359	-0.10	0.917	-.0103951 .0093454
SES	.0077809	.007985	0.97	0.330	-.0078695 .0234312
LE8_TOTALSCORE	-.0003981	.0000565	-7.04	0.000	-.0005089 -.0002874
_cons	.3465862	.0727579	4.76	0.000	.2039834 .4891889
<b>sigma2</b>					
_cons	.9963695	.0074155	134.36	0.000	.9818355 1.010904

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.210639	.1594003	7.59	0.000	.8982203 1.523058
ereri_cde	1.208493	.1593878	7.58	0.000	.8960986 1.520887
ereri_intref	-.0010416	.0057197	-0.18	0.856	-.012252 .0101688
ereri_intmed	.0005733	.004693	0.12	0.903	-.0086248 .0097715
ereri_pie	.0026144	.0017645	1.48	0.138	-.0008441 .0060728

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zdbi
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04645 2.215 -.07484 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9088.0602**  
 Iteration 1: Log likelihood = **-8996.8451**  
 Iteration 2: Log likelihood = **-8988.4326**  
 Iteration 3: Log likelihood = **-8988.4125**  
 Iteration 4: Log likelihood = **-8988.4125**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8988.4125**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,297</b>	Number of obs =	<b>36,297</b>
No. of failures =	<b>971</b>		
Time at risk =	<b>440,829.681</b>	LR chi2(9) =	<b>199.30</b>
Log likelihood =	<b>-8988.4125</b>	Prob > chi2 =	<b>0.0000</b>

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.251111</b>	.160881	11.35	<b>0.000</b>	<b>1.956878</b> <b>2.589584</b>
zdbi	<b>.9324685</b>	.0372341	-1.75	<b>0.080</b>	<b>.8622735</b> <b>1.008378</b>
_infectionburXzdbi_000	<b>1.012534</b>	.0741708	0.17	<b>0.865</b>	<b>.8771158</b> <b>1.16886</b>
AGE	<b>1.037119</b>	.0130709	2.89	<b>0.004</b>	<b>1.011814</b> <b>1.063056</b>
SEX	<b>.7534372</b>	.0490322	-4.35	<b>0.000</b>	<b>.6632123</b> <b>.8559365</b>
NonWhite	<b>1.094696</b>	.1861111	0.53	<b>0.595</b>	<b>.7844758</b> <b>1.527594</b>
householdszie	<b>.9345447</b>	.0395982	-1.60	<b>0.110</b>	<b>.8600691</b> <b>1.015469</b>
SES	<b>.8190861</b>	.0403764	-4.05	<b>0.000</b>	<b>.7436526</b> <b>.9021714</b>
LE8_TOTALSCORE	<b>.9989412</b>	.0003572	-2.96	<b>0.003</b>	<b>.9982415</b> <b>.9996415</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-51121.863**  
 Iteration 1: Log likelihood = **-51121.863**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,297</b>	
	Wald chi2(7) =	<b>769.75</b>	
Log likelihood =	<b>-51121.863</b>	Prob > chi2 =	<b>0.0000</b>

<u>zdbi</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.0423059</b>	.0151543	2.79	<b>0.005</b>	<b>.0126041</b> <b>.0720078</b>
AGE	<b>.0025552</b>	.0009918	2.58	<b>0.010</b>	<b>.0006112</b> <b>.0044992</b>
SEX	<b>.008156</b>	.0105028	0.78	<b>0.437</b>	<b>-.0124291</b> <b>.0287412</b>
NonWhite	<b>.0812497</b>	.0251627	3.23	<b>0.001</b>	<b>.0319318</b> <b>.1305676</b>
householdszie	<b>-.0035149</b>	.0049881	-0.70	<b>0.481</b>	<b>-.0132914</b> <b>.0062617</b>
SES	<b>-.0516811</b>	.007886	-6.55	<b>0.000</b>	<b>-.0671374</b> <b>-.0362248</b>
LE8_TOTALSCORE	<b>-.0013159</b>	.0000559	-23.53	<b>0.000</b>	<b>-.0014255</b> <b>-.0012063</b>
_cons	<b>.4866959</b>	.0719305	6.77	<b>0.000</b>	<b>.3457147</b> <b>.627677</b>
<b>sigma2</b>					
_cons	<b>.9792065</b>	.0072687	134.72	<b>0.000</b>	<b>.9649602</b> <b>.9934528</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.243737</b>	.1604081	7.75	<b>0.000</b>	.9293429 1.558131
ereri_cde	<b>1.247607</b>	.1603948	7.78	<b>0.000</b>	.9332391 1.561975
ereri_intref	<b>.0015911</b>	.0091197	0.17	<b>0.861</b>	-.0162831 .0194654
ereri_intmed	<b>-.0025076</b>	.0061901	-0.41	<b>0.685</b>	-.01464 .0096248
ereri_pie	<b>-.0029537</b>	.0019882	-1.49	<b>0.137</b>	-.0068505 .0009432

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zdbnl
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): **cox**

Model for the mediator (mreg): **linear**

Referent exposure level (a0): **0**

Actual exposure level (a1): **1**

Mediator level for the decomposition (m): **0**

Fixed values of the covariates (c): **60.18 1.531 .04635 2.216 -.07488 500.5**

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9125.8833**

Iteration 1: Log likelihood = **-9036.068**

Iteration 2: Log likelihood = **-9027.7114**

Iteration 3: Log likelihood = **-9027.6891**

Iteration 4: Log likelihood = **-9027.6891**

Refining estimates:

Iteration 0: Log likelihood = **-9027.6891**

Cox regression with Breslow method for ties

No. of subjects = **36,595**

Number of obs = **36,595**

No. of failures = **974**

Time at risk = **444,506.48**

LR chi2(9) = **196.39**

Log likelihood = **-9027.6891** Prob > chi2 = **0.0000**

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.243463</b>	.1605458	11.29	<b>0.000</b>	<b>1.94987</b> 2.581263
zdbnl	<b>.9191828</b>	.0352344	-2.20	<b>0.028</b>	<b>.852655</b> .9909014
_infectionburXzdbnl_000	<b>1.031532</b>	.0739097	0.43	<b>0.665</b>	<b>.8963832</b> 1.187057
AGE	<b>1.036083</b>	.012996	2.83	<b>0.005</b>	<b>1.010922</b> 1.061871
SEX	<b>.7574894</b>	.0491832	-4.28	<b>0.000</b>	<b>.6669737</b> .860289
NonWhite	<b>1.096192</b>	.1865215	0.54	<b>0.589</b>	<b>.7853283</b> 1.530108
householdsize	<b>.9363248</b>	.0393118	-1.57	<b>0.117</b>	<b>.8623601</b> 1.016633
SES	<b>.8272746</b>	.0407414	-3.85	<b>0.000</b>	<b>.7511557</b> .9111071
LE8_TOTALSCORE	<b>.9989823</b>	.0003545	-2.87	<b>0.004</b>	<b>.9982876</b> .9996774

-> Model for the mediator

Iteration 0: Log likelihood = **-51777.333**  
 Iteration 1: Log likelihood = **-51777.333**

Linear regression (Maximum Likelihood) Number of obs = 36,595  
 Wald chi2(7) = 297.65  
 Log likelihood = **-51777.333** Prob > chi2 = 0.0000

	zdbnl	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>-.0118369</b>	.0151919	<b>-0.78</b>	<b>0.436</b>	<b>-.0416126</b> .0179387
AGE		<b>-.0016709</b>	.0009915	<b>-1.69</b>	<b>0.092</b>	<b>-.0036142</b> .0002723
SEX		<b>-.0388448</b>	.0105263	<b>-3.69</b>	<b>0.000</b>	<b>-.0594759</b> -.0182136
NonWhite		<b>.0487341</b>	.0252368	<b>1.93</b>	<b>0.053</b>	<b>-.000729</b> .0981973
householdsize		<b>-.0031287</b>	.0047927	<b>-0.65</b>	<b>0.514</b>	<b>-.0125221</b> .0062648
SES		<b>-.0218291</b>	.0079009	<b>-2.76</b>	<b>0.006</b>	<b>-.0373147</b> -.0063436
LE8_TOTALSCORE		<b>-.0008458</b>	.0000561	<b>-15.09</b>	<b>0.000</b>	<b>-.0009557</b> -.0007359
_cons		<b>.5880601</b>	.0716147	<b>8.21</b>	<b>0.000</b>	<b>.4476978</b> .7284224
<b>sigma2</b>						
_cons		<b>.9919049</b>	.0073329	<b>135.27</b>	<b>0.000</b>	<b>.9775327</b> 1.006277

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.240244</b>	.1599561	7.75	<b>0.000</b>	<b>.9267359</b> 1.553752
ereri_cde	<b>1.239263</b>	.1598764	7.75	<b>0.000</b>	<b>.9259112</b> 1.552615
ereri_intref	<b>-.0004301</b>	.0076058	-0.06	<b>0.955</b>	<b>-.0153372</b> .014477
ereri_intmed	<b>.000413</b>	.0017544	0.24	<b>0.814</b>	<b>-.0030256</b> .0038516
ereri_pie	<b>.000998</b>	.0013596	0.73	<b>0.463</b>	<b>-.0016668</b> .0036628

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```

Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zdcbld2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

Model for the outcome (yreg): cox
Model for the mediator (mreg): linear

Referent exposure level (a0):          0
Actual exposure level (a1):           1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c):    60.19 1.531 .04641 2.217 -.0748 500.6

```

-> Model for the outcome

```

Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid

```

```

Iteration 0: Log likelihood = -9132.2436
Iteration 1: Log likelihood = -9043.4256
Iteration 2: Log likelihood = -9034.078
Iteration 3: Log likelihood = -9034.0386
Iteration 4: Log likelihood = -9034.0386
Refining estimates:
Iteration 0: Log likelihood = -9034.0386

```

Cox regression with Breslow method for ties

No. of subjects =	36,540	Number of obs =	36,540
No. of failures =	975		
Time at risk =	443,893.259	LR chi2(9) =	196.41
Log likelihood =	-9034.0386	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.263781	.1680869	11.00	0.000	1.957187 2.618404
zdcbld2	1.075917	.0426059	1.85	0.065	.9955693 1.162749
_infectionburXzdcbld2_000	.969366	.0670992	-0.45	0.653	.8463848 1.110217
AGE	1.030937	.0130381	2.41	0.016	1.005697 1.05681
SEX	.7613584	.0494632	-4.20	0.000	.6703307 .8647473
NonWhite	1.080342	.1862746	0.45	0.654	.7705404 1.514701
householdsize	.9317795	.0394633	-1.67	0.095	.8575561 1.012427
SES	.8291897	.0410394	-3.78	0.000	.7525321 .9136562
LE8_TOTALSCORE	.9990391	.0003541	-2.71	0.007	.9983452 .9997334

-> Model for the mediator

```

Iteration 0: Log likelihood = -50572.76
Iteration 1: Log likelihood = -50572.76

```

Linear regression (Maximum Likelihood)	Number of obs = 36,540
Log likelihood = -50572.76	Wald chi2(7) = 2640.56
	Prob > chi2 = 0.0000

zdcbl2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	.100125	.0147556	6.79	0.000	.0712046 .1290454
AGE	.0388424	.0009623	40.37	0.000	.0369564 .0407284
SEX	.1231469	.0102131	12.06	0.000	.1031297 .1431642
NonWhite	-.2005712	.0244775	-8.19	0.000	-.2485462 -.1525963
householdsize	-.0001126	.0046504	-0.02	0.981	-.0092273 .009002
SES	-.1296848	.0076665	-16.92	0.000	-.144711 -.1146587
LE8_TOTALSCORE	.0003148	.0000544	5.79	0.000	.0002082 .0004214
_cons	-2.69803	.0695827	-38.77	0.000	-2.83441 -2.56165
<b>sigma2</b>					
_cons	.9325799	.0068995	135.17	0.000	.9190572 .9461026

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.270518	.1647933	7.71	0.000	.9475291 1.593507
ereri_cde	1.261911	.1674936	7.53	0.000	.93363 1.590193
ereri_intref	-.000935	.0038919	-0.24	0.810	-.0085629 .006693
ereri_intmed	.0021883	.0134427	0.16	0.871	-.024159 .0285356
ereri_pie	.0073534	.0041395	1.78	0.076	-.0007599 .0154667

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zdcn
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04648 2.218 -.07459 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8905.4114**  
 Iteration 1: Log likelihood = **-8818.7888**  
 Iteration 2: Log likelihood = **-8807.0551**  
 Iteration 3: Log likelihood = **-8806.8717**  
 Iteration 4: Log likelihood = **-8806.8716**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8806.8716**

Cox regression with Breslow method for ties

No. of subjects =	<b>35,755</b>	Number of obs =	<b>35,755</b>
No. of failures =	<b>953</b>		
Time at risk =	<b>434,342.674</b>	LR chi2(9) =	<b>197.08</b>
Log likelihood =	<b>-8806.8716</b>	Prob > chi2 =	<b>0.0000</b>

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.200501</b>	.1702806	<b>10.19</b>	<b>0.000</b>	<b>1.890834</b> <b>2.560883</b>
zdcn	<b>1.138073</b>	.0420213	<b>3.50</b>	<b>0.000</b>	<b>1.058622</b> <b>1.223486</b>
_infectionburXzdcn_000	<b>.9717342</b>	.0628441	<b>-0.44</b>	<b>0.658</b>	<b>.8560486</b> <b>1.103053</b>
AGE	<b>1.029783</b>	.0132156	<b>2.29</b>	<b>0.022</b>	<b>1.004204</b> <b>1.056013</b>
SEX	<b>.7705315</b>	.0508578	<b>-3.95</b>	<b>0.000</b>	<b>.6770302</b> <b>.8769458</b>
NonWhite	<b>1.089212</b>	.1854448	<b>0.50</b>	<b>0.616</b>	<b>.7801672</b> <b>1.520677</b>
householdszie	<b>.9374211</b>	.0397332	<b>-1.52</b>	<b>0.127</b>	<b>.8626925</b> <b>1.018623</b>
SES	<b>.8360657</b>	.0416468	<b>-3.59</b>	<b>0.000</b>	<b>.7582975</b> <b>.9218096</b>
LE8_TOTALSCORE	<b>.9989807</b>	.0003575	<b>-2.85</b>	<b>0.004</b>	<b>.9982802</b> <b>.9996816</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-49317.25**  
 Iteration 1: Log likelihood = **-49317.25**

Linear regression (Maximum Likelihood)	Number of obs =	<b>35,755</b>
	Wald chi2(7) =	<b>2948.04</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

<u>zdcn</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.0776131</b>	.0148396	<b>5.23</b>	<b>0.000</b>	<b>.048528</b> <b>.1066981</b>
AGE	<b>.0468135</b>	.0009686	<b>48.33</b>	<b>0.000</b>	<b>.0449151</b> <b>.0487119</b>
SEX	<b>-.1698162</b>	.010276	<b>-16.53</b>	<b>0.000</b>	<b>-.1899569</b> <b>-.1496756</b>
NonWhite	<b>.1917687</b>	.0246061	<b>7.79</b>	<b>0.000</b>	<b>.1435415</b> <b>.2399958</b>
householdszie	<b>.0136542</b>	.004686	<b>2.91</b>	<b>0.004</b>	<b>.0044697</b> <b>.0228386</b>
SES	<b>.0026982</b>	.0077163	<b>0.35</b>	<b>0.727</b>	<b>-.0124254</b> <b>.0178219</b>
LE8_TOTALSCORE	<b>.0003923</b>	.0000547	<b>7.17</b>	<b>0.000</b>	<b>.000285</b> <b>.0004996</b>
_cons	<b>-2.803319</b>	.0700286	<b>-40.03</b>	<b>0.000</b>	<b>-2.940572</b> <b>-2.666065</b>
<b>sigma2</b>					
_cons	<b>.9238035</b>	.0069092	<b>133.71</b>	<b>0.000</b>	<b>.9102618</b> <b>.9373452</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.211698</b>	.1651013	7.34	<b>0.000</b>	.8881057 1.535291
ereri_cde	<b>1.192922</b>	.1684585	7.08	<b>0.000</b>	.8627496 1.523095
ereri_intref	<b>.0015638</b>	.0102698	0.15	0.879	-.0185647 .0216923
ereri_intmed	<b>.0071235</b>	.0094701	0.75	0.452	-.0114375 .0256844
ereri_pie	<b>.0100887</b>	.0034839	2.90	<b>0.004</b>	.0032605 .016917

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zdctn1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04659 2.218 -.07483 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9201.1117

Iteration 1: Log likelihood = -9112.314

Iteration 2: Log likelihood = -9103.2038

Iteration 3: Log likelihood = -9103.1743

Iteration 4: Log likelihood = -9103.1743

Refining estimates:

Iteration 0: Log likelihood = -9103.1743

Cox regression with Breslow method for ties

No. of subjects = 36,726 Number of obs = 36,726

No. of failures = 982

Time at risk = 446,105.322

LR chi2(9) = 195.87

Log likelihood = -9103.1743

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.259557	.160631	11.47	0.000	1.965675 2.597377
zdctn1	.9640067	.0370715	-0.95	0.340	.8940185 1.039474
_infectionburXzdctn1_000	1.064153	.0760012	0.87	0.384	.9251488 1.224042
AGE	1.034357	.0129548	2.70	0.007	1.009275 1.060062
SEX	.7571092	.0490081	-4.30	0.000	.6668986 .8595225
NonWhite	1.077156	.1831101	0.44	0.662	.7719331 1.503065
householdsize	.9330008	.0392668	-1.65	0.099	.8591279 1.013226
SES	.8218658	.0402651	-4.00	0.000	.7466183 .9046971
LE8_TOTALSCORE	.9990901	.0003539	-2.57	0.010	.9983968 .9997839

-> Model for the mediator

Iteration 0: Log likelihood = **-51944.918**  
 Iteration 1: Log likelihood = **-51944.918**

Linear regression (Maximum Likelihood) Number of obs = 36,726  
 Wald chi2(7) = 334.55  
 Log likelihood = **-51944.918** Prob > chi2 = 0.0000

	zdctn1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr	-.0144192	.0151742	-0.95	0.342	-.0441602	.0153217
AGE	-.0010367	.0009897	-1.05	0.295	-.0029764	.000903
SEX	-.0982723	.0105009	-9.36	0.000	-.1188536	-.077691
NonWhite	.0623789	.0251243	2.48	0.013	.0131362	.1116216
householdsize	-.0004355	.0047812	-0.09	0.927	-.0098064	.0089355
SES	-.0106221	.007876	-1.35	0.177	-.0260586	.0048145
LE8_TOTALSCORE	-.0007825	.0000559	-13.99	0.000	-.0008921	-.0006728
_cons	.6037712	.0715694	8.44	0.000	.4634978	.7440445
<b>sigma2</b>						
_cons	.9909458	.0073127	135.51	0.000	.9766132	1.005278

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.258232	.1605176	7.84	0.000	.943623 1.57284
ereri_cde	1.258811	.1605127	7.84	0.000	.9442119 1.57341
ereri_intref	.0002518	.0039874	0.06	0.950	-.0075633 .008067
ereri_intmed	-.0013599	.0024932	-0.55	0.585	-.0062465 .0035267
ereri_pie	.0005287	.0007858	0.67	0.501	-.0010115 .0020689

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```

Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zdctn2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

Model for the outcome (yreg): cox
Model for the mediator (mreg): linear

Referent exposure level (a0):          0
Actual exposure level (a1):           1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c):    60.18 1.531 .04658 2.216 -.07524 500.8

```

-> Model for the outcome

```

Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid

```

```

Iteration 0: Log likelihood = -9057.6167
Iteration 1: Log likelihood = -8969.3273
Iteration 2: Log likelihood = -8960.8883
Iteration 3: Log likelihood = -8960.8698
Iteration 4: Log likelihood = -8960.8698
Refining estimates:
Iteration 0: Log likelihood = -8960.8698

```

Cox regression with Breslow method for ties

No. of subjects =	<b>36,264</b>	Number of obs =	<b>36,264</b>
No. of failures =	<b>968</b>		
Time at risk =	<b>440,524.906</b>	LR chi2(9) =	<b>193.49</b>
Log likelihood =	<b>-8960.8698</b>	Prob > chi2 =	<b>0.0000</b>

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.252602</b>	.1613824	<b>11.34</b>	<b>0.000</b>	<b>1.957502</b> <b>2.59219</b>
zdctn2	<b>1.010105</b>	.0388544	<b>0.26</b>	<b>0.794</b>	<b>.9367518</b> <b>1.089202</b>
_infectionburXzdctn2_000	<b>.9740415</b>	.0708682	<b>-0.36</b>	<b>0.718</b>	<b>.8445914</b> <b>1.123332</b>
AGE	<b>1.031788</b>	.0129938	<b>2.48</b>	<b>0.013</b>	<b>1.006632</b> <b>1.057572</b>
SEX	<b>.7512802</b>	.0489235	<b>-4.39</b>	<b>0.000</b>	<b>.661259</b> <b>.8535565</b>
NonWhite	<b>1.086957</b>	.1848901	<b>0.49</b>	<b>0.624</b>	<b>.7787964</b> <b>1.517053</b>
householdsize	<b>.9367354</b>	.0393338	<b>-1.56</b>	<b>0.120</b>	<b>.8627297</b> <b>1.017089</b>
SES	<b>.8169942</b>	.0402954	<b>-4.10</b>	<b>0.000</b>	<b>.7417138</b> <b>.8999151</b>
LE8_TOTALSCORE	<b>.999059</b>	.000355	<b>-2.65</b>	<b>0.008</b>	<b>.9983634</b> <b>.999755</b>

-> Model for the mediator

Iteration 0: Log likelihood =	<b>-51438.741</b>	Number of obs =	<b>36,264</b>
Iteration 1: Log likelihood =	<b>-51438.741</b>	Wald chi2(7) =	<b>34.31</b>
Linear regression (Maximum Likelihood)		Prob > chi2 =	<b>0.0000</b>
Log likelihood =	<b>-51438.741</b>		

	zdctn2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		-.0304065	.0153178	-1.99	0.047	-.0604288 -.0003842
AGE		-.0018249	.0010002	-1.82	0.068	-.0037853 .0001355
SEX		-.0370174	.0106104	-3.49	0.000	-.0578135 -.0162213
NonWhite		-.0333668	.0253891	-1.31	0.189	-.0831286 .016395
householdsize		-.0054765	.0048255	-1.13	0.256	-.0149344 .0039813
SES		.0047959	.0079577	0.60	0.547	-.0108009 .0203928
LE8_TOTALSCORE		-.0001964	.0000565	-3.48	0.001	-.0003072 -.0000857
_cons		.2831625	.072287	3.92	0.000	.1414826 .4248425
<b>sigma2</b>						
_cons		.9990273	.0074192	134.66	0.000	.984486 1.013569

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.253648	.1612887	7.77	0.000	.937528 1.569768
ereri_cde	1.252485	.1613719	7.76	0.000	.9362023 1.568769
ereri_intref	.0000495	.0017787	0.03	0.978	-.0034368 .0035357
ereri_intmed	.0014187	.0044469	0.32	0.750	-.007297 .0101344
ereri_pie	-.0003057	.0011793	-0.26	0.795	-.0026171 .0020058

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zdctn6
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04688 2.215 -.07424 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8819.5642**  
 Iteration 1: Log likelihood = **-8731.7746**  
 Iteration 2: Log likelihood = **-8723.8902**  
 Iteration 3: Log likelihood = **-8723.8638**  
 Iteration 4: Log likelihood = **-8723.8638**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8723.8638**

Cox regression with Breslow method for ties

No. of subjects =	<b>35,601</b>	Number of obs =	<b>35,601</b>
No. of failures =	<b>943</b>		
Time at risk =	<b>432,443.367</b>	LR chi2(9) =	<b>191.40</b>
Log likelihood =	<b>-8723.8638</b>	Prob > chi2 =	<b>0.0000</b>

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.228549</b>	.1625782	<b>10.98</b>	<b>0.000</b>	<b>1.931635</b> <b>2.571103</b>
zdctn6	<b>.898899</b>	.0377102	<b>-2.54</b>	<b>0.011</b>	<b>.8279454</b> <b>.9759333</b>
_infectionburXzdctn6_000	<b>1.144948</b>	.0810634	<b>1.91</b>	<b>0.056</b>	<b>.9965975</b> <b>1.315381</b>
AGE	<b>1.037622</b>	.0132069	<b>2.90</b>	<b>0.004</b>	<b>1.012057</b> <b>1.063833</b>
SEX	<b>.749432</b>	.049496	<b>-4.37</b>	<b>0.000</b>	<b>.658438</b> <b>.853001</b>
NonWhite	<b>1.088526</b>	.1875693	<b>0.49</b>	<b>0.623</b>	<b>.7765408</b> <b>1.525857</b>
householdszie	<b>.9292754</b>	.0401539	<b>-1.70</b>	<b>0.090</b>	<b>.8538157</b> <b>1.011404</b>
SES	<b>.8157128</b>	.0406977	<b>-4.08</b>	<b>0.000</b>	<b>.7397228</b> <b>.8995091</b>
LE8_TOTALSCORE	<b>.9991622</b>	.0003606	<b>-2.32</b>	<b>0.020</b>	<b>.9984556</b> <b>.9998693</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50430.735**  
 Iteration 1: Log likelihood = **-50430.735**

Linear regression (Maximum Likelihood)	Number of obs =	<b>35,601</b>	
	Wald chi2(7) =	<b>169.19</b>	
Log likelihood =	<b>-50430.735</b>	Prob > chi2 =	<b>0.0000</b>

<u>zdctn6</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.0122467</b>	.0154291	<b>0.79</b>	<b>0.427</b>	<b>-.0179938</b> <b>.0424872</b>
AGE	<b>-.0031343</b>	.0010102	<b>-3.10</b>	<b>0.002</b>	<b>-.0051142</b> <b>-.0011543</b>
SEX	<b>-.0020461</b>	.0106887	<b>-0.19</b>	<b>0.848</b>	<b>-.0229956</b> <b>.0189033</b>
NonWhite	<b>-.0196214</b>	.0255043	<b>-0.77</b>	<b>0.442</b>	<b>-.0696088</b> <b>.030366</b>
householdszie	<b>-.0030768</b>	.0050708	<b>-0.61</b>	<b>0.544</b>	<b>-.0130153</b> <b>.0068617</b>
SES	<b>-.0238347</b>	.0080295	<b>-2.97</b>	<b>0.003</b>	<b>-.0395723</b> <b>-.0080972</b>
LE8_TOTALSCORE	<b>-.0006486</b>	.000057	<b>-11.38</b>	<b>0.000</b>	<b>-.0007602</b> <b>-.0005369</b>
_cons	<b>.5206276</b>	.073236	<b>7.11</b>	<b>0.000</b>	<b>.3770877</b> <b>.6641676</b>
<b>sigma2</b>					
_cons	<b>.9952421</b>	.0074595	<b>133.42</b>	<b>0.000</b>	<b>.9806216</b> <b>1.009863</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.217171</b>	.1614813	7.54	<b>0.000</b>	.900673 1.533668
ereri_cde	<b>1.221402</b>	.1613799	7.57	<b>0.000</b>	.9051036 1.537701
ereri_intref	<b>-.0050128</b>	.0057314	-0.87	0.382	-.0162462 .0062205
ereri_intmed	<b>.0020856</b>	.0030936	0.67	0.500	-.0039777 .008149
ereri_pie	<b>-.0013045</b>	.0017206	-0.76	0.448	-.0046769 .0020679

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zdctpp1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04649 2.218 -.07578 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9064.8284

Iteration 1: Log likelihood = -8974.7265

Iteration 2: Log likelihood = -8965.3813

Iteration 3: Log likelihood = -8965.3502

Iteration 4: Log likelihood = -8965.3502

Refining estimates:

Iteration 0: Log likelihood = -8965.3502

Cox regression with Breslow method for ties

No. of subjects = 36,441 Number of obs = 36,441

No. of failures = 968

Time at risk = 442,700.115

LR chi2(9) = 198.96

Log likelihood = -8965.3502

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.286395	.1636222	11.56	0.000	1.987176 2.630668
zdctpp1		.949074	.0374579	-1.32	0.185	.8784257 1.025404
_infectionburXzdctpp1_000		1.010659	.0688998	0.16	0.876	.8842505 1.155137
AGE		1.034753	.0130675	2.71	0.007	1.009455 1.060684
SEX		.7562844	.0494584	-4.27	0.000	.6653031 .8597077
NonWhite		1.009025	.1785376	0.05	0.960	.7133288 1.427296
householdszie		.9264484	.0398468	-1.78	0.076	.8515514 1.007933
SES		.8263134	.0408518	-3.86	0.000	.7500023 .910389
LE8_TOTALSCORE		.9990524	.0003555	-2.66	0.008	.9983559 .9997494

-> Model for the mediator

Iteration 0: Log likelihood = **-51279.478**  
 Iteration 1: Log likelihood = **-51279.478**

Linear regression (Maximum Likelihood) Number of obs = 36,441  
 Wald chi2(7) = 865.23  
 Log likelihood = **-51279.478** Prob > chi2 = 0.0000

	zdctpp1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.0794375	.0151042	5.26	0.000	.0498337 .1090412
AGE		.0225858	.0009865	22.90	0.000	.0206523 .0245193
SEX		.1327581	.0104666	12.68	0.000	.1122439 .1532722
NonWhite		.0094304	.0250617	0.38	0.707	-.0396897 .0585505
householdszie		-.0176269	.0047632	-3.70	0.000	-.0269626 -.0082912
SES		-.0129842	.0078543	-1.65	0.098	-.0283784 .0024099
LE8_TOTALSCORE		-.00021	.0000558	-3.76	0.000	-.0003194 -.0001007
_cons		-1.430801	.0712973	-20.07	0.000	-1.570541 -1.291061
<b>sigma2</b>						
_cons		.9767804	.0072363	134.98	0.000	.9625975 .9909633

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.277465	.1629443	7.84	0.000	.9580997 1.59683
ereri_cde	1.283938	.1633914	7.86	0.000	.9636971 1.60418
ereri_intref	.001077	.0070494	0.15	0.879	-.0127395 .0148935
ereri_intmed	-.0034071	.010652	-0.32	0.749	-.0242846 .0174703
ereri_pie	-.0041435	.0032197	-1.29	0.198	-.010454 .002167

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdszie SES LE8\_TOTALSCORE were not provided. All

-> Summary

```

Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zdcxr
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

Model for the outcome (yreg): cox
Model for the mediator (mreg): linear

Referent exposure level (a0):          0
Actual exposure level (a1):           1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c):    60.19 1.531 .04641 2.217 -.0748 500.6

```

-> Model for the outcome

```

Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid

Iteration 0: Log likelihood = -9132.2436
Iteration 1: Log likelihood = -9034.3905
Iteration 2: Log likelihood = -9023.3473
Iteration 3: Log likelihood = -9023.2763
Iteration 4: Log likelihood = -9023.2763
Refining estimates:
Iteration 0: Log likelihood = -9023.2763

Cox regression with Breslow method for ties

No. of subjects =      36,540                      Number of obs = 36,540
No. of failures =       975
Time at risk      = 443,893.259
Log likelihood = -9023.2763                         LR chi2(9)      = 217.93
                                                       Prob > chi2    = 0.0000

```

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.243994	.1611185	11.26	0.000	1.949421 2.58308
zdcxr	.8319384	.0350995	-4.36	0.000	.765912 .9036566
_infectionburXzdcxr_000	1.02007	.076446	0.27	0.791	.8807228 1.181464
AGE	1.032988	.0129723	2.58	0.010	1.007873 1.058728
SEX	.7073946	.0472591	-5.18	0.000	.6205764 .8063587
NonWhite	1.077581	.1855853	0.43	0.664	.7688692 1.510244
householdsize	.9319667	.0393322	-1.67	0.095	.8579792 1.012334
SES	.8295112	.0408851	-3.79	0.000	.7531267 .9136429
LE8_TOTALSCORE	.998721	.0003597	-3.55	0.000	.9980163 .9994262

-> Model for the mediator

```

Iteration 0: Log likelihood = -49511.617
Iteration 1: Log likelihood = -49511.617

Linear regression (Maximum Likelihood)                      Number of obs = 36,540
                                                               Wald chi2(7)  = 4983.59
                                                               Prob > chi2  = 0.0000
Log likelihood = -49511.617

```

	zdcxr	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		-.0309082	.0143332	-2.16	0.031	-.0590008 -.0028156
AGE		-.0006489	.0009347	-0.69	0.488	-.0024809 .0011831
SEX		-.5105834	.0099207	-51.47	0.000	-.5300277 -.4911391
NonWhite		.0723158	.0237769	3.04	0.002	.0257141 .1189176
householdsize		-.0094186	.0045173	-2.09	0.037	-.0182724 -.0005649
SES		.0472651	.0074471	6.35	0.000	.0326691 .0618611
LE8_TOTALSCORE		-.0022927	.0000528	-43.41	0.000	-.0023963 -.0021892
_cons		1.994076	.067591	29.50	0.000	1.8616 2.126552
<b>sigma2</b>						
_cons		.8799576	.0065102	135.17	0.000	.8671979 .8927173

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.248744	.1608344	7.76	0.000	.9335141 1.563974
ereri_cde	1.226569	.1586707	7.73	0.000	.9155796 1.537557
ereri_intref	.0107967	.0207018	0.52	0.602	-.0297781 .0513715
ereri_intmed	.0056754	.0053556	1.06	0.289	-.0048213 .0161721
ereri_pie	.0057032	.0029588	1.93	0.054	-.000096 .0115024

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zddah1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04658 2.216 -.07524 500.8

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9057.6167**  
 Iteration 1: Log likelihood = **-8968.5511**  
 Iteration 2: Log likelihood = **-8960.0633**  
 Iteration 3: Log likelihood = **-8960.0434**  
 Iteration 4: Log likelihood = **-8960.0434**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8960.0434**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,264</b>	Number of obs =	<b>36,264</b>
No. of failures =	<b>968</b>		
Time at risk =	<b>440,524.906</b>	LR chi2(9) =	<b>195.15</b>
Log likelihood =	<b>-8960.0434</b>	Prob > chi2 =	<b>0.0000</b>

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.25488</b>	.1626226	<b>11.27</b>	<b>0.000</b>	<b>1.957647</b> <b>2.597241</b>
zddah1	<b>.949046</b>	.0381069	<b>-1.30</b>	<b>0.193</b>	<b>.8772212</b> <b>1.026752</b>
_infectionburXzddah1_000	<b>1.035394</b>	.0752357	<b>0.48</b>	<b>0.632</b>	<b>.8979543</b> <b>1.193871</b>
AGE	<b>1.032572</b>	.0130156	<b>2.54</b>	<b>0.011</b>	<b>1.007374</b> <b>1.0584</b>
SEX	<b>.7517215</b>	.0489522	<b>-4.38</b>	<b>0.000</b>	<b>.6616475</b> <b>.8540579</b>
NonWhite	<b>1.079861</b>	.1837567	<b>0.45</b>	<b>0.652</b>	<b>.7736091</b> <b>1.507351</b>
householdszie	<b>.9363158</b>	.0393684	<b>-1.57</b>	<b>0.118</b>	<b>.8622489</b> <b>1.016745</b>
SES	<b>.8153743</b>	.040233	<b>-4.14</b>	<b>0.000</b>	<b>.7402122</b> <b>.8981685</b>
LE8_TOTALSCORE	<b>.998987</b>	.00036	<b>-2.81</b>	<b>0.005</b>	<b>.9982817</b> <b>.9996928</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50615.285**  
 Iteration 1: Log likelihood = **-50615.285**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,264</b>
	Wald chi2(7) =	<b>1720.78</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.100726</b>	.0149739	<b>6.73</b>	<b>0.000</b>	<b>.0713777</b> <b>.1300742</b>
AGE	<b>.010841</b>	.0009778	<b>11.09</b>	<b>0.000</b>	<b>.0089246</b> <b>.0127574</b>
SEX	<b>.003943</b>	.0103722	<b>0.38</b>	<b>0.704</b>	<b>-.0163862</b> <b>.0242722</b>
NonWhite	<b>-.114694</b>	.0248191	<b>-4.62</b>	<b>0.000</b>	<b>-.1633385</b> <b>-.0660494</b>
householdszie	<b>-.0050428</b>	.0047172	<b>-1.07</b>	<b>0.285</b>	<b>-.0142883</b> <b>.0042026</b>
SES	<b>-.0572441</b>	.0077791	<b>-7.36</b>	<b>0.000</b>	<b>-.0724908</b> <b>-.0419975</b>
LE8_TOTALSCORE	<b>-.0018828</b>	.0000552	<b>-34.09</b>	<b>0.000</b>	<b>-.001991</b> <b>-.0017745</b>
_cons	<b>.2825706</b>	.0706641	<b>4.00</b>	<b>0.000</b>	<b>.1440716</b> <b>.4210697</b>
<b>sigma2</b>					
_cons	<b>.9546718</b>	.0070898	<b>134.66</b>	<b>0.000</b>	<b>.9407761</b> <b>.9685674</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.247204</b>	.1613645	7.73	<b>0.000</b>	.9309351 1.563472
ereri_cde	<b>1.252326</b>	.1623628	7.71	<b>0.000</b>	.9341005 1.570551
ereri_intref	<b>-.001154</b>	.0049205	-0.23	<b>0.815</b>	-.0107981 .0084901
ereri_intmed	<b>.0012857</b>	.0144146	<b>0.09</b>	<b>0.929</b>	-.0269663 .0295377
ereri_pie	<b>-.0052539</b>	.0040979	-1.28	<b>0.200</b>	-.0132857 .0027778

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zddc
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): **cox**

Model for the mediator (mreg): **linear**

Referent exposure level (a0): **0**

Actual exposure level (a1): **1**

Mediator level for the decomposition (m): **0**

Fixed values of the covariates (c): **60.18 1.531 .04653 2.218 -.07587 500.5**

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9043.1078**

Iteration 1: Log likelihood = **-8954.6648**

Iteration 2: Log likelihood = **-8943.9234**

Iteration 3: Log likelihood = **-8943.8595**

Iteration 4: Log likelihood = **-8943.8595**

Refining estimates:

Iteration 0: Log likelihood = **-8943.8595**

Cox regression with Breslow method for ties

No. of subjects = **36,384**

Number of obs = **36,384**

No. of failures = **966**

Time at risk = **442,032.251**

LR chi2(9) = **198.50**

Log likelihood = **-8943.8595** Prob > chi2 = **0.0000**

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.269507	.1625952	11.44	0.000	1.972189
zddc		1.002135	.0401374	0.05	0.958	.9264752
_infectionburXzddc_000		.9460869	.0667338	-0.79	0.432	.8239296
AGE		1.034483	.0130655	2.68	0.007	1.00919
SEX		.7485925	.0490325	-4.42	0.000	.6584035
NonWhite		1.008331	.1783998	0.05	0.963	.7128594
householdsize		.9260748	.0399898	-1.78	0.075	.8509215
SES		.82471	.0408375	-3.89	0.000	.7484314
LE8_TOTALSCORE		.9990701	.0003601	-2.58	0.010	.9983645
						.9997761

-> Model for the mediator

Iteration 0: Log likelihood = -51034.815  
Iteration 1: Log likelihood = -51034.815

Linear regression (Maximum Likelihood) Number of obs = 36,384  
Log likelihood = -51034.815 Wald chi2(7) = 1202.12  
Prob > chi2 = 0.0000

	zddc	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0075678	.0150492	0.50	0.615	-.021928 .0370636
AGE		.0028959	.0009828	2.95	0.003	.0009696 .0048222
SEX		.1414826	.0104278	13.57	0.000	.1210445 .1619206
NonWhite		-.080332	.0249573	-3.22	0.001	-.1292474 -.0314166
householdsiz		-.0297227	.0047441	-6.27	0.000	-.039021 -.0204245
SES		.0499749	.0078247	6.39	0.000	.0346387 .0653111
LE8_TOTALSCORE		.0015087	.0000556	27.15	0.000	.0013998 .0016176
_cons		-1.073592	.0710264	-15.12	0.000	-1.212801 -.9343825
sigma2						
_cons		.9679903	.0071768	134.88	0.000	.953924 .9820566

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.27184	.162497	7.83	0.000	.9533515 1.590328
ereri_cde	1.269507	.1625964	7.81	0.000	.9508243 1.588191
ereri_intref	.0032487	.0070465	0.46	0.645	-.0105622 .0170596
ereri_intmed	-.0009325	.0021305	-0.44	0.662	-.0051082 .0032432
ereri_pie	.0000161	.0003048	0.05	0.958	-.0005813 .0006136

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intre to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
Warning: this analysis assumes a rare outcome.  
Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```

Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zddr1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

Model for the outcome (yreg): cox
Model for the mediator (mreg): linear

Referent exposure level (a0):          0
Actual exposure level (a1):           1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c):    60.18 1.531 .04637 2.216 -.07448 500.6

```

-> Model for the outcome

```

Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid

Iteration 0: Log likelihood = -9160.406
Iteration 1: Log likelihood = -9072.3323
Iteration 2: Log likelihood = -9063.7197
Iteration 3: Log likelihood = -9063.6891
Iteration 4: Log likelihood = -9063.6891
Refining estimates:
Iteration 0: Log likelihood = -9063.6891

```

Cox regression with Breslow method for ties

No. of subjects =	36,751	Number of obs =	36,751
No. of failures =	977		
Time at risk =	446,451.479	LR chi2(9) =	193.43
Log likelihood =	-9063.6891	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.227486	.1598708	11.16	0.000	1.935186 2.563936
zddr1	1.003538	.0393099	0.09	0.928	.9293752 1.083619
_infectionburXzddr1_000	1.003106	.0700612	0.04	0.965	.8747725 1.150266
AGE	1.034018	.0129715	2.67	0.008	1.008904 1.059757
SEX	.7555623	.0493705	-4.29	0.000	.664738 .8587961
NonWhite	1.084611	.1844123	0.48	0.633	.7772261 1.513563
householdsize	.93344	.0394375	-1.63	0.103	.8592578 1.014027
SES	.8173142	.0401775	-4.10	0.000	.7422422 .8999791
LE8_TOTALSCORE	.9990343	.000354	-2.73	0.006	.9983408 .9997284

-> Model for the mediator

Iteration 0: Log likelihood = -51507.653	Number of obs = 36,751
Iteration 1: Log likelihood = -51507.653	Wald chi2(7) = 1301.01
Log likelihood = -51507.653	Prob > chi2 = 0.0000

	zddr1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.068715	.014963	4.59	0.000	.0393881 .098042
AGE		.01174	.0009791	11.99	0.000	.009821 .0136591
SEX		-.2617852	.010365	-25.26	0.000	-.2821002 -.2414703
NonWhite		-.0738764	.0248657	-2.97	0.003	-.1226123 -.0251405
householdsize		-.0187854	.0049234	-3.82	0.000	-.0284351 -.0091356
SES		-.0804432	.007784	-10.33	0.000	-.0956996 -.0651868
LE8_TOTALSCORE		-.0005364	.0000552	-9.72	0.000	-.0006446 -.0004282
_cons		-.0077071	.0709954	-0.11	0.914	-.1468556 .1314413
<b>sigma2</b>						
_cons		.9657833	.0071246	135.56	0.000	.9518194 .9797473

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.228469	.1593618	7.71	0.000	.9161258 1.540813
ereri_cde	1.22752	.1598891	7.68	0.000	.9141428 1.540897
ereri_intref	-.000066	.0004734	-0.14	0.889	-.0009937 .0008618
ereri_intmed	.0007727	.0092835	0.08	0.934	-.0174227 .0189681
ereri_pie	.0002427	.0026928	0.09	0.928	-.0050352 .0055206

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zddx58
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

```
Model for the outcome (yreg): cox
Model for the mediator (mreg): linear
```

```
Referent exposure level (a0): 0
Actual exposure level (a1): 1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c): 60.19 1.531 .04669 2.217 -.07551 500.6
```

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8882.1967**  
 Iteration 1: Log likelihood = **-8795.3024**  
 Iteration 2: Log likelihood = **-8787.0591**  
 Iteration 3: Log likelihood = **-8787.0369**  
 Iteration 4: Log likelihood = **-8787.0369**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8787.0369**

Cox regression with Breslow method for ties

No. of subjects =	<b>35,573</b>	Number of obs =	<b>35,573</b>
No. of failures =	<b>951</b>		
Time at risk =	<b>432,088.637</b>	LR chi2(9) =	<b>190.32</b>
Log likelihood =	<b>-8787.0369</b>	Prob > chi2 =	<b>0.0000</b>

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.251672</b>	<b>.1627547</b>	<b>11.23</b>	<b>0.000</b>	<b>1.954244</b> <b>2.594367</b>
zddx58	<b>.923115</b>	<b>.0386049</b>	<b>-1.91</b>	<b>0.056</b>	<b>.8504686</b> <b>1.001967</b>
_infectionburXzddx58_000	<b>1.099486</b>	<b>.0790889</b>	<b>1.32</b>	<b>0.187</b>	<b>.9549063</b> <b>1.265957</b>
AGE	<b>1.038095</b>	<b>.0132021</b>	<b>2.94</b>	<b>0.003</b>	<b>1.012539</b> <b>1.064296</b>
SEX	<b>.743752</b>	<b>.0489337</b>	<b>-4.50</b>	<b>0.000</b>	<b>.6537701</b> <b>.8461187</b>
NonWhite	<b>1.109406</b>	<b>.1888076</b>	<b>0.61</b>	<b>0.542</b>	<b>.7947424</b> <b>1.548656</b>
householdszie	<b>.9391195</b>	<b>.0396517</b>	<b>-1.49</b>	<b>0.137</b>	<b>.8645322</b> <b>1.020142</b>
SES	<b>.8284636</b>	<b>.041319</b>	<b>-3.77</b>	<b>0.000</b>	<b>.7513121</b> <b>.9135378</b>
LE8_TOTALSCORE	<b>.9991943</b>	<b>.0003592</b>	<b>-2.24</b>	<b>0.025</b>	<b>.9984905</b> <b>.9998986</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50348.214**  
 Iteration 1: Log likelihood = **-50348.214**

Linear regression (Maximum Likelihood)	Number of obs =	<b>35,573</b>
	Wald chi2(7) =	<b>255.28</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

zddx58	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.0107223</b>	<b>.0154351</b>	<b>0.69</b>	<b>0.487</b>	<b>-.0195299</b> <b>.0409746</b>
AGE	<b>.0027599</b>	<b>.0010065</b>	<b>2.74</b>	<b>0.006</b>	<b>.0007873</b> <b>.0047326</b>
SEX	<b>-.0576805</b>	<b>.0106803</b>	<b>-5.40</b>	<b>0.000</b>	<b>-.0786135</b> <b>-.0367476</b>
NonWhite	<b>.1156991</b>	<b>.0255249</b>	<b>4.53</b>	<b>0.000</b>	<b>.0656713</b> <b>.1657269</b>
householdszie	<b>.0017875</b>	<b>.004861</b>	<b>0.37</b>	<b>0.713</b>	<b>-.0077398</b> <b>.0113148</b>
SES	<b>-.0106922</b>	<b>.0080105</b>	<b>-1.33</b>	<b>0.182</b>	<b>-.0263925</b> <b>.005008</b>
LE8_TOTALSCORE	<b>-.0007073</b>	<b>.0000569</b>	<b>-12.44</b>	<b>0.000</b>	<b>-.0008187</b> <b>-.0005958</b>
_cons	<b>.2645887</b>	<b>.0727405</b>	<b>3.64</b>	<b>0.000</b>	<b>.1220199</b> <b>.4071575</b>
<b>sigma2</b>					
_cons	<b>.9928469</b>	<b>.0074445</b>	<b>133.37</b>	<b>0.000</b>	<b>.9782559</b> <b>1.007438</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.244816</b>	.1621681	7.68	<b>0.000</b>	.926972 1.562659
ereri_cde	<b>1.247553</b>	.1621577	7.69	<b>0.000</b>	.9297301 1.565376
ereri_intref	<b>-.0030948</b>	.0038552	-0.80	0.422	-.010651 .0044613
ereri_intmed	<b>.0012146</b>	.0022899	0.53	0.596	-.0032734 .0057027
ereri_pie	<b>-.0008574</b>	.0013126	-0.65	0.514	-.0034301 .0017152

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zdecr1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04646 2.216 -.07503 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9036.4379

Iteration 1: Log likelihood = -8946.7875

Iteration 2: Log likelihood = -8937.4515

Iteration 3: Log likelihood = -8937.4136

Iteration 4: Log likelihood = -8937.4136

Refining estimates:

Iteration 0: Log likelihood = -8937.4136

Cox regression with Breslow method for ties

No. of subjects = 36,352 Number of obs = 36,352

No. of failures = 965

Time at risk = 441,650.762

LR chi2(9) = 198.05

Log likelihood = -8937.4136

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.254585	.1621947	11.30	0.000	1.958084 2.595984
zdecr1	.9317909	.0361085	-1.82	0.068	.8636403 1.005319
_infectionburXzdecr1_000	.990201	.0710586	-0.14	0.891	.8602796 1.139743
AGE	1.032208	.0130046	2.52	0.012	1.007032 1.058014
SEX	.7596678	.0495585	-4.21	0.000	.6684883 .8632839
NonWhite	1.066467	.1838442	0.37	0.709	.7606976 1.495144
householdsize	.9328849	.0397009	-1.63	0.103	.8582293 1.014034
SES	.8174382	.0403687	-4.08	0.000	.7420254 .9005151
LE8_TOTALSCORE	.9989583	.0003562	-2.92	0.003	.9982604 .9996566

-> Model for the mediator

Iteration 0: Log likelihood = -51365.736  
 Iteration 1: Log likelihood = -51365.736

Linear regression (Maximum Likelihood)  
 Number of obs = 36,352  
 Wald chi2(7) = 432.59  
 Prob > chi2 = 0.0000  
 Log likelihood = -51365.736

zdecr1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	.0011313	.0152286	0.07	0.941	-.0287162 .0309788
AGE	-.0062536	.0009941	-6.29	0.000	-.008202 -.0043052
SEX	.0093348	.0105401	0.89	0.376	-.0113234 .029993
NonWhite	.1676575	.0252576	6.64	0.000	.1181536 .2171615
householdsize	-.0062854	.0048783	-1.29	0.198	-.0158466 .0032759
SES	-.0422373	.0079056	-5.34	0.000	-.0577319 -.0267426
LE8_TOTALSCORE	-.0008902	.0000561	-15.86	0.000	-.0010002 -.0007802
_cons	.8105673	.0719133	11.27	0.000	.6696198 .9515147
<b>sigma2</b>					
_cons	.9882127	.00733	134.82	0.000	.9738463 1.002579

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.256042	.1615787	7.77	0.000	.9393533 1.57273
ereri_cde	1.251481	.1616689	7.74	0.000	.9346159 1.568347
ereri_intref	.0047661	.0111947	0.43	0.670	-.0171752 .0267074
ereri_intmed	-.0001255	.0016974	-0.07	0.941	-.0034524 .0032013
ereri_pie	-.0000799	.0010767	-0.07	0.941	-.0021901 .0020303

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```

Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zdefa1_defa1b
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

Model for the outcome (yreg): cox
Model for the mediator (mreg): linear

Referent exposure level (a0):          0
Actual exposure level (a1):           1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c):    60.18 1.531 .04629 2.217 -.07504 500.5

```

-> Model for the outcome

```

Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid

Iteration 0: Log likelihood = -8874.4362
Iteration 1: Log likelihood = -8786.4425
Iteration 2: Log likelihood = -8777.3321
Iteration 3: Log likelihood = -8777.2911
Iteration 4: Log likelihood = -8777.2911
Refining estimates:
Iteration 0: Log likelihood = -8777.2911

```

Cox regression with Breslow method for ties

No. of subjects =	35,730	Number of obs =	35,730
No. of failures =	950		
Time at risk =	434,214.083	LR chi2(9) =	194.29
Log likelihood =	-8777.2911	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.263556	.1661524	11.13	0.000	1.960244 2.613799
zdefa1_defa1b	1.049766	.0396329	1.29	0.198	.9748909 1.130391
_infectionburXzdefa1_defa1_000	.9665218	.0646202	-0.51	0.611	.847816 1.101848
AGE	1.035433	.0132059	2.73	0.006	1.009871 1.061642
SEX	.7551225	.0496973	-4.27	0.000	.6637383 .8590886
NonWhite	1.064799	.1863949	0.36	0.720	.7555503 1.500624
householdszie	.9431849	.0395987	-1.39	0.164	.8686804 1.02408
SES	.8219711	.0410406	-3.93	0.000	.7453435 .9064766
LE8_TOTALSCORE	.9990556	.0003602	-2.62	0.009	.9983498 .9997618

-> Model for the mediator

Iteration 0: Log likelihood = -50107.041	Number of obs = 35,730
Iteration 1: Log likelihood = -50107.041	Wald chi2(7) = 1202.04
Log likelihood = -50107.041	Prob > chi2 = 0.0000

zdefa1_defa1b	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	.14215	.0151827	9.36	0.000	.1123925 .1719076
AGE	.0122768	.0009915	12.38	0.000	.0103335 .0142202
SEX	-.0890658	.0105194	-8.47	0.000	-.1096834 -.0684482
NonWhite	-.32568	.025237	-12.90	0.000	-.3751436 -.2762163
householdsize	-.0040352	.004775	-0.85	0.398	-.013394 .0053236
SES	-.0785575	.0078935	-9.95	0.000	-.0940285 -.0630865
LE8_TOTALSCORE	-.0010261	.0000561	-18.30	0.000	-.001136 -.0009162
_cons	-.0905091	.0716797	-1.26	0.207	-.2309987 .0499806
<b>sigma2</b>					
_cons	.9674255	.007238	133.66	0.000	.9532394 .9816117

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.2674	.1641647	7.72	0.000	.945643 1.589157
ereri_cde	1.263326	.1660493	7.61	0.000	.9378753 1.588777
ereri_intref	-.0005999	.0012628	-0.48	0.635	-.0030749 .0018752
ereri_intmed	-.002254	.0186068	-0.12	0.904	-.0387227 .0342147
ereri_pie	.0069277	.0054547	1.27	0.204	-.0037633 .0176187

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zdefb4a_defb4b
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.532 .04642 2.216 -.07529 500.7

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8966.3998**  
 Iteration 1: Log likelihood = **-8881.9499**  
 Iteration 2: Log likelihood = **-8871.0062**  
 Iteration 3: Log likelihood = **-8870.9177**  
 Iteration 4: Log likelihood = **-8870.9177**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8870.9177**

Cox regression with Breslow method for ties

No. of subjects =	<b>35,908</b>	Number of obs =	<b>35,908</b>
No. of failures =	<b>959</b>		
Time at risk =	<b>436,199.096</b>	LR chi2(9) =	<b>190.96</b>
Log likelihood =	<b>-8870.9177</b>	Prob > chi2 =	<b>0.0000</b>

	<i>t</i>	Haz. ratio	Std. err.	<i>z</i>	P>  <i>z</i>	[95% conf. interval]
infectionburdenhospbr		<b>2.22399</b>	.1622176	<b>10.96</b>	<b>0.000</b>	<b>1.92773</b> <b>2.56578</b>
zdefb4a_defb4b		<b>.9813068</b>	.0395662	<b>-0.47</b>	<b>0.640</b>	<b>.9067435</b> <b>1.062002</b>
_infectionburXzdefb4a_defb_000		<b>1.058885</b>	.0744124	<b>0.81</b>	<b>0.416</b>	<b>.9226381</b> <b>1.215252</b>
AGE		<b>1.030874</b>	.0130305	<b>2.41</b>	<b>0.016</b>	<b>1.005649</b> <b>1.056733</b>
SEX		<b>.7509292</b>	.0511014	<b>-4.21</b>	<b>0.000</b>	<b>.6571643</b> <b>.8580726</b>
NonWhite		<b>1.068163</b>	.1841682	<b>0.38</b>	<b>0.702</b>	<b>.761863</b> <b>1.497608</b>
householdsize		<b>.9365966</b>	.0394974	<b>-1.55</b>	<b>0.120</b>	<b>.862296</b> <b>1.017299</b>
SES		<b>.8190573</b>	.0406017	<b>-4.03</b>	<b>0.000</b>	<b>.743223</b> <b>.9026293</b>
LE8_TOTALSCORE		<b>.9990008</b>	.0003613	<b>-2.76</b>	<b>0.006</b>	<b>.9982928</b> <b>.9997092</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-48544.449**  
 Iteration 1: Log likelihood = **-48544.449**

Linear regression (Maximum Likelihood)	Number of obs =	<b>35,908</b>
	Wald chi2(7) =	<b>5150.00</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	zdefb4a_defb4b	Coefficient	Std. err.	<i>z</i>	P>  <i>z</i>	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.0775449</b>	.0143974	<b>5.39</b>	<b>0.000</b>	<b>.0493266</b> <b>.1057633</b>
AGE		<b>.0014919</b>	.0009404	<b>1.59</b>	<b>0.113</b>	<b>-.0003513</b> <b>.003335</b>
SEX		<b>-.5689333</b>	.0099764	<b>-57.03</b>	<b>0.000</b>	<b>-.5884866</b> <b>-.54938</b>
NonWhite		<b>-.1313384</b>	.0239094	<b>-5.49</b>	<b>0.000</b>	<b>-.1782</b> <b>-.0844768</b>
householdsize		<b>.0037808</b>	.0045317	<b>0.83</b>	<b>0.404</b>	<b>-.0051012</b> <b>.0126629</b>
SES		<b>-.0559168</b>	.0074805	<b>-7.48</b>	<b>0.000</b>	<b>-.0705782</b> <b>-.0412553</b>
LE8_TOTALSCORE		<b>-.0018372</b>	.0000531	<b>-34.58</b>	<b>0.000</b>	<b>-.0019413</b> <b>-.0017331</b>
_cons		<b>1.684232</b>	.0679761	<b>24.78</b>	<b>0.000</b>	<b>1.551001</b> <b>1.817463</b>
<b>sigma2</b>						
_cons		<b>.8745433</b>	.0065268	<b>133.99</b>	<b>0.000</b>	<b>.861751</b> <b>.8873356</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.230324</b>	.1612461	7.63	<b>0.000</b>	.9142874 1.54636
ereri_cde	<b>1.22355</b>	.1622121	7.54	<b>0.000</b>	.9056205 1.54148
ereri_intref	<b>.0001512</b>	.0033049	0.05	0.964	-.0063262 .0066286
ereri_intmed	<b>.0080844</b>	.0106678	0.76	0.449	-.0128241 .028993
ereri_pie	<b>-.0014622</b>	.0031338	-0.47	0.641	-.0076043 .0046799

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zdffa
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .0466 2.218 -.07544 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9166.3755

Iteration 1: Log likelihood = -9071.6565

Iteration 2: Log likelihood = -9062.7349

Iteration 3: Log likelihood = -9062.7158

Refining estimates:

Iteration 0: Log likelihood = -9062.7158

Cox regression with Breslow method for ties

No. of subjects =	<b>36,824</b>	Number of obs = 36,824
No. of failures =	978	
Time at risk =	<b>447,356.911</b>	LR chi2(9) = 207.32
Log likelihood =	<b>-9062.7158</b>	Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.292986	.1632774	11.65	0.000	1.994296
	zdfffa	.8968881	.0355245	-2.75	0.006	.8298953
_infectionburXzdfffa_000		1.099722	.0793026	1.32	0.187	.9547764
	AGE	1.035997	.0129889	2.82	0.005	1.010849
	SEX	.7567642	.0490621	-4.30	0.000	.6664628
	NonWhite	1.049936	.180833	0.28	0.777	.7491321
	householdszie	.9358843	.0392702	-1.58	0.114	.8619962
	SES	.817565	.0401073	-4.11	0.000	.742617
	LE8_TOTALSCORE	.9990006	.0003551	-2.81	0.005	.9983049
						.9996968

### -> Model for the mediator

Iteration 0: Log likelihood = -52035.013  
Iteration 1: Log likelihood = -52035.013

Linear regression (Maximum Likelihood) Number of obs = 36,824  
Log likelihood = -52035.013 Wald chi2(7) = 433.49  
Prob > chi2 = 0.0000

	zdfffa	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0116829	.0151266	0.77	0.440	-.0179646 .0413304
AGE		-.0032737	.0009866	-3.32	0.001	-.0052075 -.00134
SEX		.0299886	.0104739	2.86	0.004	.0094602 .0505171
NonWhite		.0359669	.025055	1.44	0.151	-.0131401 .0850738
householdsiz		-.0058739	.004775	-1.23	0.219	-.0152328 .003485
SES		-.0208416	.0078541	-2.65	0.008	-.0362353 -.0054479
LE8_TOTALSCORE		-.001064	.0000558	-19.08	0.000	-.0011733 -.0009547
_cons		.6917875	.0713175	9.70	0.000	.5520077 .8315672
sigma2						
_cons		.9883381	.0072838	135.69	0.000	.9740623 1.002614

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.279102</b>	.1619868	7.90	<b>0.000</b>	.9616138 1.59659
ereri_cde	<b>1.285215</b>	.1620548	7.93	<b>0.000</b>	.9675934 1.602836
ereri_intref	<b>-.0057462</b>	.0047917	-1.20	0.230	<b>-.0151377</b> .0036452
ereri_intmed	<b>.000904</b>	.0020415	0.44	0.658	<b>-.0030973</b> .0049053
ereri_pie	<b>-.0012706</b>	.0017078	-0.74	0.457	<b>-.0046177</b> .0020766

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intre to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
Warning: this analysis assumes a rare outcome.  
Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```

Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zdgkz
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

Model for the outcome (yreg): cox
Model for the mediator (mreg): linear

Referent exposure level (a0):          0
Actual exposure level (a1):           1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c):    60.18 1.53 .04656 2.215 -.07626 500.6

```

-> Model for the outcome

```

Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid

Iteration 0: Log likelihood = -8913.3312
Iteration 1: Log likelihood = -8828.7845
Iteration 2: Log likelihood = -8819.2752
Iteration 3: Log likelihood = -8819.1926
Iteration 4: Log likelihood = -8819.1926
Refining estimates:
Iteration 0: Log likelihood = -8819.1926

Cox regression with Breslow method for ties

No. of subjects =      35,761                               Number of obs = 35,761
No. of failures =       953
Time at risk      = 434,427.923
Log likelihood = -8819.1926
LR chi2(9)      = 188.28
Prob > chi2     = 0.0000

```

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.216823	.1607669	10.98	0.000	1.923095 2.555414
zdgkz	.9653256	.0382117	-0.89	0.373	.8932637 1.043201
_infectionburXzdgkz_000	1.11801	.0798156	1.56	0.118	.9720256 1.285919
AGE	1.036854	.0131551	2.85	0.004	1.011388 1.062961
SEX	.7496332	.0492542	-4.39	0.000	.6590542 .852661
NonWhite	1.051695	.1836561	0.29	0.773	.7468714 1.480929
householdsize	.9349217	.0397772	-1.58	0.114	.860122 1.016226
SES	.8255825	.0410809	-3.85	0.000	.7488672 .9101566
LE8_TOTALSCORE	.9990712	.0003584	-2.59	0.010	.9983689 .9997739

-> Model for the mediator

```

Iteration 0: Log likelihood = -50715.34
Iteration 1: Log likelihood = -50715.34

Linear regression (Maximum Likelihood)
Number of obs = 35,761
Wald chi2(7) = 53.68
Prob > chi2 = 0.0000
Log likelihood = -50715.34

```

zdgkz	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	.012232	.0154412	0.79	0.428	-.0180323 .0424962
AGE	-.0032784	.0010057	-3.26	0.001	-.0052495 -.0013072
SEX	-.0268709	.0106806	-2.52	0.012	-.0478045 -.0059373
NonWhite	.012107	.0255555	0.47	0.636	-.0379807 .0621948
householdsize	.0037616	.004858	0.77	0.439	-.00576 .0132832
SES	-.0069087	.0080079	-0.86	0.388	-.0226038 .0087864
LE8_TOTALSCORE	-.0003032	.0000569	-5.33	0.000	-.0004147 -.0001916
_cons	.3790588	.0726441	5.22	0.000	.2366791 .5214386
<b>sigma2</b>					
_cons	.9984732	.007467	133.72	0.000	.9838381 1.013108

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.22354	.1608959	7.60	0.000	.9081899 1.53889
ereri_cde	1.215994	.1606188	7.57	0.000	.9011869 1.530801
ereri_intref	.0054729	.009988	0.55	0.584	-.0141033 .025049
ereri_intmed	.0025048	.0035875	0.70	0.485	-.0045266 .0095361
ereri_pie	-.0004316	.0007286	-0.59	0.554	-.0018597 .0009965

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zdiablo
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04649 2.218 -.0762 500.4

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9023.7916**  
 Iteration 1: Log likelihood = **-8932.2458**  
 Iteration 2: Log likelihood = **-8922.4067**  
 Iteration 3: Log likelihood = **-8922.3645**  
 Iteration 4: Log likelihood = **-8922.3645**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8922.3645**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,333</b>	Number of obs =	<b>36,333</b>
No. of failures =	<b>964</b>		
Time at risk =	<b>441,441.032</b>	LR chi2(9) =	<b>202.85</b>
Log likelihood =	<b>-8922.3645</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.275509</b>	.163521	<b>11.44</b>	<b>0.000</b>	<b>1.976561</b> <b>2.619673</b>
zdiablo		<b>.9327014</b>	.036055	<b>-1.80</b>	<b>0.072</b>	<b>.8646455</b> <b>1.006114</b>
_infectionburXzdiablo_000		<b>1.002342</b>	.0715774	<b>0.03</b>	<b>0.974</b>	<b>.871428</b> <b>1.152923</b>
AGE		<b>1.034518</b>	.0130704	<b>2.69</b>	<b>0.007</b>	<b>1.009215</b> <b>1.060455</b>
SEX		<b>.7534167</b>	.0493447	<b>-4.32</b>	<b>0.000</b>	<b>.662653</b> <b>.8566122</b>
NonWhite		<b>.9849437</b>	.176758	<b>-0.08</b>	<b>0.933</b>	<b>.6928748</b> <b>1.400129</b>
householdszie		<b>.9285048</b>	.0399799	<b>-1.72</b>	<b>0.085</b>	<b>.853361</b> <b>1.010266</b>
SES		<b>.8224921</b>	.040729	<b>-3.95</b>	<b>0.000</b>	<b>.7464162</b> <b>.9063216</b>
LE8_TOTALSCORE		<b>.998976</b>	.0003564	<b>-2.87</b>	<b>0.004</b>	<b>.9982776</b> <b>.9996748</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-51398.016**  
 Iteration 1: Log likelihood = **-51398.016**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,333</b>
	Wald chi2(7) =	<b>312.90</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	<u>zdiablo</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>-.0240112</b>	.0152326	<b>-1.58</b>	<b>0.115</b>	<b>-.0538665</b> <b>.0058442</b>
AGE		<b>-.0034803</b>	.0009953	<b>-3.50</b>	<b>0.000</b>	<b>-.005431</b> <b>-.0015296</b>
SEX		<b>.1215319</b>	.0105605	<b>11.51</b>	<b>0.000</b>	<b>.1008338</b> <b>.14223</b>
NonWhite		<b>.0631342</b>	.0252852	<b>2.50</b>	<b>0.013</b>	<b>.0135762</b> <b>.1126923</b>
householdszie		<b>-.0016946</b>	.0048037	<b>-0.35</b>	<b>0.724</b>	<b>-.0111096</b> <b>.0077204</b>
SES		<b>-.0226501</b>	.0079238	<b>-2.86</b>	<b>0.004</b>	<b>-.0381804</b> <b>-.0071197</b>
LE8_TOTALSCORE		<b>-.0006703</b>	.0000563	<b>-11.91</b>	<b>0.000</b>	<b>-.0007806</b> <b>-.0005599</b>
_cons		<b>.3612189</b>	.0719325	<b>5.02</b>	<b>0.000</b>	<b>.2202338</b> <b>.502204</b>
<b>sigma2</b>						
_cons		<b>.9914343</b>	.0073558	<b>134.78</b>	<b>0.000</b>	<b>.9770173</b> <b>1.005851</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.278847</b>	.1629359	7.85	<b>0.000</b>	.9594982 1.598195
ereri_cde	<b>1.27274</b>	.163049	7.81	<b>0.000</b>	.9531697 1.59231
ereri_intref	<b>.0024256</b>	.0090256	0.27	<b>0.788</b>	-.0152642 .0201153
ereri_intmed	<b>.002007</b>	.0036479	0.55	<b>0.582</b>	-.0051428 .0091568
ereri_pie	<b>.0016743</b>	.0014123	1.19	<b>0.236</b>	-.0010937 .0044422

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zdkk1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04637 2.216 -.07448 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9160.406

Iteration 1: Log likelihood = -9073.2745

Iteration 2: Log likelihood = -9057.6437

Iteration 3: Log likelihood = -9057.4041

Iteration 4: Log likelihood = -9057.404

Refining estimates:

Iteration 0: Log likelihood = -9057.404

Cox regression with Breslow method for ties

No. of subjects = 36,751 Number of obs = 36,751

No. of failures = 977

Time at risk = 446,451.479

Log likelihood = -9057.404

LR chi2(9) = 206.00

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.202209	.1582246	10.99	0.000	1.91294
zdkk1		.9360188	.0360293	-1.72	0.086	.8680006
_infectionburXzdkk1_000		.8864147	.0627942	-1.70	0.089	.7715023
AGE		1.033801	.0129557	2.65	0.008	1.008717
SEX		.7624926	.0495123	-4.18	0.000	.6713717
NonWhite		1.094031	.186026	0.53	0.597	.7839597
householdsize		.9317195	.0394266	-1.67	0.095	.8575625
SES		.81492	.0399955	-4.17	0.000	.7401825
LE8_TOTALSCORE		.9989028	.0003557	-3.08	0.002	.9982058
						.9996002

-> Model for the mediator

Iteration 0: Log likelihood = -51807.592  
Iteration 1: Log likelihood = -51807.592

Linear regression (Maximum Likelihood) Number of obs = 36,751  
Log likelihood = -51807.592 Wald chi2(7) = 684.94  
Prob > chi2 = 0.0000

	zdkk1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0023927	.0150856	-0.16	0.874	-.03196 .0271746
AGE		.0047007	.0009872	4.76	0.000	.0027659 .0066355
SEX		.0783244	.0104499	7.50	0.000	.057843 .0988059
NonWhite		-.0876875	.0250695	-3.50	0.000	-.1368228 -.0385522
householdsiz		-.0082982	.0049638	-1.67	0.095	-.018027 .0014306
SES		-.0302412	.0078478	-3.85	0.000	-.0456226 -.0148598
LE8_TOTALSCORE		-.0012607	.0000557	-22.65	0.000	-.0013698 -.0011516
_cons		.2488073	.0715772	3.48	0.001	.1085186 .3890961
sigma2						
_cons		.981677	.0072418	135.56	0.000	.9674832 .9958707

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.236314</b>	.1596981	<b>7.74</b>	<b>0.000</b>	<b>.9233114</b> <b>1.549316</b>
ereri_cde	<b>1.199658</b>	.1579011	<b>7.60</b>	<b>0.000</b>	<b>.8901778</b> <b>1.509139</b>
ereri_intref	<b>.035657</b>	.0244418	<b>1.46</b>	<b>0.145</b>	<b>-.0122481</b> <b>.0835622</b>
ereri_intmed	<b>.0008405</b>	.0053114	<b>0.16</b>	<b>0.874</b>	<b>-.0095696</b> <b>.0112506</b>
ereri_pie	<b>.0001582</b>	.0010019	<b>0.16</b>	<b>0.875</b>	<b>-.0018054</b> <b>.0021218</b>

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intre to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
Warning: this analysis assumes a rare outcome.  
Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```

Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zdkk3
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

Model for the outcome (yreg): cox
Model for the mediator (mreg): linear

Referent exposure level (a0):          0
Actual exposure level (a1):           1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c):    60.18 1.531 .04648 2.216 -.0752 500.5

```

-> Model for the outcome

```

Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid

```

```

Iteration 0: Log likelihood = -9225.1762
Iteration 1: Log likelihood = -9135.88
Iteration 2: Log likelihood = -9127.6766
Iteration 3: Log likelihood = -9127.6596
Refining estimates:
Iteration 0: Log likelihood = -9127.6596

```

Cox regression with Breslow method for ties

No. of subjects =	36,896	Number of obs = 36,896
No. of failures =	984	
Time at risk =	448,211.761	LR chi2(9) = 195.03
Log likelihood =	-9127.6596	Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.260757	.1634093	11.29	0.000	1.962132 2.60483
zdkk3	1.054117	.0407942	1.36	0.173	.9771185 1.137182
_infectionburXzdkk3_000	.9450842	.0648957	-0.82	0.411	.8260786 1.081234
AGE	1.032922	.0130001	2.57	0.010	1.007754 1.058719
SEX	.7530994	.0486782	-4.39	0.000	.6634879 .8548139
NonWhite	1.059246	.1802281	0.34	0.735	.7588693 1.478518
householdszie	.9380198	.0391273	-1.53	0.125	.8643829 1.01793
SES	.8234326	.0403456	-3.97	0.000	.7480348 .90643
LE8_TOTALSCORE	.9990335	.0003535	-2.73	0.006	.9983409 .9997267

-> Model for the mediator

```

Iteration 0: Log likelihood = -51267.56
Iteration 1: Log likelihood = -51267.56

```

Linear regression (Maximum Likelihood)	Number of obs = 36,896
	Wald chi2(7) = 2235.29
Log likelihood = -51267.56	Prob > chi2 = 0.0000

	zdkk3	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.0665586	.0147478	4.51	0.000	.0376534 .0954638
AGE		.0378024	.0009628	39.26	0.000	.0359153 .0396894
SEX		.0265697	.0102196	2.60	0.009	.0065397 .0465998
NonWhite		.291069	.0244727	11.89	0.000	.2431033 .3390347
householdsize		-.0165932	.0046593	-3.56	0.000	-.0257253 -.0074612
SES		.0039306	.0076693	0.51	0.608	-.011101 .0189623
LE8_TOTALSCORE		.0011145	.0000544	20.47	0.000	.0010078 .0012212
_cons		-2.859204	.0696096	-41.07	0.000	-2.995636 -2.722771
<b>sigma2</b>						
_cons		.9428517	.0069417	135.82	0.000	.9292461 .9564573

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.258426	.1620162	7.77	0.000	.9408799 1.575972
ereri_cde	1.259721	.1630723	7.72	0.000	.9401053 1.579337
ereri_intref	-.0007273	.0023235	-0.31	0.754	-.0052812 .0038266
ereri_intmed	-.004082	.009013	-0.45	0.651	-.0217471 .0135831
ereri_pie	.003514	.0027	1.30	0.193	-.0017779 .0088059

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zdkk4
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.532 .04647 2.215 -.07462 500.7

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8974.7713**  
 Iteration 1: Log likelihood = **-8886.5267**  
 Iteration 2: Log likelihood = **-8878.134**  
 Iteration 3: Log likelihood = **-8878.0956**  
 Iteration 4: Log likelihood = **-8878.0956**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8878.0956**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,112</b>	Number of obs =	<b>36,112</b>
No. of failures =	<b>959</b>		
Time at risk =	<b>438,778.384</b>	LR chi2(9) =	<b>193.35</b>
Log likelihood =	<b>-8878.0956</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.196271</b>	.1607432	<b>10.75</b>	<b>0.000</b>	<b>1.902773</b> 2.535039
zdkk4		<b>1.016321</b>	.0401258	<b>0.41</b>	<b>0.682</b>	<b>.9406418</b> 1.098089
_infectionburXzdkk4_000		<b>1.017726</b>	.0696283	<b>0.26</b>	<b>0.797</b>	<b>.8900115</b> 1.163768
AGE		<b>1.03692</b>	.0131343	<b>2.86</b>	<b>0.004</b>	<b>1.011494</b> 1.062985
SEX		<b>.7366871</b>	.0482416	<b>-4.67</b>	<b>0.000</b>	<b>.6479516</b> .8375747
NonWhite		<b>1.017463</b>	.1776927	<b>0.10</b>	<b>0.921</b>	<b>.7225407</b> 1.432765
householdszie		<b>.9429089</b>	.0394423	<b>-1.41</b>	<b>0.160</b>	<b>.8686875</b> 1.023472
SES		<b>.8121824</b>	.0402453	<b>-4.20</b>	<b>0.000</b>	<b>.7370123</b> .8950193
LE8_TOTALSCORE		<b>.9990427</b>	.0003576	<b>-2.68</b>	<b>0.007</b>	<b>.9983421</b> .9997437

-> Model for the mediator

Iteration 0: Log likelihood = **-50848.424**  
 Iteration 1: Log likelihood = **-50848.424**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,112</b>
	Wald chi2(7) =	<b>792.13</b>
Log likelihood =	<b>-50848.424</b>	Prob > chi2 = <b>0.0000</b>

	zdkk4	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.0816281</b>	.0152025	<b>5.37</b>	<b>0.000</b>	<b>.0518317</b> .1114245
AGE		<b>.0182305</b>	.0009947	<b>18.33</b>	<b>0.000</b>	<b>.0162809</b> .0201802
SEX		<b>-.0254733</b>	.0105243	<b>-2.42</b>	<b>0.016</b>	<b>-.0461005</b> -.0048461
NonWhite		<b>-.0504376</b>	.0252195	<b>-2.00</b>	<b>0.046</b>	<b>-.0998669</b> -.0010084
householdszie		<b>-.0032495</b>	.0049906	<b>-0.65</b>	<b>0.515</b>	<b>-.0130309</b> .006532
SES		<b>-.0213224</b>	.0079098	<b>-2.70</b>	<b>0.007</b>	<b>-.0368254</b> -.0058194
LE8_TOTALSCORE		<b>-.0008765</b>	.000056	<b>-15.65</b>	<b>0.000</b>	<b>-.0009863</b> -.0007667
_cons		<b>-.6225599</b>	.0720842	<b>-8.64</b>	<b>0.000</b>	<b>-.7638424</b> -.4812774
<b>sigma2</b>						
_cons		<b>.9785084</b>	.0072821	<b>134.37</b>	<b>0.000</b>	<b>.9642358</b> .9927809

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.202839</b>	.1596535	7.53	<b>0.000</b>	.8899238 1.515754
ereri_cde	<b>1.196336</b>	.1607394	7.44	<b>0.000</b>	.881293 1.51138
ereri_intref	<b>.0004403</b>	.0026965	0.16	<b>0.870</b>	-.0048448 .0057254
ereri_intmed	<b>.0047399</b>	.0105521	0.45	<b>0.653</b>	-.0159418 .0254216
ereri_pie	<b>.0013224</b>	.0032364	0.41	<b>0.683</b>	-.0050209 .0076657

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zdkk11
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04658 2.216 -.07524 500.8

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9057.6167

Iteration 1: Log likelihood = -8969.153

Iteration 2: Log likelihood = -8960.6168

Iteration 3: Log likelihood = -8960.5968

Iteration 4: Log likelihood = -8960.5968

Refining estimates:

Iteration 0: Log likelihood = -8960.5968

Cox regression with Breslow method for ties

No. of subjects = 36,264

Number of obs = 36,264

No. of failures = 968

Time at risk = 440,524.906

LR chi2(9) = 194.04

Log likelihood = -8960.5968

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.249858	.1613983	11.30	0.000	1.954755 2.589511
zdkk11	1.009376	.0390365	0.24	0.809	.9356934 1.08886
_infectionburXzdkk11_000	1.038771	.0739089	0.53	0.593	.9035587 1.194216
AGE	1.031628	.0129995	2.47	0.013	1.006462 1.057424
SEX	.7470304	.0492395	-4.42	0.000	.6564966 .8500493
NonWhite	1.09491	.1868769	0.53	0.595	.783605 1.529888
householdszie	.9367222	.0393512	-1.56	0.120	.8626851 1.017113
SES	.8163614	.0402702	-4.11	0.000	.7411288 .899231
LE8_TOTALSCORE	.9990579	.0003552	-2.65	0.008	.998362 .9997542

-> Model for the mediator

Iteration 0: Log likelihood = -50704.565  
 Iteration 1: Log likelihood = -50704.565

Linear regression (Maximum Likelihood)  
 Number of obs = 36,264  
 Wald chi2(7) = 1534.21  
 Log likelihood = -50704.565 Prob > chi2 = 0.0000

zdkk11	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	.0056307	.0150108	0.38	0.708	-.0237898 .0350513
AGE	.0145551	.0009802	14.85	0.000	.012634 .0164762
SEX	.3067427	.0103978	29.50	0.000	.2863634 .327122
NonWhite	-.4449578	.0248803	-17.88	0.000	-.4937223 -.3961933
householdszie	.0001655	.0047288	0.04	0.972	-.0091028 .0094338
SES	.0145072	.0077982	1.86	0.063	-.000777 .0297915
LE8_TOTALSCORE	.0003598	.0000554	6.50	0.000	.0002513 .0004683
_cons	-1.505218	.0708383	-21.25	0.000	-1.644059 -1.366378
<b>sigma2</b>					
_cons	.959384	.0071248	134.66	0.000	.9454198 .9733483

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.252721	.1612933	7.77	0.000	.9365915 1.56885
ereri_cde	1.249815	.1613829	7.74	0.000	.9335101 1.566119
ereri_intref	.002305	.0060788	0.38	0.705	-.0096091 .0142192
ereri_intmed	.0005482	.0016622	0.33	0.742	-.0027097 .0038061
ereri_pie	.0000525	.0002589	0.20	0.839	-.000455 .0005601

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdszie SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zdlk1  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.18 1.531 .04648 2.216 -.0752 500.5

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9225.1762  
 Iteration 1: Log likelihood = -9135.9073  
 Iteration 2: Log likelihood = -9126.4076  
 Iteration 3: Log likelihood = -9126.3605  
 Iteration 4: Log likelihood = -9126.3605  
 Refining estimates:  
 Iteration 0: Log likelihood = -9126.3605

Cox regression with Breslow method for ties

No. of subjects =	36,896	Number of obs =	36,896
No. of failures =	984		
Time at risk =	448,211.761	LR chi2(9) =	197.63
Log likelihood =	-9126.3605	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.23923	.1593137	11.33	0.000	1.947774 2.574298
zdlk1	.9357991	.0365033	-1.70	0.089	.8669205 1.01015
_infectionburXzdlk1_000	.9919439	.069929	-0.11	0.909	.8639329 1.138923
AGE	1.035882	.0129754	2.81	0.005	1.01076 1.061628
SEX	.7612218	.0493293	-4.21	0.000	.6704263 .8643137
NonWhite	1.050983	.1788671	0.29	0.770	.7528859 1.467107
householdsize	.9382273	.0391036	-1.53	0.126	.8646325 1.018086
SES	.8235356	.0403391	-3.96	0.000	.7481491 .9065183
LE8_TOTALSCORE	.9990154	.0003529	-2.79	0.005	.9983239 .9997073

-> Model for the mediator

Iteration 0: Log likelihood = -51790.502  
 Iteration 1: Log likelihood = -51790.502

Linear regression (Maximum Likelihood)

Number of obs =	36,896
Wald chi2(7) =	1141.61
Prob > chi2 =	0.0000

Log likelihood = -51790.502

zdlk1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	.0089364	.0149583	0.60	0.550	-.0203815 .0382542
AGE	.0256489	.0009766	26.26	0.000	.0237349 .0275629
SEX	.0500568	.0103655	4.83	0.000	.0297408 .0703727
NonWhite	-.2424508	.0248221	-9.77	0.000	-.2911012 -.1938005
householdsize	.0058402	.0047258	1.24	0.217	-.0034222 .0151026
SES	.0025822	.0077788	0.33	0.740	-.0126639 .0178284
LE8_TOTALSCORE	-.0008477	.0000552	-15.35	0.000	-.000956 -.0007395
_cons	-1.198678	.0706033	-16.98	0.000	-1.337058 -1.060298
<b>sigma2</b>					
_cons	.969961	.0071413	135.82	0.000	.9559642 .9839577

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.239	.1602059	7.73	0.000	.9250019 1.552998
ereri_cde	1.236485	.1590935	7.77	0.000	.9246673 1.548302
ereri_intref	.0040049	.0100764	0.40	0.691	-.0157445 .0237543
ereri_intmed	-.0008972	.001951	-0.46	0.646	-.0047211 .0029267
ereri_pie	-.0005928	.0010514	-0.56	0.573	-.0026534 .0014678

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zdl11
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04641 2.217 -.0748 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9132.2436  
 Iteration 1: Log likelihood = -9042.7149  
 Iteration 2: Log likelihood = -9031.1674  
 Iteration 3: Log likelihood = -9031.0371  
 Iteration 4: Log likelihood = -9031.037  
 Refining estimates:  
 Iteration 0: Log likelihood = -9031.037

Cox regression with Breslow method for ties

No. of subjects =	<b>36,540</b>	Number of obs =	<b>36,540</b>
No. of failures =	<b>975</b>		
Time at risk =	<b>443,893.259</b>	LR chi2(9) =	<b>202.41</b>
Log likelihood =	<b>-9031.037</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.265004</b>	.1694126	<b>10.93</b>	<b>0.000</b>	<b>1.956153</b> <b>2.622619</b>
_zdll1		<b>1.125228</b>	.0439258	<b>3.02</b>	<b>0.003</b>	<b>1.042346</b> <b>1.2147</b>
_infectionburXzdl11_000		<b>.9381373</b>	.0604396	<b>-0.99</b>	<b>0.322</b>	<b>.8268518</b> <b>1.064401</b>
AGE		<b>1.030323</b>	.0129936	<b>2.37</b>	<b>0.018</b>	<b>1.005169</b> <b>1.056108</b>
SEX		<b>.7820138</b>	.0509704	<b>-3.77</b>	<b>0.000</b>	<b>.6882314</b> <b>.8885754</b>
NonWhite		<b>1.066134</b>	.1836118	<b>0.37</b>	<b>0.710</b>	<b>.7607048</b> <b>1.494196</b>
householdszie		<b>.9338115</b>	.0394139	<b>-1.62</b>	<b>0.105</b>	<b>.8596706</b> <b>1.014346</b>
SES		<b>.8325844</b>	.0411548	<b>-3.71</b>	<b>0.000</b>	<b>.7557066</b> <b>.9172828</b>
LE8_TOTALSCORE		<b>.9991625</b>	.0003549	<b>-2.36</b>	<b>0.018</b>	<b>.9984672</b> <b>.9998583</b>

-> Model for the mediator

Iteration 0: Log likelihood = -50471.774  
 Iteration 1: Log likelihood = -50471.774

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,540</b>
	Wald chi2(7) =	<b>2857.72</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	zdl11	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.215266</b>	.0147148	<b>14.63</b>	<b>0.000</b>	<b>.1864254</b> <b>.2441065</b>
AGE		<b>.0256805</b>	.0009596	<b>26.76</b>	<b>0.000</b>	<b>.0237997</b> <b>.0275613</b>
SEX		<b>-.1951668</b>	.0101849	<b>-19.16</b>	<b>0.000</b>	<b>-.2151288</b> <b>-.1752049</b>
NonWhite		<b>-.0994156</b>	.0244099	<b>-4.07</b>	<b>0.000</b>	<b>-.1472581</b> <b>-.051573</b>
householdszie		<b>-.0034956</b>	.0046376	<b>-0.75</b>	<b>0.451</b>	<b>-.0125851</b> <b>.0055939</b>
SES		<b>-.1421119</b>	.0076454	<b>-18.59</b>	<b>0.000</b>	<b>-.1570965</b> <b>-.1271272</b>
LE8_TOTALSCORE		<b>-.0010608</b>	.0000542	<b>-19.56</b>	<b>0.000</b>	<b>-.0011671</b> <b>-.0009545</b>
_cons		<b>-.7438407</b>	.0693907	<b>-10.72</b>	<b>0.000</b>	<b>-.8798439</b> <b>-.6078375</b>
<b>sigma2</b>						
_cons		<b>.9274394</b>	.0068615	<b>135.17</b>	<b>0.000</b>	<b>.9139911</b> <b>.9408876</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.28425</b>	.1646612	7.80	<b>0.000</b>	.9615195 1.60698
ereri_cde	<b>1.261299</b>	.1684527	7.49	<b>0.000</b>	.9311375 1.59146
ereri_intref	<b>-.0035097</b>	.0038838	-0.90	0.366	-.0111218 .0041024
ereri_intmed	<b>.0007371</b>	.0263809	0.03	0.978	-.0509686 .0524428
ereri_pie	<b>.0257235</b>	.0088016	2.92	<b>0.003</b>	.0084727 .0429743

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zdnaja2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): **cox**

Model for the mediator (mreg): **linear**

Referent exposure level (a0): **0**

Actual exposure level (a1): **1**

Mediator level for the decomposition (m): **0**

Fixed values of the covariates (c): **60.18 1.531 .0466 2.218 -.07587 500.4**

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9125.2692**

Iteration 1: Log likelihood = **-9030.194**

Iteration 2: Log likelihood = **-9021.1999**

Iteration 3: Log likelihood = **-9021.178**

Iteration 4: Log likelihood = **-9021.178**

Refining estimates:

Iteration 0: Log likelihood = **-9021.178**

Cox regression with Breslow method for ties

No. of subjects = **36,717** Number of obs = **36,717**

No. of failures = **974**

Time at risk = **446,100.301**

Log likelihood = **-9021.178**

LR chi2(9) = **208.18**

Prob > chi2 = **0.0000**

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.283561	.1628114	11.58	0.000	1.985749 2.626037
zdnaja2		.9081093	.0349505	-2.50	0.012	.8421275 .9792609
_infectionburXzdnaja2_000		1.049012	.0749214	0.67	0.503	.9119834 1.20663
AGE		1.037152	.0130406	2.90	0.004	1.011905 1.063028
SEX		.7474711	.0485662	-4.48	0.000	.6580948 .8489858
NonWhite		1.028332	.179503	0.16	0.873	.7303817 1.447828
householdsize		.9378602	.0393281	-1.53	0.126	.8638611 1.018198
SES		.8143928	.0400192	-4.18	0.000	.7396155 .8967304
LE8_TOTALSCORE		.9989625	.0003553	-2.92	0.004	.9982665 .9996591

-> Model for the mediator

Iteration 0: Log likelihood = **-51852.093**  
 Iteration 1: Log likelihood = **-51852.093**

Linear regression (Maximum Likelihood) Number of obs = 36,717  
 Wald chi2(7) = 496.47  
 Log likelihood = **-51852.093** Prob > chi2 = 0.0000

	zdnaja2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		-.0024831	.0151287	-0.16	0.870	-.0321348 .0271685
AGE		-.0018027	.0009871	-1.83	0.068	-.0037374 .0001319
SEX		-.0575123	.01048	-5.49	0.000	-.0780527 -.0369719
NonWhite		.0906381	.0250687	3.62	0.000	.0415042 .1397719
householdsize		-.0006746	.0047757	-0.14	0.888	-.0100348 .0086856
SES		-.0238727	.0078577	-3.04	0.002	-.0392736 -.0084719
LE8_TOTALSCORE		-.0010733	.0000558	-19.24	0.000	-.0011827 -.000964
_cons		.729473	.071354	10.22	0.000	.5896217 .8693243
<b>sigma2</b>						
_cons		.9866319	.0072818	135.49	0.000	.9723599 1.000904

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.276074	.162012	7.88	0.000	.958536 1.593611
ereri_cde	1.277733	.1619193	7.89	0.000	.9603775 1.595089
ereri_intref	-.0019341	.0074542	-0.26	0.795	-.016544 .0126758
ereri_intmed	.000035	.0004136	0.08	0.933	-.0007756 .0008455
ereri_pie	.0002394	.0014617	0.16	0.870	-.0026256 .0031043

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zdnajb1  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.18 1.531 .04658 2.216 -.07524 500.8

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9057.6167  
 Iteration 1: Log likelihood = -8965.152  
 Iteration 2: Log likelihood = -8956.8212  
 Iteration 3: Log likelihood = -8956.8037  
 Iteration 4: Log likelihood = -8956.8037  
 Refining estimates:  
 Iteration 0: Log likelihood = -8956.8037

Cox regression with Breslow method for ties

No. of subjects =	36,264	Number of obs =	36,264
No. of failures =	968		
Time at risk =	440,524.906	LR chi2(9) =	201.63
Log likelihood =	-8956.8037	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.262272	.1621652	11.39	0.000	1.965752 2.603521
zdnajb1	.896223	.0348384	-2.82	0.005	.8304773 .9671735
_infectionburXzdnajb1_000	1.075271	.0771383	1.01	0.312	.9342305 1.237604
AGE	1.032335	.0129922	2.53	0.011	1.007182 1.058116
SEX	.7446778	.0485684	-4.52	0.000	.6553185 .8462221
NonWhite	1.107622	.1885677	0.60	0.548	.7933749 1.54634
householdsize	.9371725	.0393122	-1.55	0.122	.8632044 1.017479
SES	.8167643	.040267	-4.11	0.000	.7415356 .8996251
LE8_TOTALSCORE	.9989391	.0003576	-2.97	0.003	.9982385 .9996402

-> Model for the mediator

Iteration 0: Log likelihood = -50893.797  
 Iteration 1: Log likelihood = -50893.797

Linear regression (Maximum Likelihood)  
 Number of obs = 36,264  
 Wald chi2(7) = 1141.79  
 Log likelihood = -50893.797 Prob > chi2 = 0.0000

	zdnajb1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>-.0146843</b>	.0150893	<b>-0.97</b>	<b>0.330</b>	<b>-.0442588</b> <b>.0148902</b>
AGE		<b>-.0005993</b>	.0009853	<b>-0.61</b>	<b>0.543</b>	<b>-.0025305</b> <b>.0013318</b>
SEX		<b>-.144957</b>	.0104522	<b>-13.87</b>	<b>0.000</b>	<b>-.1654429</b> <b>-.1244711</b>
NonWhite		<b>.2560247</b>	.0250105	<b>10.24</b>	<b>0.000</b>	<b>.2070051</b> <b>.3050443</b>
householdsize		<b>.0027179</b>	.0047535	<b>0.57</b>	<b>0.567</b>	<b>-.0065988</b> <b>.0120347</b>
SES		<b>-.0084114</b>	.007839	<b>-1.07</b>	<b>0.283</b>	<b>-.0237756</b> <b>.0069528</b>
LE8_TOTALSCORE		<b>-.0014727</b>	.0000557	<b>-26.46</b>	<b>0.000</b>	<b>-.0015818</b> <b>-.0013636</b>
_cons		<b>.9789967</b>	.0712089	<b>13.75</b>	<b>0.000</b>	<b>.8394298</b> <b>1.118563</b>
<b>sigma2</b>						
_cons		<b>.969449</b>	.0071995	<b>134.66</b>	<b>0.000</b>	<b>.9553382</b> <b>.9835597</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.252195</b>	.1612531	<b>7.77</b>	<b>0.000</b>	<b>.936145</b> <b>1.568246</b>
ereri_cde	<b>1.255229</b>	.1611045	<b>7.79</b>	<b>0.000</b>	<b>.9394702</b> <b>1.570988</b>
ereri_intref	<b>-.0042569</b>	.006098	<b>-0.70</b>	<b>0.485</b>	<b>-.0162089</b> <b>.007695</b>
ereri_intmed	<b>-.0003871</b>	.0021229	<b>-0.18</b>	<b>0.855</b>	<b>-.0045479</b> <b>.0037737</b>
ereri_pie	<b>.0016102</b>	.0017519	<b>0.92</b>	<b>0.358</b>	<b>-.0018234</b> <b>.0050438</b>

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zdnajb8
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04648 2.218 -.07459 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8905.4114**  
 Iteration 1: Log likelihood = **-8820.7954**  
 Iteration 2: Log likelihood = **-8813.4006**  
 Iteration 3: Log likelihood = **-8813.3832**  
 Iteration 4: Log likelihood = **-8813.3832**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8813.3832**

Cox regression with Breslow method for ties

No. of subjects =	<b>35,755</b>	Number of obs =	<b>35,755</b>
No. of failures =	<b>953</b>		
Time at risk =	<b>434,342.674</b>	LR chi2(9) =	<b>184.06</b>
Log likelihood =	<b>-8813.3832</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.204772</b>	<b>.160082</b>	<b>10.89</b>	<b>0.000</b>	<b>1.912319</b> <b>2.54195</b>
zdnajb8		<b>.9455535</b>	<b>.0393086</b>	<b>-1.35</b>	<b>0.178</b>	<b>.8715653</b> <b>1.025823</b>
_infectionburXzdnajb8_000		<b>1.077941</b>	<b>.0780292</b>	<b>1.04</b>	<b>0.300</b>	<b>.9353598</b> <b>1.242256</b>
AGE		<b>1.037206</b>	<b>.0131766</b>	<b>2.88</b>	<b>0.004</b>	<b>1.0117</b> <b>1.063356</b>
SEX		<b>.7546533</b>	<b>.0496186</b>	<b>-4.28</b>	<b>0.000</b>	<b>.6634082</b> <b>.8584482</b>
NonWhite		<b>1.111452</b>	<b>.1891153</b>	<b>0.62</b>	<b>0.535</b>	<b>.7962643</b> <b>1.5514</b>
householdsize		<b>.9381948</b>	<b>.0397309</b>	<b>-1.51</b>	<b>0.132</b>	<b>.8634677</b> <b>1.019389</b>
SES		<b>.8342912</b>	<b>.0414923</b>	<b>-3.64</b>	<b>0.000</b>	<b>.7568055</b> <b>.9197101</b>
LE8_TOTALSCORE		<b>.9989937</b>	<b>.0003581</b>	<b>-2.81</b>	<b>0.005</b>	<b>.9982921</b> <b>.9996959</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50686.238**  
 Iteration 1: Log likelihood = **-50686.238**

Linear regression (Maximum Likelihood)	Number of obs =	<b>35,755</b>
	Wald chi2(7) =	<b>94.95</b>
Log likelihood =	<b>-50686.238</b>	Prob > chi2 = <b>0.0000</b>

	zdnajb8	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>-.0079858</b>	<b>.0154188</b>	<b>-0.52</b>	<b>0.605</b>	<b>-.0382061</b> <b>.0222344</b>
AGE		<b>-.0040597</b>	<b>.0010064</b>	<b>-4.03</b>	<b>0.000</b>	<b>-.0060322</b> <b>-.0020872</b>
SEX		<b>.0742901</b>	<b>.0106771</b>	<b>6.96</b>	<b>0.000</b>	<b>.0533633</b> <b>.0952169</b>
NonWhite		<b>-.0993636</b>	<b>.0255665</b>	<b>-3.89</b>	<b>0.000</b>	<b>-.149473</b> <b>-.0492541</b>
householdsize		<b>-.0026524</b>	<b>.0048689</b>	<b>-0.54</b>	<b>0.586</b>	<b>-.0121954</b> <b>.0068905</b>
SES		<b>-.0000624</b>	<b>.0080175</b>	<b>-0.01</b>	<b>0.994</b>	<b>-.0157764</b> <b>.0156516</b>
LE8_TOTALSCORE		<b>-.0002384</b>	<b>.0000569</b>	<b>-4.19</b>	<b>0.000</b>	<b>-.0003499</b> <b>-.0001269</b>
_cons		<b>.2615253</b>	<b>.0727619</b>	<b>3.59</b>	<b>0.000</b>	<b>.1189147</b> <b>.4041359</b>
<b>sigma2</b>						
_cons		<b>.9973237</b>	<b>.007459</b>	<b>133.71</b>	<b>0.000</b>	<b>.9827043</b> <b>1.011943</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.201576</b>	.1597257	7.52	<b>0.000</b>	.8885191 1.514633
ereri_cde	<b>1.202965</b>	.1597416	7.53	<b>0.000</b>	.8898773 1.516053
ereri_intref	<b>-.001054</b>	.0035209	-0.30	<b>0.765</b>	-.0079548 .0058467
ereri_intmed	<b>-.0007824</b>	.001866	-0.42	<b>0.675</b>	-.0044397 .0028748
ereri_pie	<b>.0004472</b>	.0009253	0.48	<b>0.629</b>	-.0013663 .0022607

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zdner
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): **cox**

Model for the mediator (mreg): **linear**

Referent exposure level (a0): **0**

Actual exposure level (a1): **1**

Mediator level for the decomposition (m): **0**

Fixed values of the covariates (c): **60.19 1.531 .04627 2.216 -.07438 500.5**

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9052.3828**

Iteration 1: Log likelihood = **-8966.6768**

Iteration 2: Log likelihood = **-8957.3756**

Iteration 3: Log likelihood = **-8957.3254**

Iteration 4: Log likelihood = **-8957.3254**

Refining estimates:

Iteration 0: Log likelihood = **-8957.3254**

Cox regression with Breslow method for ties

No. of subjects = **36,351** Number of obs = **36,351**

No. of failures = **967**

Time at risk = **441,523.553**

LR chi2(9) = **190.11**

Log likelihood = **-8957.3254** Prob > chi2 = **0.0000**

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.191684</b>	.1628038	<b>10.56</b>	<b>0.000</b>	<b>1.894735</b> 2.535171
zdner	<b>.9764814</b>	.03857	<b>-0.60</b>	<b>0.547</b>	<b>.9037377</b> 1.05508
_infectionburXzdner_000	<b>.9593837</b>	.0677561	<b>-0.59</b>	<b>0.557</b>	<b>.8353656</b> 1.101814
AGE	<b>1.034581</b>	.013069	<b>2.69</b>	<b>0.007</b>	<b>1.00928</b> 1.060515
SEX	<b>.7544704</b>	.0491786	<b>-4.32</b>	<b>0.000</b>	<b>.6639851</b> .8572866
NonWhite	<b>1.098206</b>	.1911736	<b>0.54</b>	<b>0.590</b>	<b>.7807437</b> 1.544755
householdsize	<b>.9382251</b>	.0392921	<b>-1.52</b>	<b>0.128</b>	<b>.8642898</b> 1.018485
SES	<b>.8259244</b>	.040821	<b>-3.87</b>	<b>0.000</b>	<b>.7496697</b> .9099356
LE8_TOTALSCORE	<b>.9990609</b>	.0003571	<b>-2.63</b>	<b>0.009</b>	<b>.9983613</b> .9997611

-> Model for the mediator

Iteration 0: Log likelihood = **-50581.477**  
 Iteration 1: Log likelihood = **-50581.477**

Linear regression (Maximum Likelihood)                          Number of obs = **36,351**  
     Wald chi2(7) = **2051.51**  
 Log likelihood = **-50581.477**                                      Prob > chi2 = **0.0000**

zdner	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>-.1691872</b>	.0148863	<b>-11.37</b>	<b>0.000</b>	<b>-.1983638</b> -.1400106
AGE	<b>-.0174899</b>	.0009718	<b>-18.00</b>	<b>0.000</b>	<b>-.0193945</b> -.0155853
SEX	<b>-.1369343</b>	.0103167	<b>-13.27</b>	<b>0.000</b>	<b>-.1571547</b> -.1167139
NonWhite	<b>.7320369</b>	.0247511	<b>29.58</b>	<b>0.000</b>	<b>.6835256</b> .7805482
householdsize	<b>-.0128105</b>	.004693	<b>-2.73</b>	<b>0.006</b>	<b>-.0220086</b> -.0036125
SES	<b>.0194894</b>	.0077436	<b>2.52</b>	<b>0.012</b>	<b>.0043123</b> .0346666
LE8_TOTALSCORE	<b>.001122</b>	.000055	<b>20.42</b>	<b>0.000</b>	<b>.0010143</b> .0012297
_cons	<b>.7202813</b>	.0702187	<b>10.26</b>	<b>0.000</b>	<b>.5826553</b> .8579074
<b>sigma2</b>					
_cons	<b>.9465526</b>	.007021	<b>134.82</b>	<b>0.000</b>	<b>.9327916</b> .9603136

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.21773</b>	.1601108	<b>7.61</b>	<b>0.000</b>	<b>.9039184</b> 1.531541
ereri_cde	<b>1.192032</b>	.1628543	<b>7.32</b>	<b>0.000</b>	<b>.872843</b> 1.51122
ereri_intref	<b>.0013453</b>	.0049967	<b>0.27</b>	<b>0.788</b>	<b>-.0084481</b> .0111387
ereri_intmed	<b>.0203183</b>	.0228306	<b>0.89</b>	<b>0.373</b>	<b>-.0244289</b> .0650654
ereri_pie	<b>.0040347</b>	.0067191	<b>0.60</b>	<b>0.548</b>	<b>-.0091345</b> .0172039

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zdnmbp  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.17 1.532 .0464 2.216 -.07458 500.7

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -8985.4467  
 Iteration 1: Log likelihood = -8896.6604  
 Iteration 2: Log likelihood = -8889.0207  
 Iteration 3: Log likelihood = -8889.0041  
 Iteration 4: Log likelihood = -8889.0041  
 Refining estimates:  
 Iteration 0: Log likelihood = -8889.0041

Cox regression with Breslow method for ties

No. of subjects =	<b>36,164</b>	Number of obs =	<b>36,164</b>
No. of failures =	<b>960</b>		
Time at risk =	<b>439,440.668</b>	LR chi2(9) =	<b>192.89</b>
Log likelihood =	<b>-8889.0041</b>	Prob > chi2 =	<b>0.0000</b>

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.205744</b>	.159235	<b>10.96</b>	<b>0.000</b>	<b>1.914723</b> <b>2.540997</b>
zdnmbp	<b>.9755182</b>	.0388207	<b>-0.62</b>	<b>0.533</b>	<b>.9023226</b> <b>1.054651</b>
_infectionburXzdnmbp_000	<b>1.011696</b>	.074325	<b>0.16</b>	<b>0.874</b>	<b>.8760237</b> <b>1.16838</b>
AGE	<b>1.037752</b>	.0131267	<b>2.93</b>	<b>0.003</b>	<b>1.01234</b> <b>1.063801</b>
SEX	<b>.7402867</b>	.0484467	<b>-4.60</b>	<b>0.000</b>	<b>.6511703</b> <b>.8415991</b>
NonWhite	<b>1.020011</b>	.1781094	<b>0.11</b>	<b>0.910</b>	<b>.7243898</b> <b>1.436275</b>
householdsize	<b>.9432484</b>	.0393812	<b>-1.40</b>	<b>0.162</b>	<b>.8691364</b> <b>1.02368</b>
SES	<b>.8093498</b>	.0401022	<b>-4.27</b>	<b>0.000</b>	<b>.7344469</b> <b>.8918918</b>
LE8_TOTALSCORE	<b>.9990006</b>	.0003583	<b>-2.79</b>	<b>0.005</b>	<b>.9982987</b> <b>.999703</b>

-> Model for the mediator

Iteration 0: Log likelihood = -50945.717  
 Iteration 1: Log likelihood = -50945.717

Linear regression (Maximum Likelihood)  
 Number of obs = 36,164  
 Wald chi2(7) = 744.10  
 Prob > chi2 = 0.0000  
 Log likelihood = -50945.717

zdnmbp	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	.0517591	.0152034	3.40	0.001	.0219609 .0815572
AGE	.0042734	.0009947	4.30	0.000	.0023237 .0062231
SEX	-.0062812	.0105238	-0.60	0.551	-.0269075 .0143452
NonWhite	.1069242	.0252346	4.24	0.000	.0574652 .1563831
householdsize	-.002582	.0049909	-0.52	0.605	-.0123639 .0071999
SES	-.0501378	.0079109	-6.34	0.000	-.065643 -.0346327
LE8_TOTALSCORE	-.0012515	.000056	-22.35	0.000	-.0013613 -.0011418
_cons	.3689075	.0720947	5.12	0.000	.2276044 .5102105
<b>sigma2</b>					
_cons	.9798119	.0072865	134.47	0.000	.9655306 .9940932

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.203582	.1589181	7.57	0.000	.8921081 1.515056
ereri_cde	1.205167	.1591644	7.57	0.000	.8932102 1.517123
ereri_intref	-.0000835	.0030121	-0.03	0.978	-.0059871 .0058201
ereri_intmed	-.0002192	.0073686	-0.03	0.976	-.0146613 .0142229
ereri_pie	-.0012821	.0020913	-0.61	0.540	-.0053809 .0028167

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zdnph1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.532 .04628 2.216 -.07495 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9114.4129**  
 Iteration 1: Log likelihood = **-9027.8941**  
 Iteration 2: Log likelihood = **-9017.5475**  
 Iteration 3: Log likelihood = **-9017.4749**  
 Iteration 4: Log likelihood = **-9017.4749**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-9017.4749**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,536</b>	Number of obs =	<b>36,536</b>
No. of failures =	<b>973</b>		
Time at risk =	<b>443,779.95</b>	LR chi2(9) =	<b>193.88</b>
Log likelihood =	<b>-9017.4749</b>	Prob > chi2 =	<b>0.0000</b>

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.24005</b>	.1602154	<b>11.28</b>	<b>0.000</b>	<b>1.94705</b> <b>2.577142</b>
zdnph1	<b>.9613471</b>	.0372166	<b>-1.02</b>	<b>0.309</b>	<b>.8911025</b> <b>1.037129</b>
_infectionburXzdnph1_000	<b>1.115706</b>	.0783125	<b>1.56</b>	<b>0.119</b>	<b>.9723059</b> <b>1.280255</b>
AGE	<b>1.035441</b>	.0130079	<b>2.77</b>	<b>0.006</b>	<b>1.010257</b> <b>1.061252</b>
SEX	<b>.7576362</b>	.0493384	<b>-4.26</b>	<b>0.000</b>	<b>.6668517</b> <b>.8607801</b>
NonWhite	<b>1.089999</b>	.1856772	<b>0.51</b>	<b>0.613</b>	<b>.7805978</b> <b>1.522037</b>
householdszie	<b>.9373638</b>	.0392687	<b>-1.54</b>	<b>0.123</b>	<b>.8634736</b> <b>1.017577</b>
SES	<b>.8252802</b>	.0406504	<b>-3.90</b>	<b>0.000</b>	<b>.7493319</b> <b>.9089263</b>
LE8_TOTALSCORE	<b>.9990345</b>	.0003558	<b>-2.71</b>	<b>0.007</b>	<b>.9983374</b> <b>.9997321</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-51396.816**  
 Iteration 1: Log likelihood = **-51396.816**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,536</b>
	Wald chi2(7) =	<b>900.97</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	zdnph1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>-.0177229</b>	.0150799	<b>-1.18</b>	<b>0.240</b>	<b>-.0472789</b> <b>.0118332</b>
AGE		<b>-.000308</b>	.0009842	<b>-0.31</b>	<b>0.754</b>	<b>-.0022371</b> <b>.001621</b>
SEX		<b>-.1836233</b>	.0104494	<b>-17.57</b>	<b>0.000</b>	<b>-.2041038</b> <b>-.1631429</b>
NonWhite		<b>.2399033</b>	.0250674	<b>9.57</b>	<b>0.000</b>	<b>.1907721</b> <b>.2890346</b>
householdszie		<b>.0003245</b>	.0047563	<b>0.07</b>	<b>0.946</b>	<b>-.0089978</b> <b>.0096468</b>
SES		<b>.0127747</b>	.0078451	<b>1.63</b>	<b>0.103</b>	<b>-.0026015</b> <b>.0281509</b>
LE8_TOTALSCORE		<b>-.0011251</b>	.0000557	<b>-20.21</b>	<b>0.000</b>	<b>-.0012343</b> <b>-.001016</b>
_cons		<b>.854482</b>	.071087	<b>12.02</b>	<b>0.000</b>	<b>.715154</b> <b>.9938101</b>
<b>sigma2</b>						
_cons		<b>.9759068</b>	.0072204	<b>135.16</b>	<b>0.000</b>	<b>.9617551</b> <b>.9900586</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.241541</b>	.1601466	7.75	<b>0.000</b>	.9276592 1.555422
ereri_cde	<b>1.23923</b>	.1600893	7.74	<b>0.000</b>	.9254611 1.553
ereri_intref	<b>.0050956</b>	.0095366	0.53	0.593	-.0135958 .023787
ereri_intmed	<b>-.0034841</b>	.0038411	-0.91	0.364	-.0110126 .0040443
ereri_pie	<b>.0006989</b>	.0009084	0.77	0.442	-.0010816 .0024794

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zdok2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04649 2.218 -.07578 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9064.8284

Iteration 1: Log likelihood = -8972.8665

Iteration 2: Log likelihood = -8962.2259

Iteration 3: Log likelihood = -8962.165

Iteration 4: Log likelihood = -8962.165

Refining estimates:

Iteration 0: Log likelihood = -8962.165

Cox regression with Breslow method for ties

No. of subjects = 36,441 Number of obs = 36,441

No. of failures = 968

Time at risk = 442,700.115

Log likelihood = -8962.165

LR chi2(9) = 205.33

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.276737	.1634294	11.46	0.000	1.977933
zdok2		.9124462	.0354805	-2.36	0.018	.8454895
_infectionburXzdok2_000		.9844786	.0707377	-0.22	0.828	.8551553
AGE		1.033509	.0130102	2.62	0.009	1.008321
SEX		.7479235	.0487594	-4.46	0.000	.6582105
NonWhite		1.009105	.178535	0.05	0.959	.7134082
householdsize		.9267447	.0398631	-1.77	0.077	.8518172
SES		.8244588	.0407634	-3.90	0.000	.7483131
LE8_TOTALSCORE		.9989691	.0003564	-2.89	0.004	.9982708
						.9996678

-> Model for the mediator

Iteration 0: Log likelihood = -51524.935  
Iteration 1: Log likelihood = -51524.935

Linear regression (Maximum Likelihood) Number of obs = 36,441  
Log likelihood = -51524.935 Wald chi2(7) = 366.03  
Prob > chi2 = 0.0000

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.281208</b>	.1627771	7.87	<b>0.000</b>	.9621709 1.600246
ereri_cde	<b>1.271507</b>	.1625872	7.82	<b>0.000</b>	.9528418 1.590172
ereri_intref	<b>.0087192</b>	.0149569	0.58	<b>0.560</b>	- .0205959 .0380343
ereri_intmed	<b>.0006143</b>	.0023982	0.26	<b>0.798</b>	- .0040862 .0053147
ereri_pie	<b>.0003679</b>	.0014025	0.26	<b>0.793</b>	- .002381 .0031168

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intre to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
Warning: this analysis assumes a rare outcome.  
Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```

Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zdpep1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

Model for the outcome (yreg): cox
Model for the mediator (mreg): linear

Referent exposure level (a0):          0
Actual exposure level (a1):           1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c):    60.17 1.531 .04636 2.216 -.07448 500.7

```

-> Model for the outcome

```

Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid

```

```

Iteration 0: Log likelihood = -8964.5425
Iteration 1: Log likelihood = -8875.0578
Iteration 2: Log likelihood = -8867.4268
Iteration 3: Log likelihood = -8867.4112
Refining estimates:
Iteration 0: Log likelihood = -8867.4112

```

Cox regression with Breslow method for ties

No. of subjects =	36,107	Number of obs =	36,107
No. of failures =	958		
Time at risk =	438,744.714	LR chi2(9) =	194.26
Log likelihood =	-8867.4112	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.205841	.159435	10.95	0.000	1.914479 2.541546
zdpep1	1.025142	.0403501	0.63	0.528	.9490305 1.107357
_infectionburXzdpep1_000	.9582431	.0662326	-0.62	0.537	.8368386 1.09726
AGE	1.03848	.013147	2.98	0.003	1.01303 1.06457
SEX	.7408402	.0495173	-4.49	0.000	.6498763 .8445363
NonWhite	1.019354	.1780222	0.11	0.913	.7238846 1.435426
householdszie	.9444856	.0393734	-1.37	0.171	.8703837 1.024896
SES	.8110485	.0402131	-4.22	0.000	.7359408 .8938214
LE8_TOTALSCORE	.9990115	.000357	-2.77	0.006	.9983121 .9997114

-> Model for the mediator

Iteration 0: Log likelihood = -50441.748	Number of obs = 36,107
Iteration 1: Log likelihood = -50441.748	Wald chi2(7) = 1617.93
Log likelihood = -50441.748	Prob > chi2 = 0.0000

	zdpep1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		-.0329921	.015033	-2.19	0.028	-.0624562 -.003528
AGE		-.0064548	.0009839	-6.56	0.000	-.0083832 -.0045264
SEX		-.3994879	.0104089	-38.38	0.000	-.4198888 -.3790869
NonWhite		.0374244	.0249703	1.50	0.134	-.0115166 .0863653
householdsize		-.0076249	.0049357	-1.54	0.122	-.0172986 .0020488
SES		-.0018244	.007826	-0.23	0.816	-.0171631 .0135143
LE8_TOTALSCORE		.0007249	.0000554	13.09	0.000	.0006163 .0008335
_cons		.6568388	.0713091	9.21	0.000	.5170754 .7966021
<b>sigma2</b>						
_cons		.9570859	.0071231	134.36	0.000	.9431248 .9710469

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.206392	.1591835	7.58	0.000	.8943983 1.518386
ereri_cde	1.205349	.1593614	7.56	0.000	.893006 1.517691
ereri_intref	-.0002534	.0019876	-0.13	0.899	-.004149 .0036422
ereri_intmed	.0021159	.0044655	0.47	0.636	-.0066362 .010868
ereri_pie	-.0008189	.0013501	-0.61	0.544	-.003465 .0018272

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zdpep2
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04658 2.216 -.07524 500.8

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9057.6167**  
 Iteration 1: Log likelihood = **-8968.9289**  
 Iteration 2: Log likelihood = **-8960.4624**  
 Iteration 3: Log likelihood = **-8960.4429**  
 Iteration 4: Log likelihood = **-8960.4429**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8960.4429**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,264</b>	Number of obs =	<b>36,264</b>
No. of failures =	<b>968</b>		
Time at risk =	<b>440,524.906</b>	LR chi2(9) =	<b>194.35</b>
Log likelihood =	<b>-8960.4429</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.256995</b>	<b>.1615751</b>	<b>11.37</b>	<b>0.000</b>	<b>1.961527</b> <b>2.59697</b>
zdpep2		<b>.9626013</b>	<b>.0371399</b>	<b>-0.99</b>	<b>0.323</b>	<b>.8924926</b> <b>1.038217</b>
_infectionburXzdpep2_000		<b>1.03131</b>	<b>.0709757</b>	<b>0.45</b>	<b>0.654</b>	<b>.9011741</b> <b>1.180238</b>
AGE		<b>1.03211</b>	<b>.0129984</b>	<b>2.51</b>	<b>0.012</b>	<b>1.006946</b> <b>1.057904</b>
SEX		<b>.757069</b>	<b>.049743</b>	<b>-4.24</b>	<b>0.000</b>	<b>.6655912</b> <b>.8611194</b>
NonWhite		<b>1.093324</b>	<b>.1861296</b>	<b>0.52</b>	<b>0.600</b>	<b>.7831387</b> <b>1.526368</b>
householdszie		<b>.9364735</b>	<b>.0393209</b>	<b>-1.56</b>	<b>0.118</b>	<b>.8624919</b> <b>1.016801</b>
SES		<b>.816493</b>	<b>.0402627</b>	<b>-4.11</b>	<b>0.000</b>	<b>.7412731</b> <b>.8993458</b>
LE8_TOTALSCORE		<b>.9990572</b>	<b>.0003549</b>	<b>-2.66</b>	<b>0.008</b>	<b>.9983618</b> <b>.9997531</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-51172.735**  
 Iteration 1: Log likelihood = **-51172.735**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,264</b>
	Wald chi2(7) =	<b>570.75</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	zdpep2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.0224681</b>	<b>.0152058</b>	<b>1.48</b>	<b>0.140</b>	<b>-.0073348</b> <b>.052271</b>
AGE		<b>.0053899</b>	<b>.0009929</b>	<b>5.43</b>	<b>0.000</b>	<b>.0034438</b> <b>.007336</b>
SEX		<b>.2229637</b>	<b>.0105329</b>	<b>21.17</b>	<b>0.000</b>	<b>.2023196</b> <b>.2436078</b>
NonWhite		<b>.1863697</b>	<b>.0252036</b>	<b>7.39</b>	<b>0.000</b>	<b>.1369716</b> <b>.2357678</b>
householdszie		<b>-.0033001</b>	<b>.0047902</b>	<b>-0.69</b>	<b>0.491</b>	<b>-.0126888</b> <b>.0060886</b>
SES		<b>-.0302124</b>	<b>.0078996</b>	<b>-3.82</b>	<b>0.000</b>	<b>-.0456953</b> <b>-.0147295</b>
LE8_TOTALSCORE		<b>-.0000899</b>	<b>.0000561</b>	<b>-1.60</b>	<b>0.109</b>	<b>-.0001998</b> <b>.00002</b>
_cons		<b>-.6275832</b>	<b>.0717587</b>	<b>-8.75</b>	<b>0.000</b>	<b>-.7682277</b> <b>-.4869387</b>
<b>sigma2</b>						
_cons		<b>.984478</b>	<b>.0073111</b>	<b>134.66</b>	<b>0.000</b>	<b>.9701485</b> <b>.9988075</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.254854</b>	.161366	7.78	<b>0.000</b>	.9385826 1.571126
ereri_cde	<b>1.255947</b>	.161409	7.78	<b>0.000</b>	.9395912 1.572303
ereri_intref	<b>-.0007235</b>	.0020501	-0.35	<b>0.724</b>	-.0047417 .0032947
ereri_intmed	<b>.0004869</b>	.0030432	0.16	<b>0.873</b>	-.0054776 .0064514
ereri_pie	<b>-.000856</b>	.0010419	-0.82	<b>0.411</b>	-.0028981 .0011861

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zdpp10
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04646 2.216 -.07503 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9036.4379

Iteration 1: Log likelihood = -8948.5624

Iteration 2: Log likelihood = -8939.8762

Iteration 3: Log likelihood = -8939.8525

Iteration 4: Log likelihood = -8939.8525

Refining estimates:

Iteration 0: Log likelihood = -8939.8525

Cox regression with Breslow method for ties

No. of subjects = 36,352 Number of obs = 36,352

No. of failures = 965

Time at risk = 441,650.762

LR chi2(9) = 193.17

Log likelihood = -8939.8525

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.258382	.1617136	11.38	0.000	1.962665 2.598654
zdpp10	.996478	.0392494	-0.09	0.929	.922445 1.076453
_infectionburXzdpp10_000	1.029625	.0717701	0.42	0.675	.898144 1.180354
AGE	1.032443	.0130126	2.53	0.011	1.007251 1.058265
SEX	.7580744	.0500399	-4.20	0.000	.6660774 .8627778
NonWhite	1.054506	.1826019	0.31	0.759	.7510206 1.480628
householdszie	.9333961	.0397366	-1.62	0.105	.8586746 1.01462
SES	.8197514	.0405247	-4.02	0.000	.7440511 .9031535
LE8_TOTALSCORE	.9990206	.0003556	-2.75	0.006	.9983238 .9997179

-> Model for the mediator

Iteration 0: Log likelihood = -50742.285  
 Iteration 1: Log likelihood = -50742.285

Linear regression (Maximum Likelihood)  
 Number of obs = 36,352  
 Wald chi2(7) = 1716.22  
 Log likelihood = -50742.285 Prob > chi2 = 0.0000

	zdpp10	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr	.0078681	.0149697	0.53	0.599	-.0214719	.0372081
AGE	-.0013473	.0009772	-1.38	0.168	-.0032626	.0005679
SEX	.3342387	.0103609	32.26	0.000	.3139318	.3545457
NonWhite	.5142204	.0248281	20.71	0.000	.4655582	.5628826
householdszie	-.0131864	.0047953	-2.75	0.006	-.022585	-.0037877
SES	-.0669478	.0077712	-8.61	0.000	-.0821789	-.0517166
LE8_TOTALSCORE	-.000333	.0000552	-6.04	0.000	-.0004411	-.0002249
_cons	-.2647705	.0706904	-3.75	0.000	-.4033212	-.1262198
<b>sigma2</b>						
_cons	.954891	.0070828	134.82	0.000	.941009	.968773

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.259463	.1618489	7.78	0.000	.9422451 1.576681
ereri_cde	1.258369	.1617102	7.78	0.000	.9414233 1.575316
ereri_intref	.0006374	.0031018	0.21	0.837	-.005442 .0067168
ereri_intmed	.000484	.0014158	0.34	0.732	-.0022909 .003259
ereri_pie	-.0000278	.0003144	-0.09	0.930	-.0006439 .0005884

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdszie SES LE8\_TOTALSCORE were not provided. All

-> Summary

```

Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zdpp4
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

Model for the outcome (yreg): cox
Model for the mediator (mreg): linear

Referent exposure level (a0):          0
Actual exposure level (a1):           1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c):    60.19 1.531 .04659 2.216 -.07604 500.6

```

-> Model for the outcome

```

Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid

```

```

Iteration 0: Log likelihood = -8852.9671
Iteration 1: Log likelihood = -8763.1282
Iteration 2: Log likelihood = -8745.18
Iteration 3: Log likelihood = -8744.3182
Iteration 4: Log likelihood = -8744.3141
Iteration 5: Log likelihood = -8744.3141
Refining estimates:
Iteration 0: Log likelihood = -8744.3141

```

Cox regression with Breslow method for ties

No. of subjects =	35,757	Number of obs =	35,757
No. of failures =	948		
Time at risk =	434,427.876	LR chi2(9) =	217.31
Log likelihood =	-8744.3141	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.241431	.1681045	10.76	0.000	1.935024 2.596357
zdpp4	.8312573	.0330415	-4.65	0.000	.7689556 .8986068
_infectionburXzdpp4_000	1.038833	.0708519	0.56	0.576	.9088469 1.187409
AGE	1.031354	.0131736	2.42	0.016	1.005855 1.0575
SEX	.8389919	.0570575	-2.58	0.010	.7342938 .9586182
NonWhite	1.13273	.1954097	0.72	0.470	.8077628 1.588434
householdsize	.9388081	.0395653	-1.50	0.134	.8643778 1.019647
SES	.8236052	.0409904	-3.90	0.000	.7470595 .9079939
LE8_TOTALSCORE	.9990593	.0003594	-2.62	0.009	.9983551 .9997641

-> Model for the mediator

Iteration 0: Log likelihood = -49750.931	Number of obs = 35,757
Iteration 1: Log likelihood = -49750.931	Wald chi2(7) = 2026.45
Log likelihood = -49750.931	Prob > chi2 = 0.0000

	zdpp4	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		-.1268291	.0150066	-8.45	0.000	-.1562414 -.0974168
AGE		-.0033431	.0009804	-3.41	0.001	-.0052647 -.0014215
SEX		.4432067	.0104013	42.61	0.000	.4228205 .463593
NonWhite		.1961078	.024876	7.88	0.000	.1473518 .2448638
householdsize		-.000928	.0047264	-0.20	0.844	-.0101916 .0083355
SES		.0187255	.0078073	2.40	0.016	.0034234 .0340277
LE8_TOTALSCORE		-.0000398	.0000555	-0.72	0.474	-.0001485 .000069
_cons		-.4452963	.0708169	-6.29	0.000	-.5840948 -.3064977
<b>sigma2</b>						
_cons		.9463403	.0070775	133.71	0.000	.9324686 .960212

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.271449	.1644873	7.73	0.000	.9490601 1.593838
ereri_cde	1.225516	.1652241	7.42	0.000	.9016827 1.549349
ereri_intref	.0040566	.0160994	0.25	0.801	-.0274977 .0356109
ereri_intmed	.0181597	.0168985	1.07	0.283	-.0149607 .0512802
ereri_pie	.0237169	.0058903	4.03	0.000	.0121721 .0352617

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zdpp6
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04658 2.216 -.07524 500.8

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9057.6167**  
 Iteration 1: Log likelihood = **-8971.2345**  
 Iteration 2: Log likelihood = **-8960.1907**  
 Iteration 3: Log likelihood = **-8960.1053**  
 Iteration 4: Log likelihood = **-8960.1053**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8960.1053**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,264</b>	Number of obs =	<b>36,264</b>
No. of failures =	<b>968</b>		
Time at risk =	<b>440,524.906</b>	LR chi2(9) =	<b>195.02</b>
Log likelihood =	<b>-8960.1053</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.246426</b>	<b>.1612408</b>	<b>11.28</b>	<b>0.000</b>	<b>1.951622</b>	<b>2.585761</b>
zdpp6	<b>.9711083</b>	<b>.0389279</b>	<b>-0.73</b>	<b>0.465</b>	<b>.8977312</b>	<b>1.050483</b>
_infectionburXzdpp6_000	<b>.9675072</b>	<b>.0666596</b>	<b>-0.48</b>	<b>0.632</b>	<b>.8452942</b>	<b>1.10739</b>
AGE	<b>1.032289</b>	<b>.0130053</b>	<b>2.52</b>	<b>0.012</b>	<b>1.007111</b>	<b>1.058096</b>
SEX	<b>.7644298</b>	<b>.0512007</b>	<b>-4.01</b>	<b>0.000</b>	<b>.6703862</b>	<b>.8716661</b>
NonWhite	<b>1.107248</b>	<b>.1890915</b>	<b>0.60</b>	<b>0.551</b>	<b>.7922827</b>	<b>1.547426</b>
householdszie	<b>.9368697</b>	<b>.0393014</b>	<b>-1.55</b>	<b>0.120</b>	<b>.862922</b>	<b>1.017154</b>
SES	<b>.818561</b>	<b>.0403926</b>	<b>-4.06</b>	<b>0.000</b>	<b>.7431008</b>	<b>.9016839</b>
LE8_TOTALSCORE	<b>.9991028</b>	<b>.0003567</b>	<b>-2.51</b>	<b>0.012</b>	<b>.998404</b>	<b>.999802</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-49770.015**  
 Iteration 1: Log likelihood = **-49770.015**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,264</b>
	Wald chi2(7) =	<b>3533.47</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	zdpp6	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>-.0759035</b>	<b>.0146289</b>	<b>-5.19</b>	<b>0.000</b>	<b>-.1045756</b>
AGE		<b>.0121862</b>	<b>.0009552</b>	<b>12.76</b>	<b>0.000</b>	<b>.0103139</b>
SEX		<b>.4804777</b>	<b>.0101332</b>	<b>47.42</b>	<b>0.000</b>	<b>.4606169</b>
NonWhite		<b>.4582541</b>	<b>.0242473</b>	<b>18.90</b>	<b>0.000</b>	<b>.4107302</b>
householdszie		<b>-.0052144</b>	<b>.0046085</b>	<b>-1.13</b>	<b>0.258</b>	<b>-.0142469</b>
SES		<b>.0571925</b>	<b>.0075998</b>	<b>7.53</b>	<b>0.000</b>	<b>.0422971</b>
LE8_TOTALSCORE		<b>.0012668</b>	<b>.000054</b>	<b>23.48</b>	<b>0.000</b>	<b>.001161</b>
_cons		<b>-2.098519</b>	<b>.069036</b>	<b>-30.40</b>	<b>0.000</b>	<b>-2.233827</b>
<b>sigma2</b>						
_cons		<b>.9111887</b>	<b>.0067668</b>	<b>134.66</b>	<b>0.000</b>	<b>.8979259</b>
						<b>.9244514</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.259411</b>	.1617444	7.79	<b>0.000</b>	.942398 1.576424
ereri_cde	<b>1.246323</b>	.1612218	7.73	<b>0.000</b>	.930334 1.562312
ereri_intref	<b>.0024207</b>	.0060013	0.40	0.687	-.0093417 .0141831
ereri_intmed	<b>.0084398</b>	.0103321	0.82	0.414	-.0118108 .0286904
ereri_pie	<b>.0022278</b>	.0030796	0.72	0.469	-.0038081 .0082637

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zdpp7
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04647 2.218 -.07579 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9000.0138

Iteration 1: Log likelihood = -8910.814

Iteration 2: Log likelihood = -8901.651

Iteration 3: Log likelihood = -8901.63

Iteration 4: Log likelihood = -8901.63

Refining estimates:

Iteration 0: Log likelihood = -8901.63

Cox regression with Breslow method for ties

No. of subjects = 36,152 Number of obs = 36,152

No. of failures = 962

Time at risk = 439,105.883

Log likelihood = -8901.63

LR chi2(9) = 196.77

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.304871</b>	.1646909	11.69	<b>0.000</b>	2.003666 2.651355
zdpp7	.991588	.0391518	-0.21	0.831	.9177459 1.071371
_infectionburXzdpp7_000	.9556858	.0665641	-0.65	0.515	.8337359 1.095473
AGE	<b>1.034459</b>	.0130804	2.68	<b>0.007</b>	1.009137 1.060416
SEX	.7458685	.0490059	-4.46	<b>0.000</b>	.655746 .8483769
NonWhite	<b>1.019665</b>	.1804877	0.11	0.912	.7207568 1.442534
householdsize	.9277721	.0399131	-1.74	0.081	.8527511 1.009393
SES	.8340858	.0414528	-3.65	<b>0.000</b>	.7566713 .9194205
LE8_TOTALSCORE	.9990447	.0003593	-2.66	0.008	.9983408 .9997492

-> Model for the mediator

Iteration 0: Log likelihood = **-50757.673**  
 Iteration 1: Log likelihood = **-50757.673**

Linear regression (Maximum Likelihood) Number of obs = 36,152  
 Wald chi2(7) = 1094.84  
 Prob > chi2 = 0.0000  
 Log likelihood = **-50757.673**

zdpp7	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	.0508336	.0151125	3.36	<b>0.001</b>	.0212136 .0804537
AGE	.0002223	.0009875	0.23	0.822	-.0017132 .0021578
SEX	-.2066397	.0104747	-19.73	<b>0.000</b>	-.2271698 -.1861097
NonWhite	-.0599385	.025089	-2.39	0.017	-.1091121 -.0107649
householdsize	-.0161108	.004762	-3.38	<b>0.001</b>	-.0254441 -.0067774
SES	-.0602366	.0078625	-7.66	<b>0.000</b>	-.0756469 -.0448264
LE8_TOTALSCORE	-.0011526	.0000559	-20.63	<b>0.000</b>	-.0012621 -.001043
_cons	.9066875	.0713571	12.71	<b>0.000</b>	.7668302 1.046545
<b>sigma2</b>					
_cons	<b>.9705791</b>	.007219	134.45	<b>0.000</b>	.95643 .9847281

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.302465</b>	.1645899	7.91	<b>0.000</b>	.9798746 1.625055
ereri_cde	<b>1.304748</b>	.1646941	7.92	<b>0.000</b>	.9819533 1.627542
ereri_intref	.0040195	.007974	0.50	0.614	-.0116092 .0196482
ereri_intmed	-.0058731	.0073004	-0.80	0.421	-.0201816 .0084354
ereri_pie	-.0004293	.0020103	-0.21	0.831	-.0043695 .0035108

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zdpt  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.18 1.531 .04648 2.216 -.0752 500.5

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9225.1762  
 Iteration 1: Log likelihood = -9138.0867  
 Iteration 2: Log likelihood = -9127.1338  
 Iteration 3: Log likelihood = -9127.059  
 Iteration 4: Log likelihood = -9127.059  
 Refining estimates:  
 Iteration 0: Log likelihood = -9127.059

Cox regression with Breslow method for ties

No. of subjects =	36,896	Number of obs =	36,896
No. of failures =	984		
Time at risk =	448,211.761	LR chi2(9) =	196.23
Log likelihood =	-9127.059	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.181848	.164935	10.32	0.000	1.881389 2.53029
zdpt	1.035065	.0426488	0.84	0.403	.9547611 1.122123
_infectionburXzdpt_000	1.061669	.0766859	0.83	0.407	.9215213 1.22313
AGE	1.032493	.012999	2.54	0.011	1.007327 1.058287
SEX	.7430746	.0485383	-4.55	0.000	.6537792 .8445662
NonWhite	1.066878	.1813415	0.38	0.703	.7645976 1.488665
householdsize	.9377085	.039111	-1.54	0.123	.8641018 1.017585
SES	.8261644	.0405784	-3.89	0.000	.7503404 .9096507
LE8_TOTALSCORE	.9991638	.0003583	-2.33	0.020	.9984619 .9998663

-> Model for the mediator

Iteration 0: Log likelihood = -50294.403  
 Iteration 1: Log likelihood = -50294.403

Linear regression (Maximum Likelihood)

Number of obs =	36,896
Wald chi2(7) =	4354.93
Prob > chi2 =	0.0000

Log likelihood = -50294.403

	zdpt	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.0992715	.0143639	6.91	0.000	.0711187 .1274243
AGE		.0423253	.0009377	45.14	0.000	.0404874 .0441633
SEX		.1877066	.0099536	18.86	0.000	.168198 .2072152
NonWhite		.0949683	.0238357	3.98	0.000	.0482511 .1416854
householdsize		.009672	.004538	2.13	0.033	.0007776 .0185663
SES		-.0742252	.0074697	-9.94	0.000	-.0888655 -.0595848
LE8_TOTALSCORE		-.0018807	.000053	-35.47	0.000	-.0019846 -.0017768
_cons		-1.938553	.0677976	-28.59	0.000	-2.071434 -1.805672
<b>sigma2</b>						
_cons		.8944041	.0065851	135.82	0.000	.8814976 .9073105

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.208148	.1610891	7.50	0.000	.8924191 1.523877
ereri_cde	1.181782	.1648272	7.17	0.000	.8587265 1.504837
ereri_intref	.0057902	.0093023	0.62	0.534	-.012442 .0240223
ereri_intmed	.0171488	.013682	1.25	0.210	-.0096674 .0439651
ereri_pie	.0034272	.0041344	0.83	0.407	-.004676 .0115304

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zdpy30
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04666 2.217 -.07467 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9178.0797**  
 Iteration 1: Log likelihood = **-9089.8709**  
 Iteration 2: Log likelihood = **-9081.1375**  
 Iteration 3: Log likelihood = **-9081.1142**  
 Iteration 4: Log likelihood = **-9081.1142**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-9081.1142**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,608</b>	Number of obs =	<b>36,608</b>
No. of failures =	<b>980</b>		
Time at risk =	<b>444,687.186</b>	LR chi2(9) =	<b>193.93</b>
Log likelihood =	<b>-9081.1142</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.251712</b>	<b>.1618634</b>	<b>11.29</b>	<b>0.000</b>	<b>1.955801</b>	<b>2.592395</b>
zdpy30	<b>.9619317</b>	<b>.038655</b>	<b>-0.97</b>	<b>0.334</b>	<b>.8890761</b>	<b>1.040757</b>
_infectionburXzdpy30_000	<b>1.024491</b>	<b>.0743646</b>	<b>0.33</b>	<b>0.739</b>	<b>.8886324</b>	<b>1.181121</b>
AGE	<b>1.034068</b>	<b>.0129769</b>	<b>2.67</b>	<b>0.008</b>	<b>1.008944</b>	<b>1.059817</b>
SEX	<b>.7566852</b>	<b>.0489956</b>	<b>-4.31</b>	<b>0.000</b>	<b>.6664992</b>	<b>.8590745</b>
NonWhite	<b>1.077515</b>	<b>.1831717</b>	<b>0.44</b>	<b>0.661</b>	<b>.772189</b>	<b>1.503568</b>
householdsize	<b>.9332243</b>	<b>.0392662</b>	<b>-1.64</b>	<b>0.100</b>	<b>.8593519</b>	<b>1.013447</b>
SES	<b>.8202805</b>	<b>.0402704</b>	<b>-4.04</b>	<b>0.000</b>	<b>.7450303</b>	<b>.9031312</b>
LE8_TOTALSCORE	<b>.9990329</b>	<b>.0003597</b>	<b>-2.69</b>	<b>0.007</b>	<b>.998328</b>	<b>.9997382</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50859.242**  
 Iteration 1: Log likelihood = **-50859.242**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,608</b>
	Wald chi2(7) =	<b>2235.09</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	zdpy30	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.1300594</b>	<b>.0148292</b>	<b>8.77</b>	<b>0.000</b>	<b>.1009947</b>
AGE		<b>.0087537</b>	<b>.0009666</b>	<b>9.06</b>	<b>0.000</b>	<b>.0068592</b>
SEX		<b>-.0659279</b>	<b>.0102565</b>	<b>-6.43</b>	<b>0.000</b>	<b>-.0860304</b>
NonWhite		<b>-.0082317</b>	<b>.0245258</b>	<b>-0.34</b>	<b>0.737</b>	<b>-.0563013</b>
householdsize		<b>-.00234</b>	<b>.0046677</b>	<b>-0.50</b>	<b>0.616</b>	<b>-.0114886</b>
SES		<b>-.0739869</b>	<b>.0076927</b>	<b>-9.62</b>	<b>0.000</b>	<b>-.0890643</b>
LE8_TOTALSCORE		<b>-.0021006</b>	<b>.0000547</b>	<b>-38.44</b>	<b>0.000</b>	<b>-.0022077</b>
_cons		<b>.6076243</b>	<b>.0698953</b>	<b>8.69</b>	<b>0.000</b>	<b>.470632</b>
<b>sigma2</b>						
_cons		<b>.9424326</b>	<b>.0069659</b>	<b>135.29</b>	<b>0.000</b>	<b>.9287797</b>
						<b>.9560856</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.245089</b>	.1603439	7.77	<b>0.000</b>	.9308209 1.559357
ereri_cde	<b>1.24995</b>	.1616978	7.73	<b>0.000</b>	.9330286 1.566872
ereri_intref	<b>-.0005894</b>	.0048663	-0.12	0.904	-.0101272 .0089484
ereri_intmed	<b>.0007633</b>	.0185899	0.04	0.967	-.0356722 .0371988
ereri_pie	<b>-.0050351</b>	.0052315	-0.96	0.336	-.0152887 .0052185

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zdraxin
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.17 1.532 .0464 2.216 -.07458 500.7

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8985.4467**

Iteration 1: Log likelihood = **-8896.9689**

Iteration 2: Log likelihood = **-8888.6546**

Iteration 3: Log likelihood = **-8888.6223**

Iteration 4: Log likelihood = **-8888.6223**

Refining estimates:

Iteration 0: Log likelihood = **-8888.6223**

Cox regression with Breslow method for ties

No. of subjects = 36,164

Number of obs = 36,164

No. of failures = 960

Time at risk = 439,440.668

LR chi2(9) = 193.65

Log likelihood = -8888.6223

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.179978	.1597265	10.64	0.000	1.88836 2.51663
zdraxin		1.007413	.039629	0.19	0.851	.9326606 1.088157
_infectionburXzdraxin_000		1.057066	.0735722	0.80	0.425	.9222703 1.211563
AGE		1.036973	.0131313	2.87	0.004	1.011553 1.063032
SEX		.7345622	.0487212	-4.65	0.000	.6450169 .8365388
NonWhite		1.011525	.1768008	0.07	0.948	.7181224 1.424804
householdsize		.9433475	.0393882	-1.40	0.162	.8692225 1.023794
SES		.8108668	.0401703	-4.23	0.000	.735836 .8935482
LE8_TOTALSCORE		.9990295	.0003562	-2.72	0.006	.9983317 .9997279

-> Model for the mediator

Iteration 0: Log likelihood = -50474.249  
 Iteration 1: Log likelihood = -50474.249

Linear regression (Maximum Likelihood)  
 Number of obs = 36,164  
 Wald chi2(7) = 1719.10  
 Log likelihood = -50474.249 Prob > chi2 = 0.0000

	zdraxin	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.0933503	.0150065	6.22	0.000	.0639381 .1227625
AGE		.0210237	.0009819	21.41	0.000	.0190992 .0229481
SEX		.3238315	.0103875	31.17	0.000	.3034723 .3441907
NonWhite		.2806628	.0249078	11.27	0.000	.2318444 .3294811
householdsize		.0005489	.0049262	0.11	0.911	-.0091064 .0102041
SES		-.054217	.0078085	-6.94	0.000	-.0695213 -.0389127
LE8_TOTALSCORE		-.000117	.0000553	-2.12	0.034	-.0002253 -8.63e-06
_cons		-1.73371	.0711609	-24.36	0.000	-1.873183 -1.594238
<b>sigma2</b>						
_cons		.9545946	.007099	134.47	0.000	.9406809 .9685083

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.19532	.1587767	7.53	0.000	.8841235 1.506517
ereri_cde	1.18006	.1597496	7.39	0.000	.8669567 1.493164
ereri_intref	.0024109	.0059877	0.40	0.687	-.0093248 .0141465
ereri_intmed	.0121594	.0124474	0.98	0.329	-.0122369 .0365558
ereri_pie	.0006897	.0036764	0.19	0.851	-.0065158 .0078953

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zdrg2  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.18 1.531 .04658 2.216 -.07524 500.8

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9057.6167  
 Iteration 1: Log likelihood = -8966.6657  
 Iteration 2: Log likelihood = -8958.3007  
 Iteration 3: Log likelihood = -8958.2828  
 Iteration 4: Log likelihood = -8958.2828  
 Refining estimates:  
 Iteration 0: Log likelihood = -8958.2828

Cox regression with Breslow method for ties

No. of subjects =	36,264	Number of obs =	36,264
No. of failures =	968		
Time at risk =	440,524.906	LR chi2(9) =	198.67
Log likelihood =	-8958.2828	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.264188	.162331	11.40	0.000	1.967368 2.60579
zdrg2	.9152154	.0360067	-2.25	0.024	.8472958 .9885794
_infectionburXzdrg2_000	1.065614	.0770714	0.88	0.380	.924775 1.227902
AGE	1.032146	.0129926	2.51	0.012	1.006993 1.057928
SEX	.7511257	.0489222	-4.39	0.000	.6611078 .8534007
NonWhite	1.089186	.1852735	0.50	0.616	.7803879 1.520176
householdsize	.9363553	.0393218	-1.57	0.117	.8623724 1.016685
SES	.8171841	.0402893	-4.09	0.000	.7419138 .9000908
LE8_TOTALSCORE	.9990222	.0003553	-2.75	0.006	.998326 .9997189

-> Model for the mediator

Iteration 0: Log likelihood = -51373.02  
 Iteration 1: Log likelihood = -51373.02

Linear regression (Maximum Likelihood)

Number of obs =	36,264
Wald chi2(7) =	166.11
Prob > chi2 =	0.0000

Log likelihood = -51373.02

	zdr2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		-.0007711	.01529	-0.05	0.960	-.030739 .0291969
AGE		-.0021096	.0009984	-2.11	0.035	-.0040664 -.0001528
SEX		-.0323626	.0105912	-3.06	0.002	-.053121 -.0116041
NonWhite		.032734	.0253432	1.29	0.196	-.0169376 .0824057
householdsize		-.0049592	.0048168	-1.03	0.303	-.0143999 .0044815
SES		-.006711	.0079433	-0.84	0.398	-.0222796 .0088576
LE8_TOTALSCORE		-.0006491	.0000564	-11.51	0.000	-.0007597 -.0005386
_cons		.5106484	.0721561	7.08	0.000	.369225 .6520718
<b>sigma2</b>						
_cons		.9954128	.0073923	134.66	0.000	.9809241 1.009901

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.256123	.1614726	7.78	0.000	.9396429 1.572604
ereri_cde	1.259271	.1615301	7.80	0.000	.9426779 1.575864
ereri_intref	-.0031914	.0048449	-0.66	0.510	-.0126873 .0063045
ereri_intmed	-.0000247	.000503	-0.05	0.961	-.0010105 .000961
ereri_pie	.0000683	.001355	0.05	0.960	-.0025875 .0027242

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zdsc2
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.2 1.531 .04653 2.214 -.07576 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9035.9896**  
 Iteration 1: Log likelihood = **-8945.0369**  
 Iteration 2: Log likelihood = **-8931.3626**  
 Iteration 3: Log likelihood = **-8931.053**  
 Iteration 4: Log likelihood = **-8931.0525**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8931.0525**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,063</b>	Number of obs =	<b>36,063</b>
No. of failures =	<b>966</b>		
Time at risk =	<b>437,975.739</b>	LR chi2(9) =	<b>209.87</b>
Log likelihood =	<b>-8931.0525</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.2409</b>	.1705903	<b>10.60</b>	<b>0.000</b>	<b>1.930297</b> <b>2.601483</b>
zdsc2		<b>1.144438</b>	.0440604	<b>3.50</b>	<b>0.000</b>	<b>1.061259</b> <b>1.234137</b>
_infectionburXzdsc2_000		<b>.9589604</b>	.0614146	<b>-0.65</b>	<b>0.513</b>	<b>.8458382</b> <b>1.087212</b>
AGE		<b>1.028702</b>	.0130621	<b>2.23</b>	<b>0.026</b>	<b>1.003417</b> <b>1.054625</b>
SEX		<b>.7520786</b>	.0490479	<b>-4.37</b>	<b>0.000</b>	<b>.6618368</b> <b>.8546249</b>
NonWhite		<b>1.121777</b>	.1908681	<b>0.68</b>	<b>0.499</b>	<b>.8036672</b> <b>1.565801</b>
householdszie		<b>.9373299</b>	.039603	<b>-1.53</b>	<b>0.126</b>	<b>.8628364</b> <b>1.018255</b>
SES		<b>.8318983</b>	.0411969	<b>-3.72</b>	<b>0.000</b>	<b>.7549486</b> <b>.9166912</b>
LE8_TOTALSCORE		<b>.9990887</b>	.0003549	<b>-2.57</b>	<b>0.010</b>	<b>.9983934</b> <b>.9997846</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-49934.462**  
 Iteration 1: Log likelihood = **-49934.462**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,063</b>
	Wald chi2(7) =	<b>2559.16</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	zdsc2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.2189556</b>	.0148553	<b>14.74</b>	<b>0.000</b>	<b>.1898397</b> <b>.2480716</b>
AGE		<b>.0332683</b>	.0009716	<b>34.24</b>	<b>0.000</b>	<b>.031364</b> <b>.0351726</b>
SEX		<b>.0277825</b>	.0102894	<b>2.70</b>	<b>0.007</b>	<b>.0076157</b> <b>.0479493</b>
NonWhite		<b>-.2744008</b>	.0246275	<b>-11.14</b>	<b>0.000</b>	<b>-.3226698</b> <b>-.2261317</b>
householdszie		<b>.0025667</b>	.0048839	<b>0.53</b>	<b>0.599</b>	<b>-.0070056</b> <b>.012139</b>
SES		<b>-.1438594</b>	.0077287	<b>-18.61</b>	<b>0.000</b>	<b>-.1590073</b> <b>-.1287115</b>
LE8_TOTALSCORE		<b>-.0004434</b>	.0000548	<b>-8.10</b>	<b>0.000</b>	<b>-.0005508</b> <b>-.0003361</b>
_cons		<b>-1.857404</b>	.0704441	<b>-26.37</b>	<b>0.000</b>	<b>-1.995472</b> <b>-1.719336</b>
<b>sigma2</b>						
_cons		<b>.9337126</b>	.0069534	<b>134.28</b>	<b>0.000</b>	<b>.9200842</b> <b>.947341</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.27973</b>	<b>.1654707</b>	<b>7.73</b>	<b>0.000</b>	<b>.955413</b> <b>1.604046</b>
ereri_cde	<b>1.235455</b>	<b>.1692473</b>	<b>7.30</b>	<b>0.000</b>	<b>.9037364</b> <b>1.567174</b>
ereri_intref	<b>-.001682</b>	<b>.0073847</b>	<b>-0.23</b>	<b>0.820</b>	<b>-.0161556</b> <b>.0127917</b>
ereri_intmed	<b>.0159757</b>	<b>.0263523</b>	<b>0.61</b>	<b>0.544</b>	<b>-.0356739</b> <b>.0676253</b>
ereri_pie	<b>.0299808</b>	<b>.0089245</b>	<b>3.36</b>	<b>0.001</b>	<b>.0124892</b> <b>.0474724</b>

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zdsg2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04638 2.215 -.07464 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9121.8147**

Iteration 1: Log likelihood = **-9021.3331**

Iteration 2: Log likelihood = **-9010.5158**

Iteration 3: Log likelihood = **-9010.4003**

Iteration 4: Log likelihood = **-9010.4003**

Refining estimates:

Iteration 0: Log likelihood = **-9010.4003**

Cox regression with Breslow method for ties

No. of subjects = 36,459 Number of obs = 36,459

No. of failures = 974

Time at risk = 442,828.345

Log likelihood = -9010.4003

LR chi2(9) = 222.83

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.234456</b>	.1610132	11.16	<b>0.000</b>	<b>1.940148</b> 2.573409
zdsg2	<b>1.218708</b>	.047156	5.11	<b>0.000</b>	<b>1.129702</b> 1.314727
_infectionburXzdsg2_000	<b>.9379095</b>	.0624993	-0.96	0.336	.8230754 1.068765
AGE	<b>1.032434</b>	.012984	2.54	0.011	<b>1.007297</b> 1.058199
SEX	<b>.6964859</b>	.0462483	-5.45	<b>0.000</b>	<b>.6114917</b> .7932939
NonWhite	<b>1.069774</b>	.1819245	0.40	0.692	.7665451 1.492954
householdsize	<b>.9428628</b>	.0390722	-1.42	0.156	.8693101 1.022639
SES	<b>.8236181</b>	.0404816	-3.95	<b>0.000</b>	.7479776 .906908
LE8_TOTALSCORE	<b>.9987469</b>	.0003553	-3.52	<b>0.000</b>	.9980507 .9994436

-> Model for the mediator

Iteration 0: Log likelihood = **-50003.001**  
 Iteration 1: Log likelihood = **-50003.001**

Linear regression (Maximum Likelihood) Number of obs = 36,459  
 Wald chi2(7) = 3628.57  
 Log likelihood = **-50003.001** Prob > chi2 = 0.0000

zdsg2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.049865</b>	.0145743	3.42	<b>0.001</b>	.0212999 .07843
AGE	<b>.0091307</b>	.0009539	9.57	<b>0.000</b>	.0072611 .0110003
SEX	<b>.4493189</b>	.0100992	44.49	<b>0.000</b>	.4295248 .4691129
NonWhite	<b>-.0346215</b>	.0242128	-1.43	0.153	-.0820777 .0128346
householdsize	<b>-.010343</b>	.0047991	-2.16	0.031	-.0197491 -.0009369
SES	<b>-.0095974</b>	.0075855	-1.27	0.206	-.0244646 .0052698
LE8_TOTALSCORE	<b>.0018937</b>	.0000538	35.22	<b>0.000</b>	.0017883 .0019991
_cons	<b>-2.168548</b>	.0691762	-31.35	<b>0.000</b>	-2.304131 -2.032966
<b>sigma2</b>					
_cons	<b>.9094589</b>	.0067359	135.02	<b>0.000</b>	.8962568 .922661

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.228761</b>	.1593885	7.71	<b>0.000</b>	.9163656 1.541157
ereri_cde	<b>1.214352</b>	.1580276	7.68	<b>0.000</b>	.9046241 1.524081
ereri_intref	<b>-.0003995</b>	.0152924	-0.03	0.979	-.0303722 .0295731
ereri_intmed	<b>.0048968</b>	.0066265	0.74	0.460	-.0080908 .0178845
ereri_pie	<b>.0099117</b>	.0035032	2.83	0.005	.0030456 .0167778

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zdsg3  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.19 1.531 .04664 2.217 -.07529 500.5

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9160.1907  
 Iteration 1: Log likelihood = -9072.6379  
 Iteration 2: Log likelihood = -9063.5451  
 Iteration 3: Log likelihood = -9063.5148  
 Iteration 4: Log likelihood = -9063.5148  
 Refining estimates:  
 Iteration 0: Log likelihood = -9063.5148

Cox regression with Breslow method for ties

No. of subjects = 36,597	Number of obs = 36,597
No. of failures = 978	
Time at risk = 444,545.07	
Log likelihood = -9063.5148	LR chi2(9) = 193.35
	Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.255732	.160811	11.41	0.000	1.961577 2.593998
zdsg3	.9797844	.0385899	-0.52	0.604	.9069952 1.058415
_infectionburXzdsg3_000	1.017719	.0697908	0.26	0.798	.889726 1.164125
AGE	1.033449	.0129779	2.62	0.009	1.008323 1.059201
SEX	.7518775	.0511632	-4.19	0.000	.6579989 .85915
NonWhite	1.075716	.183087	0.43	0.668	.7705892 1.501662
householdsize	.9298667	.0394394	-1.71	0.086	.8556926 1.01047
SES	.8230341	.0404101	-3.97	0.000	.7475233 .9061727
LE8_TOTALSCORE	.999089	.0003541	-2.57	0.010	.9983953 .9997832

-> Model for the mediator

Iteration 0: Log likelihood = -50037.523  
 Iteration 1: Log likelihood = -50037.523

Linear regression (Maximum Likelihood)  
 Number of obs = 36,597  
 Wald chi2(7) = 3984.04  
 Log likelihood = -50037.523 Prob > chi2 = 0.0000

	zdsg3	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.0025975	.014505	0.18	0.858	-.0258318 .0310269
AGE		-.0140518	.0009456	-14.86	0.000	-.0159052 -.0121984
SEX		-.6020187	.0100347	-59.99	0.000	-.6216863 -.5823511
NonWhite		-.2672161	.0239957	-11.14	0.000	-.3142468 -.2201853
householdsize		.0055973	.0045678	1.23	0.220	-.0033554 .0145499
SES		-.0160985	.0075227	-2.14	0.032	-.0308427 -.0013542
LE8_TOTALSCORE		-.0003113	.0000535	-5.82	0.000	-.0004161 -.0002065
_cons		1.921688	.0683786	28.10	0.000	1.787668 2.055708
<b>sigma2</b>						
_cons		.9018004	.0066666	135.27	0.000	.8887342 .9148667

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.255285	.1607603	7.81	0.000	.9402008 1.57037
ereri_cde	1.255487	.1607665	7.81	0.000	.9403901 1.570583
ereri_intref	-.0001848	.0008205	-0.23	0.822	-.001793 .0014234
ereri_intmed	.0000363	.0004047	0.09	0.929	-.000757 .0008296
ereri_pie	-.000053	.0003134	-0.17	0.866	-.0006673 .0005612

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zdsg4
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.532 .04666 2.215 -.07536 500.7

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9016.73**  
 Iteration 1: Log likelihood = **-8924.144**  
 Iteration 2: Log likelihood = **-8912.4484**  
 Iteration 3: Log likelihood = **-8912.3361**  
 Iteration 4: Log likelihood = **-8912.336**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8912.336**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,158</b>	Number of obs =	<b>36,158</b>
No. of failures =	<b>964</b>		
Time at risk =	<b>439,278.653</b>	LR chi2(9) =	<b>208.79</b>
Log likelihood =	<b>-8912.336</b>	Prob > chi2 =	<b>0.0000</b>

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.287909</b>	.1683581	<b>11.25</b>	<b>0.000</b>	<b>1.980625</b> <b>2.642866</b>
zdsg4	<b>.8719451</b>	.0342108	<b>-3.49</b>	<b>0.000</b>	<b>.8074064</b> <b>.9416425</b>
_infectionburXzdsg4_000	<b>1.045763</b>	.0744598	<b>0.63</b>	<b>0.530</b>	<b>.9095494</b> <b>1.202375</b>
AGE	<b>1.026958</b>	.0129832	<b>2.10</b>	<b>0.035</b>	<b>1.001824</b> <b>1.052722</b>
SEX	<b>.7649449</b>	.0500163	<b>-4.10</b>	<b>0.000</b>	<b>.6729363</b> <b>.8695336</b>
NonWhite	<b>1.018509</b>	.1744465	<b>0.11</b>	<b>0.915</b>	<b>.7280462</b> <b>1.424857</b>
householdszie	<b>.9313916</b>	.0396471	<b>-1.67</b>	<b>0.095</b>	<b>.8568379</b> <b>1.012432</b>
SES	<b>.8196605</b>	.0405043	<b>-4.02</b>	<b>0.000</b>	<b>.7439968</b> <b>.9030191</b>
LE8_TOTALSCORE	<b>.9991079</b>	.0003554	<b>-2.51</b>	<b>0.012</b>	<b>.9984115</b> <b>.9998048</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50583.488**  
 Iteration 1: Log likelihood = **-50583.488**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,158</b>
	Wald chi2(7) =	<b>1473.20</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

zdsg4	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>-.0393301</b>	.0150446	<b>-2.61</b>	<b>0.009</b>	<b>-.068817</b> <b>-.0098433</b>
AGE	<b>-.0223871</b>	.0009827	<b>-22.78</b>	<b>0.000</b>	<b>-.0243131</b> <b>-.0204611</b>
SEX	<b>.1582443</b>	.0104207	<b>15.19</b>	<b>0.000</b>	<b>.1378201</b> <b>.1786686</b>
NonWhite	<b>-.5361855</b>	.024918	<b>-21.52</b>	<b>0.000</b>	<b>-.5850239</b> <b>-.487347</b>
householdszie	<b>.0053171</b>	.0047805	<b>1.11</b>	<b>0.266</b>	<b>-.0040526</b> <b>.0146868</b>
SES	<b>.0302659</b>	.007818	<b>3.87</b>	<b>0.000</b>	<b>.0149428</b> <b>.0455889</b>
LE8_TOTALSCORE	<b>.0004564</b>	.0000555	<b>8.23</b>	<b>0.000</b>	<b>.0003476</b> <b>.0005651</b>
_cons	<b>.8973618</b>	.071062	<b>12.63</b>	<b>0.000</b>	<b>.7580827</b> <b>1.036641</b>
<b>sigma2</b>					
_cons	<b>.960825</b>	.0071459	<b>134.46</b>	<b>0.000</b>	<b>.9468193</b> <b>.9748307</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.285495</b>	.1647619	7.80	<b>0.000</b>	.9625676 1.608422
ereri_cde	<b>1.277299</b>	.1662365	7.68	<b>0.000</b>	.9514812 1.603116
ereri_intref	<b>-.000084</b>	.0122095	-0.01	0.995	-.0240142 .0238462
ereri_intmed	<b>.0028762</b>	.0056418	0.51	<b>0.610</b>	-.0081814 .0139339
ereri_pie	<b>.0054039</b>	.002589	2.09	<b>0.037</b>	.0003295 .0104783

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zdtx3
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04658 2.216 -.07524 500.8

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9057.6167

Iteration 1: Log likelihood = -8969.1269

Iteration 2: Log likelihood = -8960.6257

Iteration 3: Log likelihood = -8960.605

Iteration 4: Log likelihood = -8960.605

Refining estimates:

Iteration 0: Log likelihood = -8960.605

Cox regression with Breslow method for ties

No. of subjects = 36,264

Number of obs = 36,264

No. of failures = 968

Time at risk = 440,524.906

LR chi2(9) = 194.02

Log likelihood = -8960.605

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.275601	.168495	11.10	0.000	1.968201
	zdtx3	1.03234	.0406232	0.81	0.419	.9557126
_infectionburXzdtx3_000		.9615093	.0655163	-0.58	0.565	.841305
	AGE	1.030858	.013066	2.40	0.016	1.005565
	SEX	.7534293	.0491684	-4.34	0.000	.6629694
	NonWhite	1.092304	.1859929	0.52	0.604	.7823559
	householdsize	.9368909	.0393422	-1.55	0.121	.8628694
	SES	.8175368	.0403265	-4.08	0.000	.7421988
	LE8_TOTALSCORE	.9990775	.0003567	-2.59	0.010	.9983786
						.9997768

-> Model for the mediator

Iteration 0: Log likelihood = -49828.062  
Iteration 1: Log likelihood = -49828.062

Linear regression (Maximum Likelihood)  
Number of obs = 36,264  
Log likelihood = -49828.062 Wald chi2(7) = 3406.26  
Prob > chi2 = 0.0000

	zdtx3	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.1195889	.0146523	8.16	0.000	.0908709 .1483069
AGE		.0404428	.0009568	42.27	0.000	.0385676 .0423181
SEX		-.1738235	.0101495	-17.13	0.000	-.1937161 -.1539308
NonWhite		-.2318875	.0242861	-9.55	0.000	-.2794874 -.1842875
householdszie		-.0159847	.0046159	-3.46	0.001	-.0250317 -.0069378
SES		-.0417024	.007612	-5.48	0.000	-.0566217 -.0267831
LE8_TOTALSCORE		-.0010191	.000054	-18.85	0.000	-.001125 -.0009131
_cons		-1.630908	.0691466	-23.59	0.000	-1.766433 -1.495383
<b>sigma2</b>						
_cons		.9141104	.0067885	134.66	0.000	.9008051 .9274157

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.274069</b>	.1658906	<b>7.68</b>	<b>0.000</b>	.948929 <b>1.599208</b>
ereri_cde	<b>1.275685</b>	.1684325	<b>7.57</b>	<b>0.000</b>	.945563 <b>1.605806</b>
ereri_intref	<b>.0004036</b>	.003069	<b>0.13</b>	<b>0.895</b>	- .0056115 <b>.0064188</b>
ereri_intmed	<b>-.0058332</b>	.0160168	<b>-0.36</b>	<b>0.716</b>	- .0372255 <b>.0255591</b>
ereri_pie	<b>.0038135</b>	.004747	<b>0.80</b>	<b>0.422</b>	- .0054904 <b>.0131174</b>

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intre to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
Warning: this analysis assumes a rare outcome.  
Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```

Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zduox2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

Model for the outcome (yreg): cox
Model for the mediator (mreg): linear

Referent exposure level (a0):          0
Actual exposure level (a1):           1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c):    60.18 1.531 .04648 2.218 -.07459 500.6

```

-> Model for the outcome

```

Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid

```

```

Iteration 0: Log likelihood = -8905.4114
Iteration 1: Log likelihood = -8821.3523
Iteration 2: Log likelihood = -8813.8497
Iteration 3: Log likelihood = -8813.8318
Iteration 4: Log likelihood = -8813.8318
Refining estimates:
Iteration 0: Log likelihood = -8813.8318

```

Cox regression with Breslow method for ties

No. of subjects =	35,755	Number of obs =	35,755
No. of failures =	953		
Time at risk =	434,342.674	LR chi2(9) =	183.16
Log likelihood =	-8813.8318	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.195629	.1594681	10.83	0.000	1.904304 2.531521
zduox2	.9693286	.0391648	-0.77	0.441	.8955278 1.049211
_infectionburXzduox2_000	.9887417	.0730559	-0.15	0.878	.8554399 1.142816
AGE	1.037146	.0131743	2.87	0.004	1.011644 1.063291
SEX	.7530109	.0494765	-4.32	0.000	.6620232 .8565039
NonWhite	1.11714	.1900736	0.65	0.515	.8003527 1.559314
householdsize	.9381564	.0396457	-1.51	0.131	.8635832 1.019169
SES	.833541	.0414646	-3.66	0.000	.756108 .9189039
LE8_TOTALSCORE	.9989866	.0003579	-2.83	0.005	.9982853 .9996884

-> Model for the mediator

Iteration 0: Log likelihood = -50718.936	Number of obs = 35,755
Iteration 1: Log likelihood = -50718.936	Wald chi2(7) = 29.43
Log likelihood = -50718.936	Prob > chi2 = 0.0001

	zduox2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>-.0095305</b>	<b>.0154329</b>	<b>-0.62</b>	<b>0.537</b>	<b>-.0397784</b>
AGE		<b>-.0026724</b>	<b>.0010073</b>	<b>-2.65</b>	<b>0.008</b>	<b>-.0046467</b>
SEX		<b>.0345212</b>	<b>.0106869</b>	<b>3.23</b>	<b>0.001</b>	<b>.0135753</b>
NonWhite		<b>-.0272766</b>	<b>.0255899</b>	<b>-1.07</b>	<b>0.286</b>	<b>-.0774319</b>
householdsize		<b>-.0030025</b>	<b>.0048734</b>	<b>-0.62</b>	<b>0.538</b>	<b>-.0125542</b>
SES		<b>-.0175388</b>	<b>.0080248</b>	<b>-2.19</b>	<b>0.029</b>	<b>-.0332671</b>
LE8_TOTALSCORE		<b>-.0001235</b>	<b>.0000569</b>	<b>-2.17</b>	<b>0.030</b>	<b>-.0002351</b>
_cons		<b>.1777662</b>	<b>.0728284</b>	<b>2.44</b>	<b>0.015</b>	<b>.0350251</b>
<b>sigma2</b>						
_cons		<b>.9991495</b>	<b>.0074727</b>	<b>133.71</b>	<b>0.000</b>	<b>.9845033</b>
						<b>1.013796</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.197399</b>	<b>.1593743</b>	<b>7.51</b>	<b>0.000</b>	<b>.8850315</b>
ereri_cde	<b>1.195098</b>	<b>.1593706</b>	<b>7.50</b>	<b>0.000</b>	<b>.8827376</b>
ereri_intref	<b>.0014119</b>	<b>.0057214</b>	<b>0.25</b>	<b>0.805</b>	<b>-.0098019</b>
ereri_intmed	<b>.0005924</b>	<b>.0016581</b>	<b>0.36</b>	<b>0.721</b>	<b>-.0026574</b>
ereri_pie	<b>.0002969</b>	<b>.0006161</b>	<b>0.48</b>	<b>0.630</b>	<b>-.0009107</b>

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zdusp3
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04688 2.215 -.07424 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8819.5642**  
 Iteration 1: Log likelihood = **-8732.632**  
 Iteration 2: Log likelihood = **-8725.0932**  
 Iteration 3: Log likelihood = **-8725.0772**  
 Iteration 4: Log likelihood = **-8725.0772**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8725.0772**

Cox regression with Breslow method for ties

No. of subjects =	<b>35,601</b>	Number of obs =	<b>35,601</b>
No. of failures =	<b>943</b>		
Time at risk =	<b>432,443.367</b>	LR chi2(9) =	<b>188.97</b>
Log likelihood =	<b>-8725.0772</b>	Prob > chi2 =	<b>0.0000</b>

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.22457</b>	.1622531	<b>10.96</b>	<b>0.000</b>	<b>1.928244</b> <b>2.566433</b>
zdusp3	<b>.9158249</b>	.0385921	<b>-2.09</b>	<b>0.037</b>	<b>.8432251</b> <b>.9946753</b>
_infectionburXzdusp3_000	<b>1.077271</b>	.0813179	<b>0.99</b>	<b>0.324</b>	<b>.9291205</b> <b>1.249045</b>
AGE	<b>1.037432</b>	.0132072	<b>2.89</b>	<b>0.004</b>	<b>1.011867</b> <b>1.063643</b>
SEX	<b>.7519884</b>	.0496889	<b>-4.31</b>	<b>0.000</b>	<b>.6606426</b> <b>.8559644</b>
NonWhite	<b>1.087014</b>	.1872789	<b>0.48</b>	<b>0.628</b>	<b>.7755038</b> <b>1.523655</b>
householdszie	<b>.9297037</b>	.0401879	<b>-1.69</b>	<b>0.092</b>	<b>.8541812</b> <b>1.011904</b>
SES	<b>.8161035</b>	.0407579	<b>-4.07</b>	<b>0.000</b>	<b>.7400047</b> <b>.900028</b>
LE8_TOTALSCORE	<b>.9991949</b>	.0003605	<b>-2.23</b>	<b>0.026</b>	<b>.9984885</b> <b>.9999017</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50482.912**  
 Iteration 1: Log likelihood = **-50482.912**

Linear regression (Maximum Likelihood)	Number of obs =	<b>35,601</b>
	Wald chi2(7) =	<b>64.50</b>
Log likelihood =	<b>-50482.912</b>	Prob > chi2 = <b>0.0000</b>

zdusp3	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>-.0035683</b>	.0154517	<b>-0.23</b>	<b>0.817</b>	<b>-.0338532</b> <b>.0267166</b>
AGE	<b>-.0019399</b>	.0010117	<b>-1.92</b>	<b>0.055</b>	<b>-.0039228</b> <b>.0000429</b>
SEX	<b>.0725144</b>	.0107044	<b>6.77</b>	<b>0.000</b>	<b>.0515343</b> <b>.0934946</b>
NonWhite	<b>-.0541105</b>	.0255417	<b>-2.12</b>	<b>0.034</b>	<b>-.1041713</b> <b>-.0040498</b>
householdszie	<b>-.0062731</b>	.0050782	<b>-1.24</b>	<b>0.217</b>	<b>-.0162262</b> <b>.0036799</b>
SES	<b>.0146104</b>	.0080413	<b>1.82</b>	<b>0.069</b>	<b>-.0011502</b> <b>.030371</b>
LE8_TOTALSCORE	<b>-.0001572</b>	.0000571	<b>-2.76</b>	<b>0.006</b>	<b>-.000269</b> <b>-.0000454</b>
_cons	<b>.1024546</b>	.0733434	<b>1.40</b>	<b>0.162</b>	<b>-.0412959</b> <b>.2462051</b>
<b>sigma2</b>					
_cons	<b>.9981636</b>	.0074814	<b>133.42</b>	<b>0.000</b>	<b>.9835002</b> <b>1.012827</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.216392</b>	.1613411	7.54	<b>0.000</b>	.9001692 1.532615
ereri_cde	<b>1.219906</b>	.1614372	7.56	<b>0.000</b>	.9034953 1.536318
ereri_intref	<b>-.0036212</b>	.0040953	-0.88	0.377	-.0116479 .0044055
ereri_intmed	<b>-.0002071</b>	.0010354	-0.20	0.842	-.0022365 .0018224
ereri_pie	<b>.0003138</b>	.0013674	0.23	0.818	-.0023662 .0029939

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zebag9
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.17 1.532 .0464 2.216 -.07458 500.7

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8985.4467**

Iteration 1: Log likelihood = **-8895.5443**

Iteration 2: Log likelihood = **-8887.1186**

Iteration 3: Log likelihood = **-8887.0853**

Iteration 4: Log likelihood = **-8887.0853**

Refining estimates:

Iteration 0: Log likelihood = **-8887.0853**

Cox regression with Breslow method for ties

No. of subjects = 36,164

Number of obs = 36,164

No. of failures = 960

Time at risk = 439,440.668

LR chi2(9) = 196.72

Log likelihood = **-8887.0853** Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.19901	.1590796	10.89	0.000	1.908314 2.533986
zebag9	.9423288	.0363895	-1.54	0.124	.8736389 1.016419
_infectionburXzebag9_000	.9753547	.0702224	-0.35	0.729	.846991 1.123172
AGE	1.03742	.0131053	2.91	0.004	1.01205 1.063427
SEX	.7404457	.0484608	-4.59	0.000	.651304 .841788
NonWhite	1.02238	.1784926	0.13	0.899	.7261141 1.439526
householdsize	.9436211	.0393647	-1.39	0.164	.8695376 1.024016
SES	.8080415	.0400276	-4.30	0.000	.733277 .8904289
LE8_TOTALSCORE	.9989613	.0003571	-2.91	0.004	.9982616 .9996615

-> Model for the mediator

Iteration 0: Log likelihood = -51132.453  
 Iteration 1: Log likelihood = -51132.453

Linear regression (Maximum Likelihood)  
 Number of obs = 36,164  
 Wald chi2(7) = 364.91  
 Log likelihood = -51132.453 Prob > chi2 = 0.0000

zebag9	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	-.0015276	.0152821	-0.10	0.920	-.0314801 .0284248
AGE	-.0037866	.0009999	-3.79	0.000	-.0057464 -.0018269
SEX	.002281	.0105783	0.22	0.829	-.0184522 .0230141
NonWhite	.0533001	.0253653	2.10	0.036	.0035851 .1030151
householdsize	.0006559	.0050167	0.13	0.896	-.0091766 .0104885
SES	-.0389702	.0079519	-4.90	0.000	-.0545556 -.0233848
LE8_TOTALSCORE	-.0009248	.0000563	-16.43	0.000	-.0010351 -.0008144
_cons	.6807473	.072468	9.39	0.000	.5387127 .8227819
<b>sigma2</b>					
_cons	.989983	.0073621	134.47	0.000	.9755535 1.004413

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.20319	.1587899	7.58	0.000	.8919675 1.514412
ereri_cde	1.196932	.1587314	7.54	0.000	.8858245 1.50804
ereri_intref	.0059738	.0113913	0.52	0.600	-.0163527 .0283004
ereri_intmed	.0001931	.0019441	0.10	0.921	-.0036172 .0040035
ereri_pie	.0000907	.0009098	0.10	0.921	-.0016924 .0018739

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```

Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zebi3_il27
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

Model for the outcome (yreg): cox
Model for the mediator (mreg): linear

Referent exposure level (a0):          0
Actual exposure level (a1):           1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c):    60.18 1.531 .04661 2.218 -.07452 500.6

```

-> Model for the outcome

```

Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid

Iteration 0: Log likelihood = -9189.6152
Iteration 1: Log likelihood = -9086.728
Iteration 2: Log likelihood = -9075.504
Iteration 3: Log likelihood = -9075.3777
Iteration 4: Log likelihood = -9075.3776
Refining estimates:
Iteration 0: Log likelihood = -9075.3776

```

Cox regression with Breslow method for ties

No. of subjects =	36,668	Number of obs =	36,668
No. of failures =	981		
Time at risk =	445,408.659	LR chi2(9) =	228.48
Log likelihood =	-9075.3776	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.305979	.1725763	11.16	0.000	1.991373 2.670288
zebi3_il27	1.242166	.0468067	5.75	0.000	1.153733 1.337378
_infectionburXzebi3_il27_000	.8858233	.0582281	-1.84	0.065	.7787443 1.007626
AGE	1.025454	.0129251	1.99	0.046	1.000432 1.051103
SEX	.7433871	.0481663	-4.58	0.000	.6547312 .8440476
NonWhite	1.068343	.1817258	0.39	0.698	.7654568 1.491079
householdszie	.9347772	.0393385	-1.60	0.109	.8607693 1.015148
SES	.8324895	.04083	-3.74	0.000	.7561901 .9164875
LE8_TOTALSCORE	.9989587	.0003533	-2.95	0.003	.9982666 .9996514

-> Model for the mediator

Iteration 0: Log likelihood = -51057.604	Number of obs = 36,668
Iteration 1: Log likelihood = -51057.604	Wald chi2(7) = 1995.47
Log likelihood = -51057.604	Prob > chi2 = 0.0000

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	.1403565	.0148596	9.45	0.000	.1112322 .1694808
AGE	.0346672	.000969	35.78	0.000	.032768 .0365664
SEX	.1276203	.0102808	12.41	0.000	.1074703 .1477703
NonWhite	.0043098	.0245941	0.18	0.861	-.0438938 .0525133
householdsize	.0032022	.0046805	0.68	0.494	-.0059713 .0123758
SES	-.0590987	.0077116	-7.66	0.000	-.0742131 -.0439842
LE8_TOTALSCORE	.0008759	.0000548	15.99	0.000	.0007685 .0009832
_cons	-2.751336	.0700688	-39.27	0.000	-2.888668 -2.614004
<b>sigma2</b>					
_cons	.9483629	.007004	135.40	0.000	.9346353 .9620904

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.300945	.1653049	7.87	0.000	.9769534 1.624937
ereri_cde	1.282576	.1681834	7.63	0.000	.9529429 1.61221
ereri_intref	-.0123054	.0109996	-1.12	0.263	-.0338643 .0092534
ereri_intmed	-.0002311	.0179442	-0.01	0.990	-.035401 .0349389
ereri_pie	.0309052	.0063846	4.84	0.000	.0183916 .0434188

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zece1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04688 2.215 -.07424 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8819.5642**  
 Iteration 1: Log likelihood = **-8731.602**  
 Iteration 2: Log likelihood = **-8723.6223**  
 Iteration 3: Log likelihood = **-8723.5955**  
 Iteration 4: Log likelihood = **-8723.5955**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8723.5955**

Cox regression with Breslow method for ties

No. of subjects =	<b>35,601</b>	Number of obs =	<b>35,601</b>
No. of failures =	<b>943</b>		
Time at risk =	<b>432,443.367</b>	LR chi2(9) =	<b>191.94</b>
Log likelihood =	<b>-8723.5955</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.216818</b>	.1618281	<b>10.91</b>	<b>0.000</b>	<b>1.921287</b> <b>2.557808</b>
zece1		<b>.9022574</b>	.035121	<b>-2.64</b>	<b>0.008</b>	<b>.8359819</b> <b>.9737871</b>
_infectionburXzece1_000		<b>1.055878</b>	.0765382	<b>0.75</b>	<b>0.453</b>	<b>.9160354</b> <b>1.21707</b>
AGE		<b>1.037785</b>	.0132175	<b>2.91</b>	<b>0.004</b>	<b>1.0122</b> <b>1.064017</b>
SEX		<b>.7537591</b>	.0498255	<b>-4.28</b>	<b>0.000</b>	<b>.6621644</b> <b>.8580237</b>
NonWhite		<b>1.089619</b>	.1877551	<b>0.50</b>	<b>0.618</b>	<b>.7773236</b> <b>1.527381</b>
householdszie		<b>.9287197</b>	.0400858	<b>-1.71</b>	<b>0.087</b>	<b>.8533845</b> <b>1.010705</b>
SES		<b>.8170418</b>	.040765	<b>-4.05</b>	<b>0.000</b>	<b>.7409262</b> <b>.9009769</b>
LE8_TOTALSCORE		<b>.9991781</b>	.0003605	<b>-2.28</b>	<b>0.023</b>	<b>.9984717</b> <b>.999885</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50493.967**  
 Iteration 1: Log likelihood = **-50493.967**

Linear regression (Maximum Likelihood)	Number of obs =	<b>35,601</b>
	Wald chi2(7) =	<b>42.35</b>
Log likelihood =	<b>-50493.967</b>	Prob > chi2 = <b>0.0000</b>

	zece1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>-.0076338</b>	.0154565	<b>-0.49</b>	<b>0.621</b>	<b>-.037928</b> <b>.0226605</b>
AGE		<b>.0016909</b>	.001012	<b>1.67</b>	<b>0.095</b>	<b>-.0002926</b> <b>.0036744</b>
SEX		<b>.059074</b>	.0107077	<b>5.52</b>	<b>0.000</b>	<b>.0380873</b> <b>.0800606</b>
NonWhite		<b>-.0185611</b>	.0255496	<b>-0.73</b>	<b>0.468</b>	<b>-.0686374</b> <b>.0315152</b>
householdszie		<b>-.0068703</b>	.0050798	<b>-1.35</b>	<b>0.176</b>	<b>-.0168265</b> <b>.0030858</b>
SES		<b>.014974</b>	.0080438	<b>1.86</b>	<b>0.063</b>	<b>-.0007915</b> <b>.0307396</b>
LE8_TOTALSCORE		<b>-.0001402</b>	.0000571	<b>-2.46</b>	<b>0.014</b>	<b>-.0002521</b> <b>-.0000284</b>
_cons		<b>-.1037255</b>	.0733662	<b>-1.41</b>	<b>0.157</b>	<b>-.2475206</b> <b>.0400697</b>
<b>sigma2</b>						
_cons		<b>.9987837</b>	.0074861	<b>133.42</b>	<b>0.000</b>	<b>.9841112</b> <b>1.013456</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.208672</b>	.1607937	7.52	<b>0.000</b>	.893522 1.523822
ereri_cde	<b>1.210539</b>	.1608402	7.53	<b>0.000</b>	.8952976 1.525779
ereri_intref	<b>-.002684</b>	.0075031	-0.36	<b>0.721</b>	-.0173898 .0120219
ereri_intmed	<b>.0000318</b>	.0010758	0.03	<b>0.976</b>	-.0020768 .0021404
ereri_pie	<b>.0007855</b>	.0016186	0.49	<b>0.627</b>	-.0023869 .0039579

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zeda2r
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04659 2.218 -.07483 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9201.1117

Iteration 1: Log likelihood = -9109.9162

Iteration 2: Log likelihood = -9091.0948

Iteration 3: Log likelihood = -9090.4466

Iteration 4: Log likelihood = -9090.4448

Iteration 5: Log likelihood = -9090.4448

Refining estimates:

Iteration 0: Log likelihood = -9090.4448

Cox regression with Breslow method for ties

No. of subjects = 36,726

Number of obs = 36,726

No. of failures = 982

Time at risk = 446,105.322

LR chi2(9) = 221.33

Log likelihood = -9090.4448 Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.260492	.1903637	9.68	0.000	1.916551 2.666156
zeda2r	1.222069	.0515709	4.75	0.000	1.125059 1.327444
_infectionburXzeda2r_000	.9340855	.0611953	-1.04	0.298	.8215262 1.062067
AGE	1.016315	.013179	1.25	0.212	.9908102 1.042477
SEX	.7745188	.0502328	-3.94	0.000	.6820649 .8795047
NonWhite	1.065557	.1811941	0.37	0.709	.7635417 1.487032
householdsize	.935492	.039149	-1.59	0.111	.8618238 1.015457
SES	.839475	.0412754	-3.56	0.000	.7623524 .9243996
LE8_TOTALSCORE	.9992514	.0003531	-2.12	0.034	.9985595 .9999437

-> Model for the mediator

Iteration 0: Log likelihood = **-47064.666**  
 Iteration 1: Log likelihood = **-47064.666**

Linear regression (Maximum Likelihood) Number of obs = 36,726  
 Wald chi2(7) = 11616.86  
 Prob > chi2 = 0.0000  
 Log likelihood = **-47064.666**

	zeda2r	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr	.2708007	.0132861	20.38	0.000	.2447605	.2968409
AGE	.0796354	.0008665	91.90	0.000	.0779371	.0813337
SEX	-.0739976	.0091942	-8.05	0.000	-.0920179	-.0559773
NonWhite	.0433042	.021998	1.97	0.049	.0001889	.0864196
householdsize	-.0095679	.0041862	-2.29	0.022	-.0177727	-.001363
SES	-.1145394	.0068959	-16.61	0.000	-.1280551	-.1010236
LE8_TOTALSCORE	-.0006258	.000049	-12.78	0.000	-.0007218	-.0005299
_cons	-4.393148	.0626638	-70.11	0.000	-4.515967	-4.270329
<b>sigma2</b>						
_cons	.7596778	.0056061	135.51	0.000	.7486901	.7706655

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.328822	.1780053	7.47	0.000	.9799376 1.677706
ereri_cde	1.250763	.187544	6.67	0.000	.8831831 1.618342
ereri_intref	-.003934	.0084948	-0.46	0.643	-.0205836 .0127155
ereri_intmed	.0261834	.0320633	0.82	0.414	-.0366594 .0890263
ereri_pie	.0558096	.0123891	4.50	0.000	.0315274 .0800918

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zedar  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.19 1.531 .04646 2.216 -.07503 500.6

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9036.4379  
 Iteration 1: Log likelihood = -8943.0602  
 Iteration 2: Log likelihood = -8930.5227  
 Iteration 3: Log likelihood = -8930.4101  
 Iteration 4: Log likelihood = -8930.4101  
 Refining estimates:  
 Iteration 0: Log likelihood = -8930.4101

Cox regression with Breslow method for ties

No. of subjects =	36,352	Number of obs =	36,352
No. of failures =	965		
Time at risk =	441,650.762	LR chi2(9) =	212.06
Log likelihood =	-8930.4101	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.23658	.1634916	11.01	0.000	1.938039 2.581109
zedar	.8629652	.0340438	-3.74	0.000	.7987549 .9323372
_infectionburXzedar_000	1.007111	.0747855	0.10	0.924	.8707018 1.164892
AGE	1.031992	.0129949	2.50	0.012	1.006834 1.057779
SEX	.7724904	.0504724	-3.95	0.000	.6796383 .8780278
NonWhite	1.050125	.1809701	0.28	0.777	.7491205 1.472076
householdsize	.933762	.039774	-1.61	0.108	.8589717 1.015064
SES	.8226327	.0406466	-3.95	0.000	.7467028 .9062835
LE8_TOTALSCORE	.998971	.000355	-2.90	0.004	.9982754 .9996671

-> Model for the mediator

Iteration 0: Log likelihood = -51482.72  
 Iteration 1: Log likelihood = -51482.72

Linear regression (Maximum Likelihood)  
 Number of obs = 36,352  
 Wald chi2(7) = 196.60  
 Log likelihood = -51482.72 Prob > chi2 = 0.0000

	zedar	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		-.081992	.0152777	-5.37	0.000	-.1119357 -.0520482
AGE		-.0025613	.0009973	-2.57	0.010	-.0045159 -.0006066
SEX		.1159762	.0105741	10.97	0.000	.0952514 .136701
NonWhite		-.0392653	.025339	-1.55	0.121	-.0889288 .0103982
householdsize		.0038561	.004894	0.79	0.431	-.0057359 .0134482
SES		.0349251	.0079311	4.40	0.000	.0193805 .0504697
LE8_TOTALSCORE		-.0002331	.0000563	-4.14	0.000	-.0003435 -.0001228
_cons		.1005613	.0721451	1.39	0.163	-.0408404 .241963
<b>sigma2</b>						
_cons		.9945936	.0073773	134.82	0.000	.9801344 1.009053

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.260345	.1618859	7.79	0.000	.9430547 1.577636
ereri_cde	1.225345	.1616112	7.58	0.000	.9085927 1.542097
ereri_intref	.0091484	.0186169	0.49	0.623	-.0273401 .0456369
ereri_intmed	.0136945	.0123876	1.11	0.269	-.0105848 .0379738
ereri_pie	.0121574	.003989	3.05	0.002	.004339 .0199757

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zedil3
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04648 2.218 -.07459 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8905.4114**  
 Iteration 1: Log likelihood = **-8819.232**  
 Iteration 2: Log likelihood = **-8811.6622**  
 Iteration 3: Log likelihood = **-8811.6403**  
 Iteration 4: Log likelihood = **-8811.6403**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8811.6403**

Cox regression with Breslow method for ties

No. of subjects =	<b>35,755</b>	Number of obs =	<b>35,755</b>
No. of failures =	<b>953</b>		
Time at risk =	<b>434,342.674</b>	LR chi2(9) =	<b>187.54</b>
Log likelihood =	<b>-8811.6403</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.240555</b>	.1640274	<b>11.02</b>	<b>0.000</b>	<b>1.941067</b> <b>2.586251</b>
zedil3		<b>1.092875</b>	.0429746	<b>2.26</b>	<b>0.024</b>	<b>1.01181</b> <b>1.180435</b>
_infectionburXzedil3_000		<b>.8764425</b>	.0651848	<b>-1.77</b>	<b>0.076</b>	<b>.7575581</b> <b>1.013984</b>
AGE		<b>1.035854</b>	.0131746	<b>2.77</b>	<b>0.006</b>	<b>1.010351</b> <b>1.062</b>
SEX		<b>.743797</b>	.0491515	<b>-4.48</b>	<b>0.000</b>	<b>.6534396</b> <b>.8466489</b>
NonWhite		<b>1.11984</b>	.1905191	<b>0.67</b>	<b>0.506</b>	<b>.8023064</b> <b>1.563044</b>
householdsize		<b>.9391709</b>	.0396923	<b>-1.48</b>	<b>0.138</b>	<b>.8645103</b> <b>1.020279</b>
SES		<b>.8358589</b>	.0415932	<b>-3.60</b>	<b>0.000</b>	<b>.758187</b> <b>.9214878</b>
LE8_TOTALSCORE		<b>.9990091</b>	.0003574	<b>-2.77</b>	<b>0.006</b>	<b>.9983089</b> <b>.9997098</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50170.592**  
 Iteration 1: Log likelihood = **-50170.592**

Linear regression (Maximum Likelihood)	Number of obs =	<b>35,755</b>
	Wald chi2(7) =	<b>1144.03</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	<u>zedil3</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.0450138</b>	.015198	<b>2.96</b>	<b>0.003</b>	<b>.0152262</b> <b>.0748013</b>
AGE		<b>.0217522</b>	.000992	<b>21.93</b>	<b>0.000</b>	<b>.019808</b> <b>.0236965</b>
SEX		<b>.1901028</b>	.0105242	<b>18.06</b>	<b>0.000</b>	<b>.1694757</b> <b>.2107299</b>
NonWhite		<b>-.0876783</b>	.0252005	<b>-3.48</b>	<b>0.001</b>	<b>-.1370703</b> <b>-.0382864</b>
householdsize		<b>-.0194809</b>	.0047992	<b>-4.06</b>	<b>0.000</b>	<b>-.0288872</b> <b>-.0100746</b>
SES		<b>-.0566785</b>	.0079027	<b>-7.17</b>	<b>0.000</b>	<b>-.0721675</b> <b>-.0411895</b>
LE8_TOTALSCORE		<b>-.0004121</b>	.0000561	<b>-7.35</b>	<b>0.000</b>	<b>-.000522</b> <b>-.0003022</b>
_cons		<b>-1.356828</b>	.07172	<b>-18.92</b>	<b>0.000</b>	<b>-1.497397</b> <b>-1.216259</b>
<b>sigma2</b>						
_cons		<b>.9689685</b>	.007247	<b>133.71</b>	<b>0.000</b>	<b>.9547647</b> <b>.9831723</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.231527</b>	.1628188	7.56	<b>0.000</b>	.9124081 1.550646
ereri_cde	<b>1.236509</b>	.1631264	7.58	<b>0.000</b>	.9167873 1.556231
ereri_intref	<b>-.0006511</b>	.0076172	-0.09	0.932	-.0155805 .0142784
ereri_intmed	<b>-.0083365</b>	.0072331	-1.15	0.249	-.0225131 .00584
ereri_pie	<b>.0040058</b>	.0022349	1.79	0.073	-.0003745 .0083861

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zefemp1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04645 2.216 -.07547 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9102.9274

Iteration 1: Log likelihood = -9016.7572

Iteration 2: Log likelihood = -9005.5576

Iteration 3: Log likelihood = -9005.4511

Iteration 4: Log likelihood = -9005.451

Refining estimates:

Iteration 0: Log likelihood = -9005.451

Cox regression with Breslow method for ties

No. of subjects = 36,536

Number of obs = 36,536

No. of failures = 972

Time at risk = 443,876.221

LR chi2(9) = 194.95

Log likelihood = -9005.451

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.205525	.1709314	10.21	0.000	1.894709 2.567328
zefemp1		1.059329	.0428491	1.42	0.154	.978589 1.14673
_infectionburXzefemp1_000		1.017706	.0708378	0.25	0.801	.8879206 1.166462
AGE		1.030181	.0131401	2.33	0.020	1.004746 1.05626
SEX		.7492296	.0489607	-4.42	0.000	.6591597 .851607
NonWhite		1.090269	.1854051	0.51	0.611	.7812378 1.521544
householdsize		.9342899	.0395277	-1.61	0.108	.8599422 1.015066
SES		.8309984	.0411275	-3.74	0.000	.7541761 .915646
LE8_TOTALSCORE		.9991114	.0003565	-2.49	0.013	.9984128 .9998104

-> Model for the mediator

Iteration 0: Log likelihood = **-49237.121**  
 Iteration 1: Log likelihood = **-49237.121**

Linear regression (Maximum Likelihood) Number of obs = 36,536  
 Wald chi2(7) = 5599.12  
 Prob > chi2 = 0.0000

Log likelihood = **-49237.121**

	zefemp1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.177999	.0142227	12.52	0.000	.1501231 .2058749
AGE		.0519949	.0009278	56.04	0.000	.0501765 .0538133
SEX		.2392187	.0098487	24.29	0.000	.2199157 .2585217
NonWhite		.0379291	.0235896	1.61	0.108	-.0083056 .0841639
householdsize		.0023173	.0044858	0.52	0.605	-.0064747 .0111092
SES		-.1314031	.0073926	-17.77	0.000	-.1458924 -.1169139
LE8_TOTALSCORE		-.0011268	.0000525	-21.45	0.000	-.0012298 -.0010239
_cons		-2.973171	.0670658	-44.33	0.000	-3.104617 -2.841725
<b>sigma2</b>						
_cons		.8670913	.0064153	135.16	0.000	.8545175 .8796652

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.236531	.1651692	7.49	0.000	.9128049 1.560256
ereri_cde	1.205505	.170748	7.06	0.000	.870845 1.540165
ereri_intref	.0012932	.0052488	0.25	0.805	-.0089942 .0115807
ereri_intmed	.0194205	.0233355	0.83	0.405	-.0263161 .0651572
ereri_pie	.0103119	.0073212	1.41	0.159	-.0040373 .0246611

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zefna1  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.19 1.531 .0464 2.215 -.07491 500.5

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9100.6518  
 Iteration 1: Log likelihood = -9012.8785  
 Iteration 2: Log likelihood = -9003.0526  
 Iteration 3: Log likelihood = -9002.981  
 Iteration 4: Log likelihood = -9002.981  
 Refining estimates:  
 Iteration 0: Log likelihood = -9002.981

Cox regression with Breslow method for ties

No. of subjects =	36,398	Number of obs =	36,398
No. of failures =	972		
Time at risk =	442,075.159	LR chi2(9) =	195.34
Log likelihood =	-9002.981	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.226798	.1652627	10.79	0.000	1.925345 2.57545
zefna1	1.044554	.040753	1.12	0.264	.9676572 1.127562
_infectionburXzefna1_000	.9943476	.0626835	-0.09	0.928	.8787769 1.125117
AGE	1.034925	.0130613	2.72	0.007	1.009639 1.060843
SEX	.7496832	.0488387	-4.42	0.000	.6598201 .8517849
NonWhite	1.105849	.1884353	0.59	0.555	.7918669 1.544328
householdsize	.9402752	.0393093	-1.47	0.141	.8663023 1.020565
SES	.8269747	.0408325	-3.85	0.000	.7506949 .9110055
LE8_TOTALSCORE	.9991051	.0003578	-2.50	0.012	.9984039 .9998067

-> Model for the mediator

Iteration 0: Log likelihood = -50185.157  
 Iteration 1: Log likelihood = -50185.157

Linear regression (Maximum Likelihood)

Number of obs =	36,398
Wald chi2(7) =	3042.20
Prob > chi2 =	0.0000

Log likelihood = -50185.157

	zefna1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.2631794	.0146926	17.91	0.000	.2343825 .2919764
AGE		.0207307	.0009617	21.56	0.000	.0188459 .0226155
SEX		.1448538	.0101819	14.23	0.000	.1248976 .1648099
NonWhite		-.4191116	.0244037	-17.17	0.000	-.4669419 -.3712813
householdsize		-.0023022	.0048368	-0.48	0.634	-.0117822 .0071777
SES		-.1347313	.0076456	-17.62	0.000	-.1497165 -.1197462
LE8_TOTALSCORE		-.001541	.0000542	-28.43	0.000	-.0016473 -.0014348
_cons		-.7203244	.0697455	-10.33	0.000	-.857023 -.5836257
<b>sigma2</b>						
_cons		.9228401	.0068407	134.90	0.000	.9094325 .9362476

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.24912	.1617459	7.72	0.000	.9321036 1.566136
ereri_cde	1.227678	.1653692	7.42	0.000	.9035603 1.551796
ereri_intref	-.0008933	.0003281	-2.72	0.006	-.0015363 -.0002503
ereri_intmed	.0107969	.0309626	0.35	0.727	-.0498887 .0714826
ereri_pie	.0115381	.0104065	1.11	0.268	-.0088583 .0319345

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zefna4
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.17 1.532 .04639 2.216 -.07435 500.7

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8975.3256**  
 Iteration 1: Log likelihood = **-8891.6523**  
 Iteration 2: Log likelihood = **-8877.888**  
 Iteration 3: Log likelihood = **-8877.4963**  
 Iteration 4: Log likelihood = **-8877.4952**  
 Iteration 5: Log likelihood = **-8877.4952**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8877.4952**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,107</b>	Number of obs =	<b>36,107</b>
No. of failures =	<b>959</b>		
Time at risk =	<b>438,771.909</b>	LR chi2(9) =	<b>195.66</b>
Log likelihood =	<b>-8877.4952</b>	Prob > chi2 =	<b>0.0000</b>

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.157706</b>	.1650885	<b>10.05</b>	<b>0.000</b>	<b>1.85723</b> <b>2.506794</b>
zefna4	<b>1.051296</b>	.0416403	<b>1.26</b>	<b>0.207</b>	<b>.9727695</b> <b>1.13616</b>
_infectionburXzefna4_000	<b>1.016834</b>	.0612789	<b>0.28</b>	<b>0.782</b>	<b>.9035513</b> <b>1.144319</b>
AGE	<b>1.034855</b>	.0131421	<b>2.70</b>	<b>0.007</b>	<b>1.009415</b> <b>1.060936</b>
SEX	<b>.7437342</b>	.0487196	<b>-4.52</b>	<b>0.000</b>	<b>.6541213</b> <b>.8456239</b>
NonWhite	<b>1.025348</b>	.179057	<b>0.14</b>	<b>0.886</b>	<b>.7281583</b> <b>1.443833</b>
householdsize	<b>.9442045</b>	.0393603	<b>-1.38</b>	<b>0.168</b>	<b>.8701271</b> <b>1.024588</b>
SES	<b>.8171544</b>	.0406666	<b>-4.06</b>	<b>0.000</b>	<b>.7412132</b> <b>.9008762</b>
LE8_TOTALSCORE	<b>.9991509</b>	.000363	<b>-2.34</b>	<b>0.019</b>	<b>.9984397</b> <b>.9998627</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-49171.585**  
 Iteration 1: Log likelihood = **-49171.585**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,107</b>
	Wald chi2(7) =	<b>4367.68</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.2751687</b>	.0145186	<b>18.95</b>	<b>0.000</b>	<b>.2467128</b> <b>.3036245</b>
AGE	<b>.0269838</b>	.0009499	<b>28.41</b>	<b>0.000</b>	<b>.0251221</b> <b>.0288456</b>
SEX	<b>-.0583943</b>	.0100495	<b>-5.81</b>	<b>0.000</b>	<b>-.0780909</b> <b>-.0386977</b>
NonWhite	<b>-.1322187</b>	.0240997	<b>-5.49</b>	<b>0.000</b>	<b>-.1794532</b> <b>-.0849842</b>
householdsize	<b>.0009094</b>	.004765	<b>0.19</b>	<b>0.849</b>	<b>-.0084299</b> <b>.0102487</b>
SES	<b>-.1635668</b>	.0075549	<b>-21.65</b>	<b>0.000</b>	<b>-.1783741</b> <b>-.1487595</b>
LE8_TOTALSCORE	<b>-.0020311</b>	.0000535	<b>-37.98</b>	<b>0.000</b>	<b>-.0021359</b> <b>-.0019263</b>
_cons	<b>-.5635669</b>	.0688512	<b>-8.19</b>	<b>0.000</b>	<b>-.6985128</b> <b>-.428621</b>
<b>sigma2</b>					
_cons	<b>.8920638</b>	.0066392	<b>134.36</b>	<b>0.000</b>	<b>.8790512</b> <b>.9050764</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.198194</b>	.1611253	7.44	<b>0.000</b>	.8823941 1.513994
ereri_cde	<b>1.158624</b>	.1651916	7.01	<b>0.000</b>	.834854 1.482393
ereri_intref	<b>-.0004169</b>	.0022537	-0.18	0.853	-.0048341 .0040004
ereri_intmed	<b>.0261271</b>	.0292384	0.89	0.372	-.0311791 .0834334
ereri_pie	<b>.01386</b>	.0110746	1.25	0.211	-.0078458 .0355658

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zegf
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04624 2.216 -.07439 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9063.4017

Iteration 1: Log likelihood = -8976.5109

Iteration 2: Log likelihood = -8961.7902

Iteration 3: Log likelihood = -8961.5767

Iteration 4: Log likelihood = -8961.5767

Refining estimates:

Iteration 0: Log likelihood = -8961.5767

Cox regression with Breslow method for ties

No. of subjects = 36,351 Number of obs = 36,351

No. of failures = 968

Time at risk = 441,542.428

Log likelihood = -8961.5767

LR chi2(9) = 203.65

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.203596</b>	.1595462	<b>10.91</b>	<b>0.000</b>	<b>1.912065</b> <b>2.539576</b>
zegf		<b>.9221123</b>	.0350828	-2.13	0.033	<b>.8558525</b> <b>.9935019</b>
_infectionburXzegf_000		<b>.9086528</b>	.0647938	-1.34	0.179	<b>.7901342</b> <b>1.044949</b>
AGE		<b>1.034808</b>	.0130249	2.72	0.007	<b>1.009591</b> <b>1.060653</b>
SEX		<b>.7613068</b>	.0496044	-4.19	0.000	<b>.6700359</b> <b>.8650105</b>
NonWhite		<b>1.076989</b>	.1856908	0.43	0.667	<b>.7681565</b> <b>1.509984</b>
householdszie		<b>.9345031</b>	.0394816	-1.60	0.109	<b>.8602378</b> <b>1.01518</b>
SES		<b>.820346</b>	.0405261	-4.01	0.000	<b>.7446405</b> <b>.9037482</b>
LE8_TOTALSCORE		<b>.9989372</b>	.0003556	-2.99	0.003	<b>.9982404</b> <b>.9996345</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-51452.532**  
 Iteration 1: Log likelihood = **-51452.532**

Linear regression (Maximum Likelihood)  
 Number of obs = 36,351  
 Wald chi2(7) = 254.49  
 Log likelihood = **-51452.532** Prob > chi2 = 0.0000

	zegf	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>-.0238021</b>	.0152417	-1.56	0.118	<b>-.0536753</b> <b>.0060712</b>
AGE		<b>-.0011833</b>	.0009956	-1.19	0.235	<b>-.0031346</b> <b>.0007681</b>
SEX		<b>.0255241</b>	.0105675	2.42	0.016	<b>.0048122</b> <b>.046236</b>
NonWhite		<b>.023184</b>	.0253611	0.91	0.361	<b>-.0265228</b> <b>.0728908</b>
householdszie		<b>-.0053466</b>	.0048059	-1.11	0.266	<b>-.0147659</b> <b>.0040727</b>
SES		<b>-.0213492</b>	.007934	-2.69	0.007	<b>-.0368996</b> <b>-.0057988</b>
LE8_TOTALSCORE		<b>-.0008194</b>	.0000563	-14.56	0.000	<b>-.0009297</b> <b>-.0007091</b>
_cons		<b>.454728</b>	.0719306	6.32	0.000	<b>.3137465</b> <b>.5957094</b>
<b>sigma2</b>						
_cons		<b>.9930204</b>	.0073657	<b>134.82</b>	<b>0.000</b>	<b>.9785839</b> <b>1.007457</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.2395</b>	.1604846	<b>7.72</b>	<b>0.000</b>	<b>.9249558</b> <b>1.554044</b>
ereri_cde	<b>1.199995</b>	.1589907	<b>7.55</b>	<b>0.000</b>	<b>.8883789</b> <b>1.511611</b>
ereri_intref	<b>.0300962</b>	.0232488	<b>1.29</b>	0.195	<b>-.0154706</b> <b>.075663</b>
ereri_intmed	<b>.0074768</b>	.0058869	<b>1.27</b>	0.204	<b>-.0040614</b> <b>.019015</b>
ereri_pie	<b>.0019319</b>	.0015351	<b>1.26</b>	0.208	<b>-.0010769</b> <b>.0049408</b>

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdszie SES LE8\_TOTALSCORE were not provided. All

-> Summary

```

Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator      (mvar): zegf17
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

Model for the outcome (yreg): cox
Model for the mediator (mreg): linear

Referent exposure level (a0):          0
Actual exposure level (a1):           1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c):    60.19 1.531 .04669 2.217 -.07551 500.6

```

-> Model for the outcome

```

Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid

```

```

Iteration 0: Log likelihood = -8882.1967
Iteration 1: Log likelihood = -8795.2312
Iteration 2: Log likelihood = -8785.9302
Iteration 3: Log likelihood = -8785.8875
Iteration 4: Log likelihood = -8785.8875
Refining estimates:
Iteration 0: Log likelihood = -8785.8875

```

Cox regression with Breslow method for ties

No. of subjects =	35,573	Number of obs =	35,573
No. of failures =	951		
Time at risk =	432,088.637	LR chi2(9) =	192.62
Log likelihood =	-8785.8875	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.271045	.1643867	11.33	0.000	1.970664 2.617212
zegf17	.9386642	.0381704	-1.56	0.120	.8667552 1.016539
_infectionburXzegf17_000	.9424847	.0704719	-0.79	0.428	.8140066 1.091241
AGE	1.03884	.013225	2.99	0.003	1.01324 1.065087
SEX	.735931	.0486109	-4.64	0.000	.646565 .8376488
NonWhite	1.10881	.1887349	0.61	0.544	.7942743 1.547902
householdszie	.9377483	.0396614	-1.52	0.129	.8631482 1.018796
SES	.8244746	.0411643	-3.87	0.000	.747616 .9092346
LE8_TOTALSCORE	.9991343	.0003611	-2.40	0.017	.9984269 .9998423

-> Model for the mediator

Iteration 0: Log likelihood = -49663.908	Number of obs = 35,573
Iteration 1: Log likelihood = -49663.908	Wald chi2(7) = 1660.58
Log likelihood = -49663.908	Prob > chi2 = 0.0000

	zegf17	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.0739506	.015141	4.88	0.000	.0442748 .1036265
AGE		.0196376	.0009873	19.89	0.000	.0177025 .0215727
SEX		-.211199	.0104768	-20.16	0.000	-.2317331 -.1906649
NonWhite		-.1297536	.0250385	-5.18	0.000	-.1788282 -.080679
householdsize		-.012997	.0047683	-2.73	0.006	-.0223428 -.0036513
SES		-.0460774	.0078579	-5.86	0.000	-.0614785 -.0306762
LE8_TOTALSCORE		-.0010882	.0000558	-19.51	0.000	-.0011975 -.0009788
_cons		-.2927484	.0713546	-4.10	0.000	-.4326009 -.152896
<b>sigma2</b>						
_cons		.9553742	.0071635	133.37	0.000	.9413339 .9694145

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.263799	.1649933	7.66	0.000	.9404179 1.58718
ereri_cde	1.267792	.1641665	7.72	0.000	.9460312 1.589552
ereri_intref	.0166136	.018787	0.88	0.377	-.0202082 .0534354
ereri_intmed	-.0159365	.011811	-1.35	0.177	-.0390855 .0072126
ereri_pie	-.00467	.0031415	-1.49	0.137	-.0108271 .0014872

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zegfr
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04648 2.216 -.0752 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9225.1762**  
 Iteration 1: Log likelihood = **-9127.4378**  
 Iteration 2: Log likelihood = **-9112.2347**  
 Iteration 3: Log likelihood = **-9111.9855**  
 Iteration 4: Log likelihood = **-9111.9854**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-9111.9854**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,896</b>	Number of obs =	<b>36,896</b>
No. of failures =	<b>984</b>		
Time at risk =	<b>448,211.761</b>	LR chi2(9) =	<b>226.38</b>
Log likelihood =	<b>-9111.9854</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.256318</b>	.1742972	<b>10.53</b>	<b>0.000</b>	<b>1.939305</b> <b>2.625151</b>
zegfr		<b>.8118935</b>	.0310195	<b>-5.45</b>	<b>0.000</b>	<b>.753317</b> <b>.8750248</b>
_infectionburXzegfr_000		<b>1.079779</b>	.0748587	<b>1.11</b>	<b>0.268</b>	<b>.9425901</b> <b>1.236935</b>
AGE		<b>1.026007</b>	.0129026	<b>2.04</b>	<b>0.041</b>	<b>1.001028</b> <b>1.05161</b>
SEX		<b>.8143333</b>	.0537878	<b>-3.11</b>	<b>0.002</b>	<b>.7154499</b> <b>.9268834</b>
NonWhite		<b>1.105114</b>	.1878105	<b>0.59</b>	<b>0.556</b>	<b>.7920424</b> <b>1.541935</b>
householdszie		<b>.9365143</b>	.0389551	<b>-1.58</b>	<b>0.115</b>	<b>.8631931</b> <b>1.016063</b>
SES		<b>.8419869</b>	.0413434	<b>-3.50</b>	<b>0.000</b>	<b>.7647323</b> <b>.9270458</b>
LE8_TOTALSCORE		<b>.9990819</b>	.0003513	<b>-2.61</b>	<b>0.009</b>	<b>.9983936</b> <b>.9997706</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50951.288**  
 Iteration 1: Log likelihood = **-50951.288**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,896</b>
	Wald chi2(7) =	<b>2911.94</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	zegfr	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>-.1789732</b>	.0146219	<b>-12.24</b>	<b>0.000</b>	<b>-.2076317</b> <b>-.1503147</b>
AGE		<b>-.0299764</b>	.0009546	<b>-31.40</b>	<b>0.000</b>	<b>-.0318474</b> <b>-.0281054</b>
SEX		<b>.3286564</b>	.0101324	<b>32.44</b>	<b>0.000</b>	<b>.3087973</b> <b>.3485155</b>
NonWhite		<b>.1444009</b>	.0242639	<b>5.95</b>	<b>0.000</b>	<b>.0968446</b> <b>.1919572</b>
householdszie		<b>-.0137714</b>	.0046195	<b>-2.98</b>	<b>0.003</b>	<b>-.0228255</b> <b>-.0047173</b>
SES		<b>.1137362</b>	.0076039	<b>14.96</b>	<b>0.000</b>	<b>.0988329</b> <b>.1286396</b>
LE8_TOTALSCORE		<b>-.0000186</b>	.000054	<b>-0.34</b>	<b>0.731</b>	<b>-.0001243</b> <b>.0000872</b>
_cons		<b>1.367465</b>	.0690155	<b>19.81</b>	<b>0.000</b>	<b>1.232197</b> <b>1.502732</b>
<b>sigma2</b>						
_cons		<b>.9268253</b>	.0068238	<b>135.82</b>	<b>0.000</b>	<b>.913451</b> <b>.9401996</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.286695</b>	.1653294	7.78	<b>0.000</b>	.9626554 1.610735
ereri_cde	<b>1.237689</b>	.1704716	7.26	<b>0.000</b>	.9035707 1.571807
ereri_intref	<b>-.0042345</b>	.0138538	-0.31	<b>0.760</b>	-.0313874 .0229184
ereri_intmed	<b>.0152411</b>	.024141	0.63	<b>0.528</b>	-.0320743 .0625565
ereri_pie	<b>.0379997</b>	.0077705	4.89	<b>0.000</b>	.0227697 .0532297

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zegln1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04646 2.216 -.07503 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9036.4379

Iteration 1: Log likelihood = -8949.5614

Iteration 2: Log likelihood = -8937.7374

Iteration 3: Log likelihood = -8937.5094

Iteration 4: Log likelihood = -8937.5087

Refining estimates:

Iteration 0: Log likelihood = -8937.5087

Cox regression with Breslow method for ties

No. of subjects = 36,352 Number of obs = 36,352

No. of failures = 965

Time at risk = 441,650.762

LR chi2(9) = 197.86

Log likelihood = -8937.5087

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.231174	.1617298	11.07	0.000	1.935678 2.571781
zegln1	.9211944	.0398792	-1.90	0.058	.8462566 1.002768
_infectionburXzegln1_000	1.146709	.0785964	2.00	0.046	1.002562 1.311581
AGE	1.033297	.0130405	2.60	0.009	1.008051 1.059174
SEX	.7540735	.0493016	-4.32	0.000	.6633792 .8571672
NonWhite	1.060929	.182916	0.34	0.732	.75671 1.487452
householdszie	.9330075	.0396799	-1.63	0.103	.8583894 1.014112
SES	.8178671	.0403896	-4.07	0.000	.7424154 .900987
LE8_TOTALSCORE	.9989529	.0003619	-2.89	0.004	.9982439 .9996623

-> Model for the mediator

Iteration 0: Log likelihood = -50516.052  
 Iteration 1: Log likelihood = -50516.052

Linear regression (Maximum Likelihood)  
 Number of obs = 36,352  
 Wald chi2(7) = 2193.01  
 Log likelihood = -50516.052 Prob > chi2 = 0.0000

zegln1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	.0770832	.0148768	5.18	0.000	.0479253 .1062412
AGE	.0077144	.0009711	7.94	0.000	.005811 .0096178
SEX	-.1511401	.0102966	-14.68	0.000	-.1713211 -.1309592
NonWhite	.1632958	.0246741	6.62	0.000	.1149356 .2116561
householdszie	-.0041035	.0047656	-0.86	0.389	-.0134438 .0052369
SES	-.0487153	.0077229	-6.31	0.000	-.063852 -.0335786
LE8_TOTALSCORE	-.0020425	.0000548	-37.26	0.000	-.0021499 -.001935
_cons	.7768429	.0702519	11.06	0.000	.6391518 .9145341
<b>sigma2</b>					
_cons	.9430794	.0069952	134.82	0.000	.9293691 .9567897

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.233411	.1606367	7.68	0.000	.9185687 1.548253
ereri_cde	1.226193	.1611269	7.61	0.000	.9103902 1.541996
ereri_intref	-.0021987	.0063847	-0.34	0.731	-.0147124 .010315
ereri_intmed	.0157237	.010217	1.54	0.124	-.0043012 .0357487
ereri_pie	-.0063073	.003531	-1.79	0.074	-.013228 .0006133

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdszie SES LE8\_TOTALSCORE were not provided. All

-> Summary

```

Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zeif4b
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

Model for the outcome (yreg): cox
Model for the mediator (mreg): linear

Referent exposure level (a0):          0
Actual exposure level (a1):           1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c):    60.17 1.532 .0464 2.216 -.07458 500.7

```

-> Model for the outcome

```

Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid

```

```

Iteration 0: Log likelihood = -8985.4467
Iteration 1: Log likelihood = -8892.6727
Iteration 2: Log likelihood = -8885.1637
Iteration 3: Log likelihood = -8885.1485
Refining estimates:
Iteration 0: Log likelihood = -8885.1484

```

Cox regression with Breslow method for ties

No. of subjects =	36,164	Number of obs =	36,164
No. of failures =	960		
Time at risk =	439,440.668	LR chi2(9) =	200.60
Log likelihood =	-8885.1484	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.214171	.1599483	11.00	0.000	1.921859 2.550942
zeif4b	.8966245	.0342798	-2.85	0.004	.8318929 .9663929
_infectionburXzeif4b_000	1.093594	.0777637	1.26	0.208	.9513237 1.25714
AGE	1.037811	.0131146	2.94	0.003	1.012422 1.063836
SEX	.7357982	.0481884	-4.68	0.000	.647161 .8365754
NonWhite	1.014177	.1770777	0.08	0.936	.7202642 1.428024
householdszie	.943378	.0394266	-1.39	0.163	.8691835 1.023906
SES	.8100926	.0401036	-4.25	0.000	.735184 .8926338
LE8_TOTALSCORE	.9989431	.0003574	-2.96	0.003	.9982428 .9996439

-> Model for the mediator

```

Iteration 0: Log likelihood = -51060.601
Iteration 1: Log likelihood = -51060.601

```

Linear regression (Maximum Likelihood)	Number of obs = 36,164
Log likelihood = -51060.601	Wald chi2(7) = 510.35
	Prob > chi2 = 0.0000

	zeif4b	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>-.0115467</b>	<b>.0152518</b>	<b>-0.76</b>	<b>0.449</b>	<b>-.0414397</b>
AGE		<b>-.0020444</b>	<b>.0009979</b>	<b>-2.05</b>	<b>0.040</b>	<b>-.0040002</b>
SEX		<b>-.0996743</b>	<b>.0105573</b>	<b>-9.44</b>	<b>0.000</b>	<b>-.1203663</b>
NonWhite		<b>.0044122</b>	<b>.0253149</b>	<b>0.17</b>	<b>0.862</b>	<b>-.0452041</b>
householdsize		<b>.0039267</b>	<b>.0050067</b>	<b>0.78</b>	<b>0.433</b>	<b>-.0058863</b>
SES		<b>-.0085938</b>	<b>.0079361</b>	<b>-1.08</b>	<b>0.279</b>	<b>-.0241483</b>
LE8_TOTALSCORE		<b>-.0010669</b>	<b>.0000562</b>	<b>-18.99</b>	<b>0.000</b>	<b>-.0011771</b>
_cons		<b>.8019007</b>	<b>.0723241</b>	<b>11.09</b>	<b>0.000</b>	<b>.6601481</b>
<b>sigma2</b>						
_cons		<b>.986057</b>	<b>.007333</b>	<b>134.47</b>	<b>0.000</b>	<b>.9716847</b>
						<b>1.000429</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.202445</b>	<b>.1588075</b>	<b>7.57</b>	<b>0.000</b>	<b>.8911877</b>
ereri_cde	<b>1.207275</b>	<b>.1588597</b>	<b>7.60</b>	<b>0.000</b>	<b>.8959156</b>
ereri_intref	<b>-.0053296</b>	<b>.0046701</b>	<b>-1.14</b>	<b>0.254</b>	<b>-.0144828</b>
ereri_intmed	<b>-.0007611</b>	<b>.0018818</b>	<b>-0.40</b>	<b>0.686</b>	<b>-.0044494</b>
ereri_pie	<b>.0012608</b>	<b>.001724</b>	<b>0.73</b>	<b>0.465</b>	<b>-.0021182</b>

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zeif4ebp1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04649 2.218 -.07578 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9064.8284**  
 Iteration 1: Log likelihood = **-8976.8252**  
 Iteration 2: Log likelihood = **-8965.8833**  
 Iteration 3: Log likelihood = **-8965.8037**  
 Iteration 4: Log likelihood = **-8965.8036**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8965.8036**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,441</b>	Number of obs =	<b>36,441</b>
No. of failures =	<b>968</b>		
Time at risk =	<b>442,700.115</b>	LR chi2(9) =	<b>198.05</b>
Log likelihood =	<b>-8965.8036</b>	Prob > chi2 =	<b>0.0000</b>

	<i>t</i>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.269727</b>	.1627304	<b>11.43</b>	<b>0.000</b>	<b>1.972177</b> <b>2.61217</b>
zeif4ebp1		<b>.9694867</b>	.0383235	<b>-0.78</b>	<b>0.433</b>	<b>.8972101</b> <b>1.047586</b>
_infectionburXzeif4ebp1_000		<b>1.085944</b>	.0766945	<b>1.17</b>	<b>0.243</b>	<b>.9455649</b> <b>1.247163</b>
AGE		<b>1.033593</b>	.0130344	<b>2.62</b>	<b>0.009</b>	<b>1.008359</b> <b>1.059458</b>
SEX		<b>.7486863</b>	.0490788	<b>-4.42</b>	<b>0.000</b>	<b>.6584169</b> <b>.8513319</b>
NonWhite		<b>1.005191</b>	.1779016	<b>0.03</b>	<b>0.977</b>	<b>.71056</b> <b>1.421991</b>
householdsize		<b>.9270017</b>	.0398585	<b>-1.76</b>	<b>0.078</b>	<b>.8520818</b> <b>1.008509</b>
SES		<b>.826479</b>	.0408599	<b>-3.85</b>	<b>0.000</b>	<b>.7501527</b> <b>.9105714</b>
LE8_TOTALSCORE		<b>.9990514</b>	.0003588	<b>-2.64</b>	<b>0.008</b>	<b>.9983483</b> <b>.9997549</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-51006.558**  
 Iteration 1: Log likelihood = **-51006.558**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,441</b>
	Wald chi2(7) =	<b>1428.24</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	zeif4ebp1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.0509932</b>	.0149915	<b>3.40</b>	<b>0.001</b>	<b>.0216104</b> <b>.0803761</b>
AGE		<b>.003387</b>	.0009791	<b>3.46</b>	<b>0.001</b>	<b>.001468</b> <b>.0053061</b>
SEX		<b>-.2261023</b>	.0103885	<b>-21.76</b>	<b>0.000</b>	<b>-.2464634</b> <b>-.2057412</b>
NonWhite		<b>.1070765</b>	.0248747	<b>4.30</b>	<b>0.000</b>	<b>.058323</b> <b>.1558301</b>
householdsize		<b>-.0056722</b>	.0047277	<b>-1.20</b>	<b>0.230</b>	<b>-.0149383</b> <b>.0035938</b>
SES		<b>-.0074439</b>	.0077957	<b>-0.95</b>	<b>0.340</b>	<b>-.0227231</b> <b>.0078354</b>
LE8_TOTALSCORE		<b>-.0014752</b>	.0000554	<b>-26.64</b>	<b>0.000</b>	<b>-.0015838</b> <b>-.0013667</b>
_cons		<b>.8806533</b>	.0707653	<b>12.44</b>	<b>0.000</b>	<b>.7419559</b> <b>1.019351</b>
<b>sigma2</b>						
_cons		<b>.9622585</b>	.0071287	<b>134.98</b>	<b>0.000</b>	<b>.9482865</b> <b>.9762306</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.27621</b>	.162549	7.85	<b>0.000</b>	.9576194 1.5948
ereri_cde	<b>1.268862</b>	.1626317	7.80	<b>0.000</b>	.9501098 1.587614
ereri_intref	<b>.0013824</b>	.0059508	0.23	<b>0.816</b>	-.010281 .0130458
ereri_intmed	<b>.0075442</b>	.0074489	1.01	<b>0.311</b>	-.0070553 .0221437
ereri_pie	<b>-.001579</b>	.0020653	-0.76	<b>0.445</b>	-.0056269 .002469

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zeif4g1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .0466 2.218 -.07544 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9166.3755

Iteration 1: Log likelihood = -9073.8311

Iteration 2: Log likelihood = -9064.8184

Iteration 3: Log likelihood = -9064.7979

Iteration 4: Log likelihood = -9064.7979

Refining estimates:

Iteration 0: Log likelihood = -9064.7979

Cox regression with Breslow method for ties

No. of subjects = 36,824 Number of obs = 36,824

No. of failures = 978

Time at risk = 447,356.911

LR chi2(9) = 203.16

Log likelihood = -9064.7979

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.282244	.1622577	11.61	0.000	1.985387 2.623486
zeif4g1		.9354663	.0359564	-1.74	0.083	.8675822 1.008662
_infectionburXzeif4g1_000		1.02256	.07255	0.31	0.753	.8898086 1.175117
AGE		1.036126	.0129902	2.83	0.005	1.010976 1.061902
SEX		.7528653	.0488032	-4.38	0.000	.6630398 .8548599
NonWhite		1.056535	.1820067	0.32	0.750	.7537882 1.480874
householdsize		.9363343	.0392615	-1.57	0.117	.8624604 1.016536
SES		.8165026	.0400769	-4.13	0.000	.7416133 .8989543
LE8_TOTALSCORE		.9990082	.0003554	-2.79	0.005	.9983118 .9997051

-> Model for the mediator

Iteration 0: Log likelihood = -51927.376  
 Iteration 1: Log likelihood = -51927.376

Linear regression (Maximum Likelihood)  
 Number of obs = 36,824  
 Wald chi2(7) = 651.94  
 Prob > chi2 = 0.0000  
 Log likelihood = -51927.376

	zeif4g1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.0226137	.0150824	1.50	0.134	-.0069472 .0521747
AGE		-.0008383	.0009837	-0.85	0.394	-.0027664 .0010897
SEX		-.024027	.0104433	-2.30	0.021	-.0444956 -.0035585
NonWhite		.1135129	.0249819	4.54	0.000	.0645493 .1624765
householdsize		-.0021862	.0047611	-0.46	0.646	-.0115178 .0071454
SES		-.0369739	.0078311	-4.72	0.000	-.0523227 -.0216251
LE8_TOTALSCORE		-.0012347	.0000556	-22.21	0.000	-.0013437 -.0011257
_cons		.6988225	.0711094	9.83	0.000	.5594507 .8381943
<b>sigma2</b>						
_cons		.9825772	.0072413	135.69	0.000	.9683845 .9967699

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.277019	.1617776	7.89	0.000	.9599408 1.594097
ereri_cde	1.279176	.1617985	7.91	0.000	.9620564 1.596295
ereri_intref	.0001309	.0068937	0.02	0.985	-.0133805 .0136424
ereri_intmed	-.00078	.0032491	-0.24	0.810	-.007148 .005588
ereri_pie	-.0015074	.0013276	-1.14	0.256	-.0041095 .0010946

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```

Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zeif5a
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

Model for the outcome (yreg): cox
Model for the mediator (mreg): linear

Referent exposure level (a0):          0
Actual exposure level (a1):           1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c):    60.18 1.53 .04656 2.215 -.07626 500.6

```

-> Model for the outcome

```

Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid

```

```

Iteration 0: Log likelihood = -8913.3312
Iteration 1: Log likelihood = -8829.787
Iteration 2: Log likelihood = -8819.1685
Iteration 3: Log likelihood = -8818.8818
Iteration 4: Log likelihood = -8818.8796
Iteration 5: Log likelihood = -8818.8796
Refining estimates:
Iteration 0: Log likelihood = -8818.8796

```

Cox regression with Breslow method for ties

No. of subjects =	<b>35,761</b>	Number of obs =	<b>35,761</b>
No. of failures =	<b>953</b>		
Time at risk =	<b>434,427.923</b>	LR chi2(9) =	<b>188.90</b>
Log likelihood =	<b>-8818.8796</b>	Prob > chi2 =	<b>0.0000</b>

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.218264</b>	.1607799	<b>10.99</b>	<b>0.000</b>	<b>1.924501</b> <b>2.556869</b>
zeif5a	<b>.959365</b>	.0382602	<b>-1.04</b>	<b>0.298</b>	<b>.8872323</b> <b>1.037362</b>
_infectionburXzeif5a_000	<b>1.125871</b>	.074897	<b>1.78</b>	<b>0.075</b>	<b>.9882424</b> <b>1.282666</b>
AGE	<b>1.036925</b>	.0131547	<b>2.86</b>	<b>0.004</b>	<b>1.01146</b> <b>1.063031</b>
SEX	<b>.7483966</b>	.0491671	<b>-4.41</b>	<b>0.000</b>	<b>.6579771</b> <b>.8512416</b>
NonWhite	<b>1.05615</b>	.1844126	<b>0.31</b>	<b>0.754</b>	<b>.7500645</b> <b>1.487142</b>
householdszie	<b>.9362438</b>	.0397536	<b>-1.55</b>	<b>0.121</b>	<b>.8614823</b> <b>1.017493</b>
SES	<b>.827731</b>	.0411704	<b>-3.80</b>	<b>0.000</b>	<b>.750847</b> <b>.9124876</b>
LE8_TOTALSCORE	<b>.9990663</b>	.0003582	<b>-2.60</b>	<b>0.009</b>	<b>.9983644</b> <b>.9997687</b>

-> Model for the mediator

Iteration 0: Log likelihood =	<b>-50728.802</b>	Number of obs =	<b>35,761</b>
Iteration 1: Log likelihood =	<b>-50728.802</b>	Wald chi2(7) =	<b>26.73</b>
Log likelihood =	<b>-50728.802</b>	Prob > chi2 =	<b>0.0004</b>

	zeif5a	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		-.0000436	.015447	-0.00	0.998	-.0303193 .030232
AGE		-.0010496	.0010061	-1.04	0.297	-.0030215 .0009223
SEX		-.0453725	.0106846	-4.25	0.000	-.066314 -.024431
NonWhite		-.027887	.0255651	-1.09	0.275	-.0779936 .0222196
householdsize		.000137	.0048599	0.03	0.978	-.0093882 .0096622
SES		.0137383	.0080109	1.71	0.086	-.0019627 .0294393
LE8_TOTALSCORE		-.0000835	.0000569	-1.47	0.143	-.0001951 .0000281
_cons		.1764297	.0726714	2.43	0.015	.0339963 .318863
<b>sigma2</b>						
_cons		.9992252	.0074726	133.72	0.000	.9845791 1.013871

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.222939	.1608386	7.60	0.000	.9077016 1.538177
ereri_cde	1.217218	.1606007	7.58	0.000	.9024459 1.531989
ereri_intref	.0057294	.0093278	0.61	0.539	-.0125528 .0240116
ereri_intmed	-9.29e-06	.0032885	-0.00	0.998	-.0064547 .0064361
ereri_pie	1.81e-06	.0006406	0.00	0.998	-.0012537 .0012573

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zeloa
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04658 2.216 -.07524 500.8

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9057.6167**  
 Iteration 1: Log likelihood = **-8967.71**  
 Iteration 2: Log likelihood = **-8959.24**  
 Iteration 3: Log likelihood = **-8959.2212**  
 Iteration 4: Log likelihood = **-8959.2212**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8959.2212**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,264</b>	Number of obs =	<b>36,264</b>
No. of failures =	<b>968</b>		
Time at risk =	<b>440,524.906</b>	LR chi2(9) =	<b>196.79</b>
Log likelihood =	<b>-8959.2212</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.257154</b>	<b>.1620542</b>	<b>11.34</b>	<b>0.000</b>	<b>1.960869</b>	<b>2.598208</b>
zeloa	<b>.9284223</b>	<b>.0387302</b>	<b>-1.78</b>	<b>0.075</b>	<b>.8555329</b>	<b>1.007522</b>
_infectionburXzeloa_000	<b>1.05639</b>	<b>.0768698</b>	<b>0.75</b>	<b>0.451</b>	<b>.9159784</b>	<b>1.218325</b>
AGE	<b>1.032551</b>	<b>.013006</b>	<b>2.54</b>	<b>0.011</b>	<b>1.007372</b>	<b>1.05836</b>
SEX	<b>.7452877</b>	<b>.0486442</b>	<b>-4.50</b>	<b>0.000</b>	<b>.6557931</b>	<b>.8469955</b>
NonWhite	<b>1.093029</b>	<b>.1859279</b>	<b>0.52</b>	<b>0.601</b>	<b>.7831397</b>	<b>1.525541</b>
householdsize	<b>.9373235</b>	<b>.0392807</b>	<b>-1.54</b>	<b>0.122</b>	<b>.8634117</b>	<b>1.017562</b>
SES	<b>.8166824</b>	<b>.040257</b>	<b>-4.11</b>	<b>0.000</b>	<b>.7414718</b>	<b>.8995221</b>
LE8_TOTALSCORE	<b>.9989663</b>	<b>.0003596</b>	<b>-2.87</b>	<b>0.004</b>	<b>.9982619</b>	<b>.9996713</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50666.65**  
 Iteration 1: Log likelihood = **-50666.65**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,264</b>
	Wald chi2(7) =	<b>1613.33</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	zeloa	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.0549698</b>	<b>.0149951</b>	<b>3.67</b>	<b>0.000</b>	<b>.0255799</b>
AGE		<b>.0048626</b>	<b>.0009791</b>	<b>4.97</b>	<b>0.000</b>	<b>.0029435</b>
SEX		<b>-.168302</b>	<b>.0103869</b>	<b>-16.20</b>	<b>0.000</b>	<b>-.18866</b>
NonWhite		<b>.1448267</b>	<b>.0248543</b>	<b>5.83</b>	<b>0.000</b>	<b>.0961132</b>
householdsize		<b>.0011329</b>	<b>.0047239</b>	<b>0.24</b>	<b>0.810</b>	<b>-.0081257</b>
SES		<b>-.0169298</b>	<b>.0077901</b>	<b>-2.17</b>	<b>0.030</b>	<b>-.0321981</b>
LE8_TOTALSCORE		<b>-.0017738</b>	<b>.0000553</b>	<b>-32.07</b>	<b>0.000</b>	<b>-.0018822</b>
_cons		<b>.8351991</b>	<b>.0707642</b>	<b>11.80</b>	<b>0.000</b>	<b>.6965037</b>
<b>sigma2</b>						
_cons		<b>.95738</b>	<b>.0071099</b>	<b>134.66</b>	<b>0.000</b>	<b>.9434449</b>
						<b>.9713151</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.248265</b>	.1612435	7.74	<b>0.000</b>	.932234 1.564297
ereri_cde	<b>1.253129</b>	.1615341	7.76	<b>0.000</b>	.9365275 1.56973
ereri_intref	<b>-.0024629</b>	.0048042	-0.51	<b>0.608</b>	-.011879 .0069533
ereri_intmed	<b>.0016739</b>	.0077899	0.21	<b>0.830</b>	-.013594 .0169418
ereri_pie	<b>-.0040742</b>	.0025389	-1.60	<b>0.109</b>	-.0090503 .0009019

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zenah
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.53 .04656 2.215 -.07626 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -8913.3312

Iteration 1: Log likelihood = -8826.9351

Iteration 2: Log likelihood = -8819.1789

Iteration 3: Log likelihood = -8819.1619

Iteration 4: Log likelihood = -8819.1619

Refining estimates:

Iteration 0: Log likelihood = -8819.1619

Cox regression with Breslow method for ties

No. of subjects = 35,761 Number of obs = 35,761

No. of failures = 953

Time at risk = 434,427.923

LR chi2(9) = 188.34

Log likelihood = -8819.1619 Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.223688</b>	.1613595	<b>11.01</b>	<b>0.000</b>	<b>1.928889</b> 2.563541
zenah	<b>.9433267</b>	.0382346	-1.44	0.150	.8712876 1.021322
_infectionburXzenah_000	<b>1.021741</b>	.07408	0.30	0.767	.8863919 1.177758
AGE	<b>1.038069</b>	.0131905	2.94	0.003	<b>1.012535</b> 1.064246
SEX	<b>.7498988</b>	.0492635	-4.38	0.000	.6593018 .8529451
NonWhite	<b>1.053679</b>	.1839503	0.30	0.765	.7483524 1.483578
householdsize	<b>.9350549</b>	.0398516	-1.58	0.115	.8601204 1.016518
SES	<b>.8259353</b>	.0411015	-3.84	0.000	.7491817 .9105522
LE8_TOTALSCORE	<b>.9990079</b>	.0003604	-2.75	0.006	.9983018 .9997145

-> Model for the mediator

Iteration 0: Log likelihood = **-50309.968**  
 Iteration 1: Log likelihood = **-50309.968**

Linear regression (Maximum Likelihood) Number of obs = 35,761  
 Wald chi2(7) = 874.92  
 Log likelihood = **-50309.968** Prob > chi2 = 0.0000

	zenah	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.088194</b>	.0152672	<b>5.78</b>	<b>0.000</b>	<b>.0582708</b> .1181171
AGE		<b>.0124242</b>	.0009944	<b>12.49</b>	<b>0.000</b>	<b>.0104753</b> .0143731
SEX		<b>.004548</b>	.0105602	<b>0.43</b>	<b>0.667</b>	-.0161497 .0252456
NonWhite		<b>-.0153349</b>	.0252674	<b>-0.61</b>	<b>0.544</b>	-.0648581 .0341883
householdsize		<b>-.0015222</b>	.0048033	<b>-0.32</b>	<b>0.751</b>	-.0109365 .007892
SES		<b>-.043212</b>	.0079176	<b>-5.46</b>	<b>0.000</b>	-.0587302 -.0276938
LE8_TOTALSCORE		<b>-.0012226</b>	.0000563	<b>-21.73</b>	<b>0.000</b>	-.0013329 -.0011123
_cons		<b>-.1540118</b>	.0718253	<b>-2.14</b>	<b>0.032</b>	-.2947867 -.0132369
<b>sigma2</b>						
_cons		<b>.9760913</b>	.0072996	<b>133.72</b>	<b>0.000</b>	<b>.9617843</b> .9903983

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.21368</b>	.1605141	<b>7.56</b>	<b>0.000</b>	<b>.8990787</b> 1.528282
ereri_cde	<b>1.220786</b>	.1610511	<b>7.58</b>	<b>0.000</b>	<b>.9051316</b> 1.53644
ereri_intref	<b>.0000974</b>	.0070425	<b>0.01</b>	<b>0.989</b>	-.0137056 .0139005
ereri_intmed	<b>-.0020707</b>	.0123749	<b>-0.17</b>	<b>0.867</b>	-.026325 .0221836
ereri_pie	<b>-.0051322</b>	.003665	<b>-1.40</b>	<b>0.161</b>	-.0123156 .0020511

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zeng  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.18 1.531 .04648 2.216 -.0752 500.5

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9225.1762  
 Iteration 1: Log likelihood = -9136.8355  
 Iteration 2: Log likelihood = -9128.6007  
 Iteration 3: Log likelihood = -9128.5836  
 Iteration 4: Log likelihood = -9128.5836  
 Refining estimates:  
 Iteration 0: Log likelihood = -9128.5836

Cox regression with Breslow method for ties

No. of subjects =	<b>36,896</b>	Number of obs =	<b>36,896</b>
No. of failures =	<b>984</b>		
Time at risk =	<b>448,211.761</b>	LR chi2(9) =	<b>193.19</b>
Log likelihood =	<b>-9128.5836</b>	Prob > chi2 =	<b>0.0000</b>

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.236631</b>	.1591877	<b>11.31</b>	<b>0.000</b>	<b>1.945413</b> <b>2.571443</b>
zeng	<b>1.000047</b>	.0383362	<b>0.00</b>	<b>0.999</b>	<b>.9276628</b> <b>1.07808</b>
_infectionburXzeng_000	<b>.9947813</b>	.0697477	<b>-0.07</b>	<b>0.941</b>	<b>.8670553</b> <b>1.141323</b>
AGE	<b>1.034541</b>	.0129488	<b>2.71</b>	<b>0.007</b>	<b>1.00947</b> <b>1.060234</b>
SEX	<b>.7538754</b>	.0487303	<b>-4.37</b>	<b>0.000</b>	<b>.6641684</b> <b>.8556989</b>
NonWhite	<b>1.068756</b>	.1817192	<b>0.39</b>	<b>0.696</b>	<b>.765861</b> <b>1.491445</b>
householdsize	<b>.9373046</b>	.0391842	<b>-1.55</b>	<b>0.121</b>	<b>.8635671</b> <b>1.017338</b>
SES	<b>.823319</b>	.0403485	<b>-3.97</b>	<b>0.000</b>	<b>.7479166</b> <b>.9063232</b>
LE8_TOTALSCORE	<b>.9990676</b>	.0003523	<b>-2.65</b>	<b>0.008</b>	<b>.9983773</b> <b>.9997584</b>

-> Model for the mediator

Iteration 0: Log likelihood = -52259.801  
 Iteration 1: Log likelihood = -52259.801

Linear regression (Maximum Likelihood)  
 Number of obs = 36,896  
 Wald chi2(7) = 186.18  
 Prob > chi2 = 0.0000  
 Log likelihood = -52259.801

	zeng	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		-.002315	.0151498	-0.15	0.879	-.0320081 .0273781
AGE		-.0077961	.0009891	-7.88	0.000	-.0097346 -.0058576
SEX		-.0289629	.0104982	-2.76	0.006	-.049539 -.0083869
NonWhite		-.1932025	.0251398	-7.69	0.000	-.2424756 -.1439294
householdsize		-.0246649	.0047863	-5.15	0.000	-.0340459 -.0152839
SES		-.0555823	.0078784	-7.06	0.000	-.0710236 -.0401409
LE8_TOTALSCORE		.0002275	.0000559	4.07	0.000	.0001179 .0003371
_cons		.4594614	.071507	6.43	0.000	.3193101 .5996126
<b>sigma2</b>						
_cons		.9949523	.0073253	135.82	0.000	.9805949 1.00931

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.236684	.1591431	7.77	0.000	.9247692 1.548599
ereri_cde	1.236631	.1591881	7.77	0.000	.9246281 1.548634
ereri_intref	.0000262	.0006392	0.04	0.967	-.0012267 .001279
ereri_intmed	.000027	.0003625	0.07	0.941	-.0006836 .0007375
ereri_pie	-1.09e-07	.0000887	-0.00	0.999	-.0001739 .0001737

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zeno1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04644 2.216 -.07376 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9091.864**  
 Iteration 1: Log likelihood = **-9002.0853**  
 Iteration 2: Log likelihood = **-8994.2132**  
 Iteration 3: Log likelihood = **-8994.1962**  
 Iteration 4: Log likelihood = **-8994.1962**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8994.1962**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,389</b>	Number of obs =	<b>36,389</b>
No. of failures =	<b>971</b>		
Time at risk =	<b>442,034.037</b>	LR chi2(9) =	<b>195.34</b>
Log likelihood =	<b>-8994.1962</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.222</b>	.1595081	<b>11.12</b>	<b>0.000</b>	<b>1.930367</b> <b>2.557692</b>
zeno1		<b>.9395629</b>	.035876	<b>-1.63</b>	<b>0.103</b>	<b>.8718139</b> <b>1.012577</b>
_infectionburXzeno1_000		<b>1.031844</b>	.073817	<b>0.44</b>	<b>0.661</b>	<b>.8968508</b> <b>1.187157</b>
AGE		<b>1.034247</b>	.0130192	<b>2.68</b>	<b>0.007</b>	<b>1.009043</b> <b>1.060082</b>
SEX		<b>.7552662</b>	.0491336	<b>-4.31</b>	<b>0.000</b>	<b>.6648526</b> <b>.8579753</b>
NonWhite		<b>1.092994</b>	.185955	<b>0.52</b>	<b>0.601</b>	<b>.7830685</b> <b>1.525583</b>
householdszie		<b>.9358389</b>	.0394282	<b>-1.57</b>	<b>0.116</b>	<b>.8616657</b> <b>1.016397</b>
SES		<b>.8112835</b>	.0399368	<b>-4.25</b>	<b>0.000</b>	<b>.7366663</b> <b>.8934587</b>
LE8_TOTALSCORE		<b>.9989732</b>	.0003545	<b>-2.89</b>	<b>0.004</b>	<b>.9982787</b> <b>.9996683</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-51556.05**  
 Iteration 1: Log likelihood = **-51556.05**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,389</b>
	Wald chi2(7) =	<b>154.74</b>
Log likelihood =	<b>-51556.05</b>	Prob > chi2 = <b>0.0000</b>

	zeno1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>-.003978</b>	.0152697	<b>-0.26</b>	<b>0.794</b>	<b>-.0339061</b> <b>.0259501</b>
AGE		<b>-.0041109</b>	.0009989	<b>-4.12</b>	<b>0.000</b>	<b>-.0060687</b> <b>-.002153</b>
SEX		<b>.0123489</b>	.0105769	<b>1.17</b>	<b>0.243</b>	<b>-.0083814</b> <b>.0330792</b>
NonWhite		<b>.1575047</b>	.0253549	<b>6.21</b>	<b>0.000</b>	<b>.1078101</b> <b>.2071994</b>
householdszie		<b>-.0014668</b>	.0050173	<b>-0.29</b>	<b>0.770</b>	<b>-.0113006</b> <b>.0083669</b>
SES		<b>-.0328536</b>	.0079405	<b>-4.14</b>	<b>0.000</b>	<b>-.0484168</b> <b>-.0172905</b>
LE8_TOTALSCORE		<b>-.0004076</b>	.0000563	<b>-7.24</b>	<b>0.000</b>	<b>-.000518</b> <b>-.0002973</b>
_cons		<b>.4266459</b>	.0724125	<b>5.89</b>	<b>0.000</b>	<b>.28472</b> <b>.5685718</b>
<b>sigma2</b>						
_cons		<b>.9957383</b>	.007382	<b>134.89</b>	<b>0.000</b>	<b>.9812698</b> <b>1.010207</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.219078</b>	.1590245	<b>7.67</b>	<b>0.000</b>	.9073953 1.53076
ereri_cde	<b>1.21968</b>	.1591078	<b>7.67</b>	<b>0.000</b>	.9078342 1.531525
ereri_intref	<b>-.0008758</b>	.0046935	<b>-0.19</b>	<b>0.852</b>	-.0100749 .0083233
ereri_intmed	<b>.0000255</b>	.0005641	<b>0.05</b>	<b>0.964</b>	-.0010801 .0011312
ereri_pie	<b>.000248</b>	.0009642	<b>0.26</b>	<b>0.797</b>	-.0016418 .0021378

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zeno2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04637 2.216 -.07448 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9160.406

Iteration 1: Log likelihood = -9070.0636

Iteration 2: Log likelihood = -9061.0763

Iteration 3: Log likelihood = -9061.0395

Iteration 4: Log likelihood = -9061.0395

Refining estimates:

Iteration 0: Log likelihood = -9061.0395

Cox regression with Breslow method for ties

No. of subjects = 36,751 Number of obs = 36,751

No. of failures = 977

Time at risk = 446,451.479

Log likelihood = -9061.0395

LR chi2(9) = 198.73

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.225505</b>	.1595054	11.16	<b>0.000</b>	<b>1.933845</b> 2.561153
zeno2	<b>.9263167</b>	.0359967	-1.97	<b>0.049</b>	<b>.8583843</b> .9996254
_infectionburXzeno2_000	<b>1.003898</b>	.0724955	0.05	<b>0.957</b>	<b>.8714066</b> 1.156533
AGE	<b>1.034374</b>	.0129592	2.70	<b>0.007</b>	<b>1.009284</b> 1.060088
SEX	<b>.7573285</b>	.049123	-4.29	<b>0.000</b>	<b>.6669179</b> .8599956
NonWhite	<b>1.091502</b>	.1855545	0.52	<b>0.607</b>	<b>.7822057</b> 1.523099
householdsize	<b>.9333105</b>	.0394777	-1.63	<b>0.103</b>	<b>.8590561</b> 1.013983
SES	<b>.8173637</b>	.040137	-4.11	<b>0.000</b>	<b>.7423637</b> .8999409
LE8_TOTALSCORE	<b>.9989939</b>	.0003536	-2.84	<b>0.004</b>	<b>.9983011</b> .9996873

-> Model for the mediator

Iteration 0: Log likelihood = **-52090.108**  
 Iteration 1: Log likelihood = **-52090.108**

Linear regression (Maximum Likelihood) Number of obs = 36,751  
 Wald chi2(7) = 113.78  
 Log likelihood = **-52090.108** Prob > chi2 = 0.0000

	zeno2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>-.0262724</b>	.0152021	-1.73	<b>0.084</b>	<b>-.0560678</b> .0035231
AGE		<b>.0003842</b>	.0009948	0.39	<b>0.699</b>	<b>-.0015655</b> .0023339
SEX		<b>.0065956</b>	.0105306	0.63	<b>0.531</b>	<b>-.0140439</b> .0272351
NonWhite		<b>.0616401</b>	.0252629	2.44	<b>0.015</b>	<b>.0121256</b> .1111546
householdsize		<b>.0038792</b>	.0050021	0.78	<b>0.438</b>	<b>-.0059247</b> .0136831
SES		<b>.0025242</b>	.0079084	0.32	<b>0.750</b>	<b>-.0129759</b> .0180244
LE8_TOTALSCORE		<b>-.0005628</b>	.0000561	-10.04	<b>0.000</b>	<b>-.0006728</b> -.004529
_cons		<b>.2409062</b>	.0721296	3.34	<b>0.001</b>	<b>.0995349</b> .3822776
<b>sigma2</b>						
_cons		<b>.9968865</b>	.007354	135.56	<b>0.000</b>	<b>.9824728</b> 1.0113

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.229144</b>	.1590539	7.73	<b>0.000</b>	<b>.917404</b> 1.540884
ereri_cde	<b>1.222273</b>	.1589724	7.69	<b>0.000</b>	<b>.910693</b> 1.533854
ereri_intref	<b>.0026199</b>	.0097228	0.27	<b>0.788</b>	<b>-.0164364</b> .0216763
ereri_intmed	<b>.0022377</b>	.0039343	0.57	<b>0.570</b>	<b>-.0054734</b> .0099489
ereri_pie	<b>.0020129</b>	.0015511	1.30	<b>0.194</b>	<b>-.0010272</b> .0050529

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zenpp2  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.18 1.531 .04648 2.216 -.0752 500.5

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9225.1762  
 Iteration 1: Log likelihood = -9140.7394  
 Iteration 2: Log likelihood = -9126.0236  
 Iteration 3: Log likelihood = -9125.8635  
 Iteration 4: Log likelihood = -9125.8635  
 Refining estimates:  
 Iteration 0: Log likelihood = -9125.8635

Cox regression with Breslow method for ties

No. of subjects =	36,896	Number of obs =	36,896
No. of failures =	984		
Time at risk =	448,211.761	LR chi2(9) =	198.63
Log likelihood =	-9125.8635	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.236264	.159545	11.28	0.000	1.94444 2.571885
zenpp2	.9348837	.042775	-1.47	0.141	.8546954 1.022595
_infectionburXzenpp2_000	.9413437	.0658385	-0.86	0.387	.8207565 1.079648
AGE	1.035244	.0129611	2.77	0.006	1.01015 1.060961
SEX	.8341753	.0668137	-2.26	0.024	.7129841 .9759661
NonWhite	1.068229	.1815168	0.39	0.698	.7656413 1.490401
householdsize	.9376781	.0391665	-1.54	0.123	.8639714 1.017673
SES	.82279	.0403204	-3.98	0.000	.7474399 .9057363
LE8_TOTALSCORE	.999004	.0003541	-2.81	0.005	.9983102 .9996982

-> Model for the mediator

Iteration 0: Log likelihood = -44291.085  
 Iteration 1: Log likelihood = -44291.085

Linear regression (Maximum Likelihood)  
 Number of obs = 36,896  
 Wald chi2(7) = 20220.44  
 Log likelihood = -44291.085 Prob > chi2 = 0.0000

	zenpp2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.0711338	.012207	5.83	0.000	.0472085 .0950591
AGE		.0087993	.0007969	11.04	0.000	.0072373 .0103613
SEX		1.193057	.0084589	141.04	0.000	1.176478 1.209637
NonWhite		-.0162771	.0202565	-0.80	0.422	-.0559791 .0234249
householdsize		.0037325	.0038566	0.97	0.333	-.0038262 .0112913
SES		-.0293074	.006348	-4.62	0.000	-.0417493 -.0168655
LE8_TOTALSCORE		-.0006435	.0000451	-14.28	0.000	-.0007318 -.0005551
_cons		-2.053484	.057617	-35.64	0.000	-2.166412 -1.940557
<b>sigma2</b>						
_cons		.6459611	.0047559	135.82	0.000	.6366397 .6552825

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.225817	.1584641	7.74	0.000	.9152334 1.536401
ereri_cde	1.233634	.1590861	7.75	0.000	.9218307 1.545437
ereri_intref	.0125075	.0127332	0.98	0.326	-.0124491 .0374641
ereri_intmed	-.0155455	.0102505	-1.52	0.129	-.0356362 .0045451
ereri_pie	-.0047782	.0033408	-1.43	0.153	-.0113261 .0017697

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zenpp5
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04635 2.216 -.07488 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9125.8833**  
 Iteration 1: Log likelihood = **-9038.0999**  
 Iteration 2: Log likelihood = **-9029.9089**  
 Iteration 3: Log likelihood = **-9029.8914**  
 Iteration 4: Log likelihood = **-9029.8914**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-9029.8914**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,595</b>	Number of obs =	<b>36,595</b>
No. of failures =	<b>974</b>		
Time at risk =	<b>444,506.48</b>	LR chi2(9) =	<b>191.98</b>
Log likelihood =	<b>-9029.8914</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.235256</b>	.1619284	<b>11.10</b>	<b>0.000</b>	<b>1.939384</b> <b>2.576267</b>
zenpp5		<b>.9608724</b>	.037765	<b>-1.02</b>	<b>0.310</b>	<b>.8896334</b> <b>1.037816</b>
_infectionburXzenpp5_000		<b>1.015362</b>	.0693508	<b>0.22</b>	<b>0.823</b>	<b>.8881417</b> <b>1.160805</b>
AGE		<b>1.034989</b>	.0130046	<b>2.74</b>	<b>0.006</b>	<b>1.009812</b> <b>1.060794</b>
SEX		<b>.7462404</b>	.0496209	<b>-4.40</b>	<b>0.000</b>	<b>.6550561</b> <b>.8501176</b>
NonWhite		<b>1.102315</b>	.1877706	<b>0.57</b>	<b>0.567</b>	<b>.7894237</b> <b>1.539222</b>
householdszie		<b>.9359581</b>	.039322	<b>-1.58</b>	<b>0.115</b>	<b>.861976</b> <b>1.01629</b>
SES		<b>.8287608</b>	.0408093	<b>-3.81</b>	<b>0.000</b>	<b>.7525146</b> <b>.9127324</b>
LE8_TOTALSCORE		<b>.9990719</b>	.0003549	<b>-2.61</b>	<b>0.009</b>	<b>.9983765</b> <b>.9997678</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50333.638**  
 Iteration 1: Log likelihood = **-50333.638**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,595</b>
	Wald chi2(7) =	<b>3326.44</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	zenpp5	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>-.1234791</b>	.0146043	<b>-8.45</b>	<b>0.000</b>	<b>-.1521029</b> <b>-.0948552</b>
AGE		<b>-.0191357</b>	.0009531	<b>-20.08</b>	<b>0.000</b>	<b>-.0210038</b> <b>-.0172676</b>
SEX		<b>-.501682</b>	.0101191	<b>-49.58</b>	<b>0.000</b>	<b>-.5215151</b> <b>-.4818489</b>
NonWhite		<b>.232226</b>	.0242605	<b>9.57</b>	<b>0.000</b>	<b>.1846762</b> <b>.2797758</b>
householdszie		<b>-.009851</b>	.0046073	<b>-2.14</b>	<b>0.033</b>	<b>-.0188811</b> <b>-.0008209</b>
SES		<b>.0422161</b>	.0075953	<b>5.56</b>	<b>0.000</b>	<b>.0273295</b> <b>.0571026</b>
LE8_TOTALSCORE		<b>.0009202</b>	.0000539	<b>17.07</b>	<b>0.000</b>	<b>.0008145</b> <b>.0010258</b>
_cons		<b>1.490829</b>	.0688445	<b>21.66</b>	<b>0.000</b>	<b>1.355897</b> <b>1.625762</b>
<b>sigma2</b>						
_cons		<b>.9166503</b>	.0067765	<b>135.27</b>	<b>0.000</b>	<b>.9033685</b> <b>.929932</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.24165</b>	.1604634	7.74	0.000	.9271479 1.556153
ereri_cde	<b>1.2352</b>	.1618805	7.63	0.000	.9179205 1.552481
ereri_intref	<b>-.000368</b>	.0010248	-0.36	0.720	-.0023765 .0016405
ereri_intmed	<b>.0018772</b>	.0162845	0.12	0.908	-.0300397 .0337942
ereri_pie	<b>.0049407</b>	.0049121	1.01	0.315	-.0046869 .0145682

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zenpp7
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04612 2.216 -.07528 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -8795.8717

Iteration 1: Log likelihood = -8714.0914

Iteration 2: Log likelihood = -8705.9744

Iteration 3: Log likelihood = -8705.9421

Iteration 4: Log likelihood = -8705.9421

Refining estimates:

Iteration 0: Log likelihood = -8705.9421

Cox regression with Breslow method for ties

No. of subjects = 35,277 Number of obs = 35,277

No. of failures = 942

Time at risk = 428,488.221

Log likelihood = -8705.9421

LR chi2(9) = 179.86

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.198339	.16064	10.78	0.000	1.904998 2.53685
zenpp7	.9614163	.0384331	-0.98	0.325	.8889641 1.039774
_infectionburXzenpp7_000	1.074896	.0778632	1.00	0.319	.9326253 1.23887
AGE	1.036031	.0132011	2.78	0.005	1.010478 1.06223
SEX	.7639109	.0504278	-4.08	0.000	.6712011 .8694263
NonWhite	1.157262	.197186	0.86	0.391	.8286965 1.6161
householdsize	.9310879	.0401746	-1.65	0.098	.8555847 1.013254
SES	.8296534	.0415731	-3.73	0.000	.752045 .9152707
LE8_TOTALSCORE	.9990454	.0003654	-2.61	0.009	.9983295 .9997618

-> Model for the mediator

Iteration 0: Log likelihood = **-49328.842**  
 Iteration 1: Log likelihood = **-49328.842**

Linear regression (Maximum Likelihood) Number of obs = 35,277  
 Wald chi2(7) = 1483.45  
 Log likelihood = **-49328.842** Prob > chi2 = 0.0000

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	.0445319	.0152447	2.92	0.003	.0146527 .074411
AGE	.0022061	.0009929	2.22	0.026	.0002601 .004152
SEX	-.0170455	.0105433	-1.62	0.106	-.03771 .0036189
NonWhite	.1992874	.0253302	7.87	0.000	.1496411 .2489337
householdsize	-.0236461	.0047766	-4.95	0.000	-.033008 -.0142842
SES	.0045492	.0079132	0.57	0.565	-.0109603 .0200588
LE8_TOTALSCORE	-.0019844	.0000561	-35.35	0.000	-.0020944 -.0018743
_cons	.9238577	.0716686	12.89	0.000	.7833897 1.064326
<b>sigma2</b>					
_cons	.9596184	.0072255	132.81	0.000	.9454566 .9737801

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.200086	.1604916	7.48	0.000	.8855287 1.514644
ereri_cde	1.197158	.1605069	7.46	0.000	.8825706 1.511746
ereri_intref	-.0002906	.003906	-0.07	0.941	-.0079462 .0073649
ereri_intmed	.0049693	.0064349	0.77	0.440	-.0076429 .0175816
ereri_pie	-.0017507	.0018752	-0.93	0.351	-.0054261 .0019247

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zentpd2  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.19 1.531 .04669 2.217 -.07551 500.6

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -8882.1967  
 Iteration 1: Log likelihood = -8794.9791  
 Iteration 2: Log likelihood = -8784.9304  
 Iteration 3: Log likelihood = -8784.8568  
 Iteration 4: Log likelihood = -8784.8568  
 Refining estimates:  
 Iteration 0: Log likelihood = -8784.8568

Cox regression with Breslow method for ties

No. of subjects =	35,573	Number of obs =	35,573
No. of failures =	951		
Time at risk =	432,088.637	LR chi2(9) =	194.68
Log likelihood =	-8784.8568	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.243101	.1637357	11.07	0.000	1.944084 2.588108
zentpd2	.9080188	.0351143	-2.50	0.013	.8417396 .9795169
_infectionburXzentpd2_000	1.004718	.07382	0.06	0.949	.8699684 1.160339
AGE	1.036769	.0131873	2.84	0.005	1.011242 1.062941
SEX	.7466812	.04912	-4.44	0.000	.6563559 .8494367
NonWhite	1.127178	.1919283	0.70	0.482	.8073386 1.573727
householdsize	.9392338	.0395727	-1.49	0.137	.8647888 1.020087
SES	.8310419	.0414354	-3.71	0.000	.7536719 .9163544
LE8_TOTALSCORE	.9992036	.000359	-2.22	0.027	.9985001 .9999075

-> Model for the mediator

Iteration 0: Log likelihood = -50414.059  
 Iteration 1: Log likelihood = -50414.059

Linear regression (Maximum Likelihood)  
 Number of obs = 35,573  
 Wald chi2(7) = 122.90  
 Log likelihood = -50414.059 Prob > chi2 = 0.0000

	zentpd2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		-.0233444	.0154637	-1.51	0.131	-.0536527 .0069638
AGE		-.0049146	.0010083	-4.87	0.000	-.0068909 -.0029383
SEX		-.0352894	.0107	-3.30	0.001	-.0562611 -.0143177
NonWhite		.1406842	.0255721	5.50	0.000	.0905637 .1908047
householdsize		-.0077817	.00487	-1.60	0.110	-.0173266 .0017633
SES		.0321433	.0080253	4.01	0.000	.0164139 .0478726
LE8_TOTALSCORE		-.0003603	.000057	-6.32	0.000	-.000472 -.0002487
_cons		.5465626	.0728753	7.50	0.000	.4037297 .6893955
<b>sigma2</b>						
_cons		.9965291	.0074721	133.37	0.000	.981884 1.011174

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.246954	.1624041	7.68	0.000	.9286478 1.56526
ereri_cde	1.237734	.1628073	7.60	0.000	.9186374 1.55683
ereri_intref	.0044109	.0128182	0.34	0.731	-.0207123 .029534
ereri_intmed	.0025542	.003797	0.67	0.501	-.0048877 .0099961
ereri_pie	.002255	.0017479	1.29	0.197	-.0011707 .0056808

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zentpd5
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04648 2.218 -.07459 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8905.4114**  
 Iteration 1: Log likelihood = **-8821.4284**  
 Iteration 2: Log likelihood = **-8813.8122**  
 Iteration 3: Log likelihood = **-8813.7893**  
 Iteration 4: Log likelihood = **-8813.7893**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8813.7893**

Cox regression with Breslow method for ties

No. of subjects =	<b>35,755</b>	Number of obs =	<b>35,755</b>
No. of failures =	<b>953</b>		
Time at risk =	<b>434,342.674</b>	LR chi2(9) =	<b>183.24</b>
Log likelihood =	<b>-8813.7893</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.198272</b>	<b>.1595521</b>	<b>10.85</b>	<b>0.000</b>	<b>1.90678</b> <b>2.534324</b>
zentpd5		<b>.9601177</b>	<b>.0370256</b>	<b>-1.06</b>	<b>0.291</b>	<b>.8902236</b> <b>1.035499</b>
_infectionburXzentpd5_000		<b>1.023226</b>	<b>.0722549</b>	<b>0.33</b>	<b>0.745</b>	<b>.8909723</b> <b>1.175111</b>
AGE		<b>1.037321</b>	<b>.0131792</b>	<b>2.88</b>	<b>0.004</b>	<b>1.011809</b> <b>1.063476</b>
SEX		<b>.7618802</b>	<b>.0508797</b>	<b>-4.07</b>	<b>0.000</b>	<b>.6684085</b> <b>.8684231</b>
NonWhite		<b>1.108089</b>	<b>.1886393</b>	<b>0.60</b>	<b>0.547</b>	<b>.7937199</b> <b>1.546969</b>
householdsize		<b>.9374189</b>	<b>.0397162</b>	<b>-1.53</b>	<b>0.127</b>	<b>.862721</b> <b>1.018585</b>
SES		<b>.8337173</b>	<b>.0414768</b>	<b>-3.66</b>	<b>0.000</b>	<b>.7562619</b> <b>.9191056</b>
LE8_TOTALSCORE		<b>.9989964</b>	<b>.0003579</b>	<b>-2.80</b>	<b>0.005</b>	<b>.9982951</b> <b>.9996981</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50183.535**  
 Iteration 1: Log likelihood = **-50183.535**

Linear regression (Maximum Likelihood)	Number of obs =	<b>35,755</b>
	Wald chi2(7) =	<b>1117.33</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	<u>zentpd5</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>-.0064512</b>	<b>.0152035</b>	<b>-0.42</b>	<b>0.671</b>	<b>-.0362495</b> <b>.0233471</b>
AGE		<b>.0032249</b>	<b>.0009923</b>	<b>3.25</b>	<b>0.001</b>	<b>.0012799</b> <b>.0051698</b>
SEX		<b>.33117</b>	<b>.010528</b>	<b>31.46</b>	<b>0.000</b>	<b>.3105354</b> <b>.3518046</b>
NonWhite		<b>-.2011134</b>	<b>.0252096</b>	<b>-7.98</b>	<b>0.000</b>	<b>-.2505232</b> <b>-.1517035</b>
householdsize		<b>-.0057455</b>	<b>.004801</b>	<b>-1.20</b>	<b>0.231</b>	<b>-.0151552</b> <b>.0036643</b>
SES		<b>-.0292753</b>	<b>.0079055</b>	<b>-3.70</b>	<b>0.000</b>	<b>-.0447699</b> <b>-.0137808</b>
LE8_TOTALSCORE		<b>.0001138</b>	<b>.0000561</b>	<b>2.03</b>	<b>0.043</b>	<b>3.84e-06</b> <b>.0002237</b>
_cons		<b>-.7371012</b>	<b>.071746</b>	<b>-10.27</b>	<b>0.000</b>	<b>-.8777208</b> <b>-.5964816</b>
<b>sigma2</b>						
_cons		<b>.9696703</b>	<b>.0072522</b>	<b>133.71</b>	<b>0.000</b>	<b>.9554562</b> <b>.9838844</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.197139</b>	.1593667	7.51	<b>0.000</b>	.8847859 1.509492
ereri_cde	<b>1.197354</b>	.1593988	7.51	<b>0.000</b>	.8849377 1.509769
ereri_intref	<b>-.0004661</b>	.0025864	-0.18	<b>0.857</b>	-.0055353 .0046031
ereri_intmed	<b>-.0000112</b>	.0008793	-0.01	<b>0.990</b>	-.0017345 .0017122
ereri_pie	<b>.0002626</b>	.0006671	0.39	<b>0.694</b>	-.0010449 .0015701

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zentpd6
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04648 2.218 -.07459 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8905.4114**

Iteration 1: Log likelihood = **-8821.3789**

Iteration 2: Log likelihood = **-8813.9409**

Iteration 3: Log likelihood = **-8813.922**

Iteration 4: Log likelihood = **-8813.922**

Refining estimates:

Iteration 0: Log likelihood = **-8813.922**

Cox regression with Breslow method for ties

No. of subjects = 35,755 Number of obs = 35,755

No. of failures = 953

Time at risk = 434,342.674

LR chi2(9) = 182.98

Log likelihood = **-8813.922** Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.207532	.1603254	10.90	0.000	1.91464 2.545229
zentpd6		1.024224	.0397825	0.62	0.538	.9491457 1.105241
_infectionburXzentpd6_000		.93498	.0656331	-0.96	0.338	.8147985 1.072888
AGE		1.037111	.01318	2.87	0.004	1.011598 1.063268
SEX		.7516273	.0493804	-4.35	0.000	.6608157 .8549187
NonWhite		1.113757	.1894967	0.63	0.527	.7979309 1.554588
householdsize		.9389413	.0396587	-1.49	0.136	.8643421 1.019979
SES		.8337458	.0415207	-3.65	0.000	.7562122 .9192288
LE8_TOTALSCORE		.9989907	.0003581	-2.82	0.005	.9982891 .9996928

-> Model for the mediator

Iteration 0: Log likelihood = -50583.12  
 Iteration 1: Log likelihood = -50583.12

Linear regression (Maximum Likelihood)  
 Number of obs = 35,755  
 Wald chi2(7) = 302.33  
 Log likelihood = -50583.12 Prob > chi2 = 0.0000

	zentpd6	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.0418495	.0153744	2.72	0.006	.0117163 .0719827
AGE		.0116933	.0010035	11.65	0.000	.0097265 .0136601
SEX		.0272166	.0106464	2.56	0.011	.0063501 .0480831
NonWhite		.1045654	.0254929	4.10	0.000	.0546003 .1545306
householdsize		.0020336	.0048549	0.42	0.675	-.0074819 .011549
SES		-.047887	.0079944	-5.99	0.000	-.0635557 -.0322183
LE8_TOTALSCORE		-.0003249	.0000567	-5.73	0.000	-.0004361 -.0002138
_cons		-.6014178	.0725523	-8.29	0.000	-.7436177 -.4592178
<b>sigma2</b>						
_cons		.9915877	.0074161	133.71	0.000	.9770523 1.006123

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.205819	.1601776	7.53	0.000	.8918771 1.519762
ereri_cde	1.207357	.1602655	7.53	0.000	.8932421 1.521471
ereri_intref	.002463	.006395	0.39	0.700	-.0100709 .014997
ereri_intmed	-.0050025	.0059643	-0.84	0.402	-.0166923 .0066874
ereri_pie	.0010022	.0016683	0.60	0.548	-.0022676 .004272

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zepcam  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.18 1.532 .0463 2.216 -.07433 500.6

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9063.9274  
 Iteration 1: Log likelihood = -8976.7156  
 Iteration 2: Log likelihood = -8968.6061  
 Iteration 3: Log likelihood = -8968.5843  
 Iteration 4: Log likelihood = -8968.5843  
 Refining estimates:  
 Iteration 0: Log likelihood = -8968.5843

Cox regression with Breslow method for ties

No. of subjects = 36,417	Number of obs = 36,417
No. of failures = 968	
Time at risk = 442,314.39	
	LR chi2(9) = 190.69
Log likelihood = -8968.5843	Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.240148	.1611802	11.21	0.000	1.945504 2.579416
zepcam	.9385541	.0365804	-1.63	0.104	.8695279 1.01306
_infectionburXzepcam_000	1.058661	.0762422	0.79	0.429	.9192962 1.219153
AGE	1.035833	.0130468	2.80	0.005	1.010575 1.061722
SEX	.7689903	.0509409	-3.97	0.000	.6753579 .8756039
NonWhite	1.109131	.1889449	0.61	0.543	.7942865 1.548775
householdsize	.9405309	.0392194	-1.47	0.141	.8667195 1.020628
SES	.8278991	.0408929	-3.82	0.000	.7515079 .9120556
LE8_TOTALSCORE	.9990734	.0003558	-2.60	0.009	.9983763 .9997709

-> Model for the mediator

Iteration 0: Log likelihood = -50885.555	Number of obs = 36,417
Iteration 1: Log likelihood = -50885.555	Wald chi2(7) = 1609.41
	Prob > chi2 = 0.0000
Log likelihood = -50885.555	

	zepcam	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>-.0112171</b>	<b>.0149681</b>	<b>-0.75</b>	<b>0.454</b>	<b>-.0405542</b>
AGE		<b>-.0031433</b>	<b>.0009765</b>	<b>-3.22</b>	<b>0.001</b>	<b>-.0050572</b>
SEX		<b>.37367</b>	<b>.0103682</b>	<b>36.04</b>	<b>0.000</b>	<b>.3533487</b>
NonWhite		<b>.1631782</b>	<b>.0248723</b>	<b>6.56</b>	<b>0.000</b>	<b>.1144294</b>
householdsize		<b>-.029193</b>	<b>.0047183</b>	<b>-6.19</b>	<b>0.000</b>	<b>-.0384407</b>
SES		<b>.0403098</b>	<b>.007781</b>	<b>5.18</b>	<b>0.000</b>	<b>.0250594</b>
LE8_TOTALSCORE		<b>.0004996</b>	<b>.0000553</b>	<b>9.04</b>	<b>0.000</b>	<b>.0003913</b>
_cons		<b>-.5715688</b>	<b>.0705566</b>	<b>-8.10</b>	<b>0.000</b>	<b>-.7098572</b>
<b>sigma2</b>						
_cons		<b>.9576503</b>	<b>.0070969</b>	<b>134.94</b>	<b>0.000</b>	<b>.9437406</b>
						<b>.97156</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.236242</b>	<b>.1605443</b>	<b>7.70</b>	<b>0.000</b>	<b>.9215811</b>
ereri_cde	<b>1.237885</b>	<b>.1607282</b>	<b>7.70</b>	<b>0.000</b>	<b>.9228634</b>
ereri_intref	<b>-.0018035</b>	<b>.0023903</b>	<b>-0.75</b>	<b>0.451</b>	<b>-.0064884</b>
ereri_intmed	<b>-.0005508</b>	<b>.0017516</b>	<b>-0.31</b>	<b>0.753</b>	<b>-.0039838</b>
ereri_pie	<b>.0007116</b>	<b>.0010458</b>	<b>0.68</b>	<b>0.496</b>	<b>-.0013381</b>

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zepha1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.532 .04628 2.216 -.07495 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9114.4129**  
 Iteration 1: Log likelihood = **-9025.1266**  
 Iteration 2: Log likelihood = **-9016.8439**  
 Iteration 3: Log likelihood = **-9016.8262**  
 Iteration 4: Log likelihood = **-9016.8262**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-9016.8262**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,536</b>	Number of obs =	<b>36,536</b>
No. of failures =	<b>973</b>		
Time at risk =	<b>443,779.95</b>	LR chi2(9) =	<b>195.17</b>
Log likelihood =	<b>-9016.8262</b>	Prob > chi2 =	<b>0.0000</b>

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.271138</b>	.1651566	<b>11.28</b>	<b>0.000</b>	<b>1.969447</b> <b>2.619043</b>
zepha1	<b>.9429079</b>	.0394408	<b>-1.41</b>	<b>0.160</b>	<b>.8686893</b> <b>1.023468</b>
_infectionburXzepha1_000	<b>.971908</b>	.0695887	<b>-0.40</b>	<b>0.691</b>	<b>.8446544</b> <b>1.118333</b>
AGE	<b>1.036871</b>	.0130497	<b>2.88</b>	<b>0.004</b>	<b>1.011606</b> <b>1.062766</b>
SEX	<b>.7298542</b>	.0498633	<b>-4.61</b>	<b>0.000</b>	<b>.6383846</b> <b>.8344299</b>
NonWhite	<b>1.076294</b>	.1834838	<b>0.43</b>	<b>0.666</b>	<b>.7705843</b> <b>1.503285</b>
householdszie	<b>.9372368</b>	.0393942	<b>-1.54</b>	<b>0.123</b>	<b>.8631205</b> <b>1.017718</b>
SES	<b>.8226217</b>	.0405313	<b>-3.96</b>	<b>0.000</b>	<b>.746897</b> <b>.9060237</b>
LE8_TOTALSCORE	<b>.9989106</b>	.0003605	<b>-3.02</b>	<b>0.003</b>	<b>.9982044</b> <b>.9996174</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-48267.952**  
 Iteration 1: Log likelihood = **-48267.952**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,536</b>
	Wald chi2(7) =	<b>7894.87</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

<u>zepha1</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.1174091</b>	.0138422	<b>8.48</b>	<b>0.000</b>	<b>.0902788</b> <b>.1445394</b>
AGE	<b>.0194418</b>	.0009034	<b>21.52</b>	<b>0.000</b>	<b>.0176711</b> <b>.0212126</b>
SEX	<b>-.6409242</b>	.0095918	<b>-66.82</b>	<b>0.000</b>	<b>-.6597237</b> <b>-.6221246</b>
NonWhite	<b>-.2557583</b>	.0230101	<b>-11.12</b>	<b>0.000</b>	<b>-.3008572</b> <b>-.2106594</b>
householdszie	<b>.0148967</b>	.004366	<b>3.41</b>	<b>0.001</b>	<b>.0063396</b> <b>.0234539</b>
SES	<b>-.0772376</b>	.0072013	<b>-10.73</b>	<b>0.000</b>	<b>-.0913518</b> <b>-.0631234</b>
LE8_TOTALSCORE	<b>-.0019709</b>	.0000511	<b>-38.57</b>	<b>0.000</b>	<b>-.0020711</b> <b>-.0018708</b>
_cons	<b>.754598</b>	.0652527	<b>11.56</b>	<b>0.000</b>	<b>.626705</b> <b>.8824909</b>
<b>sigma2</b>					
_cons	<b>.8222886</b>	.0060839	<b>135.16</b>	<b>0.000</b>	<b>.8103645</b> <b>.8342128</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.25288</b>	.1637163	7.65	<b>0.000</b>	.9320025 1.573758
ereri_cde	<b>1.268116</b>	.1650237	7.68	<b>0.000</b>	.9446751 1.591556
ereri_intref	<b>.0079702</b>	.0125185	0.64	0.524	-.0165656 .032506
ereri_intmed	<b>-.0163269</b>	.0171637	-0.95	0.341	-.0499671 .0173132
ereri_pie	<b>-.0068783</b>	.0049438	-1.39	0.164	-.016568 .0028114

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zepha10
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04688 2.215 -.07424 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -8819.5642

Iteration 1: Log likelihood = -8737.1268

Iteration 2: Log likelihood = -8725.6519

Iteration 3: Log likelihood = -8725.3201

Iteration 4: Log likelihood = -8725.3182

Iteration 5: Log likelihood = -8725.3182

Refining estimates:

Iteration 0: Log likelihood = -8725.3182

Cox regression with Breslow method for ties

No. of subjects = 35,601 Number of obs = 35,601

No. of failures = 943

Time at risk = 432,443.367

LR chi2(9) = 188.49

Log likelihood = -8725.3182 Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.203773	.161044	10.81	0.000	1.909695 2.543136
zepha10		.9498878	.039111	-1.25	0.212	.8762432 1.029722
_infectionburXzepha10_000		1.148267	.0762513	2.08	0.037	1.008134 1.307878
AGE		1.037581	.0132158	2.90	0.004	1.011999 1.063809
SEX		.7485488	.0494287	-4.39	0.000	.6576776 .8519757
NonWhite		1.091816	.1881508	0.51	0.610	.778867 1.530508
householdsize		.9320082	.0401575	-1.63	0.102	.8565327 1.014134
SES		.8162933	.0407585	-4.07	0.000	.7401926 .9002181
LE8_TOTALSCORE		.9991915	.0003608	-2.24	0.025	.9984846 .9998988

-> Model for the mediator

Iteration 0: Log likelihood = -50506.617  
 Iteration 1: Log likelihood = -50506.617

Linear regression (Maximum Likelihood) Number of obs = 35,601  
 Wald chi2(7) = 17.03  
 Log likelihood = -50506.617 Prob > chi2 = 0.0172

	zepha10	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.026341	.015462	1.70	0.088	-.003964 .056646
AGE		-.000288	.0010123	-0.28	0.776	-.0022722 .0016961
SEX		.0326678	.0107115	3.05	0.002	.0116736 .0536619
NonWhite		-.0248101	.0255587	-0.97	0.332	-.0749041 .025284
householdsize		-.0040649	.0050816	-0.80	0.424	-.0140246 .0058948
SES		-.0072021	.0080466	-0.90	0.371	-.0229733 .008569
LE8_TOTALSCORE		-.0000509	.0000571	-0.89	0.373	-.0001628 .000061
_cons		-.001226	.0733923	-0.02	0.987	-.1450723 .1426202
<b>sigma2</b>						
_cons		.9994938	.0074914	133.42	0.000	.9848109 1.014177

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.213114	.1611256	7.53	0.000	.8973135 1.528914
ereri_cde	1.201957	.1607513	7.48	0.000	.8868907 1.517024
ereri_intref	.0060995	.0099052	0.62	0.538	-.0133143 .0255134
ereri_intmed	.0064101	.0049647	1.29	0.197	-.0033207 .0161408
ereri_pie	-.0013533	.0013429	-1.01	0.314	-.0039853 .0012787

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zepha2  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.18 1.532 .04698 2.215 -.07593 500.8

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -8717.6416  
 Iteration 1: Log likelihood = -8624.1113  
 Iteration 2: Log likelihood = -8610.2923  
 Iteration 3: Log likelihood = -8609.9675  
 Iteration 4: Log likelihood = -8609.9669  
 Refining estimates:  
 Iteration 0: Log likelihood = -8609.9669

Cox regression with Breslow method for ties

No. of subjects =	35,121	Number of obs =	35,121
No. of failures =	935		
Time at risk =	426,652.262	LR chi2(9) =	215.35
Log likelihood =	-8609.9669	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.293009	.1803412	10.55	0.000	1.965442 2.67517
zepha2	1.202375	.0461236	4.80	0.000	1.115289 1.29626
_infectionburXzepha2_000	.9072162	.0568861	-1.55	0.120	.8023005 1.025852
AGE	1.0254	.013211	1.95	0.052	.9998305 1.051622
SEX	.755009	.0500477	-4.24	0.000	.6630221 .859758
NonWhite	1.053637	.1841846	0.30	0.765	.7479867 1.484186
householdsize	.9434503	.0398099	-1.38	0.168	.8685638 1.024794
SES	.8283951	.0416294	-3.75	0.000	.7506924 .9141407
LE8_TOTALSCORE	.9992092	.000362	-2.18	0.029	.9985 .9999188

-> Model for the mediator

Iteration 0: Log likelihood = -48297.887  
 Iteration 1: Log likelihood = -48297.887

Linear regression (Maximum Likelihood)

Number of obs =	35,121
Wald chi2(7) =	3210.69
Prob > chi2 =	0.0000

Log likelihood = -48297.887

	zepha2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.2696143	.0149254	18.06	0.000	.2403611 .2988675
AGE		.0380896	.0009728	39.15	0.000	.0361829 .0399962
SEX		-.0190764	.0103273	-1.85	0.065	-.0393175 .0011647
NonWhite		-.066987	.0246162	-2.72	0.007	-.1152339 -.0187402
householdsize		-.0048117	.0047439	-1.01	0.310	-.0141096 .0044861
SES		-.1368005	.0077428	-17.67	0.000	-.151976 -.1216249
LE8_TOTALSCORE		-.0007236	.000055	-13.16	0.000	-.0008314 -.0006159
_cons		-1.93443	.0703644	-27.49	0.000	-2.072342 -1.796518
<b>sigma2</b>						
_cons		.9162132	.006914	132.52	0.000	.902662 .9297643

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.327598	.172325	7.70	0.000	.9898471 1.665349
ereri_cde	1.281833	.1778274	7.21	0.000	.9332976 1.630368
ereri_intref	-.0081504	.0068839	-1.18	0.236	-.0216426 .0053419
ereri_intmed	.0029705	.0320433	0.09	0.926	-.0598332 .0657742
ereri_pie	.0509447	.0112473	4.53	0.000	.0289005 .072989

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zephb4
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04648 2.216 -.0752 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9225.1762**  
 Iteration 1: Log likelihood = **-9139.2538**  
 Iteration 2: Log likelihood = **-9126.5962**  
 Iteration 3: Log likelihood = **-9126.3969**  
 Iteration 4: Log likelihood = **-9126.3968**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-9126.3968**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,896</b>	Number of obs =	<b>36,896</b>
No. of failures =	<b>984</b>		
Time at risk =	<b>448,211.761</b>	LR chi2(9) =	<b>197.56</b>
Log likelihood =	<b>-9126.3968</b>	Prob > chi2 =	<b>0.0000</b>

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.205497</b>	.1627367	<b>10.72</b>	<b>0.000</b>	<b>1.90853</b> <b>2.548672</b>
zephb4	<b>1.061737</b>	.0404816	<b>1.57</b>	<b>0.116</b>	<b>.9852867</b> <b>1.144119</b>
_infectionburXzephb4_000	<b>1.013093</b>	.0639968	<b>0.21</b>	<b>0.837</b>	<b>.8951154</b> <b>1.14662</b>
AGE	<b>1.032785</b>	.012953	<b>2.57</b>	<b>0.010</b>	<b>1.007707</b> <b>1.058487</b>
SEX	<b>.7663854</b>	.0499162	<b>-4.09</b>	<b>0.000</b>	<b>.6745385</b> <b>.8707384</b>
NonWhite	<b>1.084609</b>	.1845255	<b>0.48</b>	<b>0.633</b>	<b>.7770656</b> <b>1.513872</b>
householdszie	<b>.9395213</b>	.0390711	<b>-1.50</b>	<b>0.134</b>	<b>.8659811</b> <b>1.019307</b>
SES	<b>.8281092</b>	.040645	<b>-3.84</b>	<b>0.000</b>	<b>.7521582</b> <b>.9117295</b>
LE8_TOTALSCORE	<b>.9991027</b>	.0003521	<b>-2.55</b>	<b>0.011</b>	<b>.9984127</b> <b>.9997931</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-51381.962**  
 Iteration 1: Log likelihood = **-51381.962**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,896</b>
	Wald chi2(7) =	<b>1993.37</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

zephb4	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.2039785</b>	.0147936	<b>13.79</b>	<b>0.000</b>	<b>.1749835</b> <b>.2329734</b>
AGE	<b>.020348</b>	.0009658	<b>21.07</b>	<b>0.000</b>	<b>.018455</b> <b>.0222409</b>
SEX	<b>-.2313064</b>	.0102513	<b>-22.56</b>	<b>0.000</b>	<b>-.2513987</b> <b>-.2112142</b>
NonWhite	<b>-.2908805</b>	.0245487	<b>-11.85</b>	<b>0.000</b>	<b>-.3389952</b> <b>-.2427659</b>
householdszie	<b>-.0045835</b>	.0046738	<b>-0.98</b>	<b>0.327</b>	<b>-.0137439</b> <b>.0045769</b>
SES	<b>-.1089908</b>	.0076932	<b>-14.17</b>	<b>0.000</b>	<b>-.1240691</b> <b>-.0939125</b>
LE8_TOTALSCORE	<b>-.0004156</b>	.0000546	<b>-7.61</b>	<b>0.000</b>	<b>-.0005227</b> <b>-.0003086</b>
_cons	<b>-.6753495</b>	.0698258	<b>-9.67</b>	<b>0.000</b>	<b>-.8122056</b> <b>-.5384935</b>
<b>sigma2</b>					
_cons	<b>.9487168</b>	.0069849	<b>135.82</b>	<b>0.000</b>	<b>.9350266</b> <b>.962407</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.239553</b>	.1602961	7.73	<b>0.000</b>	.9253787 1.553728
ereri_cde	<b>1.205492</b>	.1626245	7.41	<b>0.000</b>	.8867544 1.524231
ereri_intref	<b>.0009987</b>	.0047106	0.21	0.832	-.0082339 .0102313
ereri_intmed	<b>.0207676</b>	.0240298	0.86	0.387	-.0263299 .0678651
ereri_pie	<b>.0122946</b>	.0079238	1.55	0.121	-.0032358 .0278249

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zphbb6
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.17 1.531 .04636 2.216 -.07448 500.7

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -8964.5425

Iteration 1: Log likelihood = -8872.9606

Iteration 2: Log likelihood = -8865.301

Iteration 3: Log likelihood = -8865.2833

Iteration 4: Log likelihood = -8865.2833

Refining estimates:

Iteration 0: Log likelihood = -8865.2833

Cox regression with Breslow method for ties

No. of subjects = 36,107

Number of obs = 36,107

No. of failures = 958

Time at risk = 438,744.714

LR chi2(9) = 198.52

Log likelihood = -8865.2833

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.220623	.1622654	10.92	0.000	1.924313 2.562559
zephb6	1.087211	.0417705	2.18	0.030	1.008349 1.172241
_infectionburXzephb6_000	.9326636	.0610903	-1.06	0.287	.820296 1.060424
AGE	1.0367	.013142	2.84	0.004	1.011259 1.062781
SEX	.7265965	.0478766	-4.85	0.000	.6385668 .8267616
NonWhite	1.03037	.179938	0.17	0.864	.7317187 1.450916
householdsize	.9444395	.0393233	-1.37	0.170	.8704282 1.024744
SES	.8132256	.0403251	-4.17	0.000	.7379091 .8962295
LE8_TOTALSCORE	.9990443	.0003571	-2.67	0.007	.9983446 .9997445

-> Model for the mediator

Iteration 0: Log likelihood = -50704.576  
 Iteration 1: Log likelihood = -50704.576

Linear regression (Maximum Likelihood) Number of obs = 36,107  
 Wald chi2(7) = 1072.70  
 Log likelihood = -50704.576 Prob > chi2 = 0.0000

	zephb6	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.1391472	.0151428	9.19	0.000	.1094678 .1688265
AGE		.0149453	.0009911	15.08	0.000	.0130028 .0168878
SEX		.2473878	.0104849	23.59	0.000	.2268377 .2679378
NonWhite		-.2024411	.0251528	-8.05	0.000	-.2517396 -.1531426
householdsize		.0106404	.0049717	2.14	0.032	.0008959 .0203848
SES		-.0536333	.0078832	-6.80	0.000	-.069084 -.0381825
LE8_TOTALSCORE		-.0003317	.0000558	-5.94	0.000	-.0004411 -.0002223
_cons		-1.149599	.0718301	-16.00	0.000	-1.290383 -1.008814
<b>sigma2</b>						
_cons		.9711213	.0072276	134.36	0.000	.9569555 .9852871

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.220579	.1604	7.61	0.000	.9062005 1.534957
ereri_cde	1.218452	.161796	7.53	0.000	.9013377 1.535566
ereri_intref	-.0021656	.0024953	-0.87	0.385	-.0070564 .0027251
ereri_intmed	-.0074105	.0172946	-0.43	0.668	-.0413074 .0264864
ereri_pie	.0117029	.0055582	2.11	0.035	.000809 .0225968

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zephx2  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.18 1.531 .04648 2.218 -.07459 500.6

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -8905.4114  
 Iteration 1: Log likelihood = -8821.5019  
 Iteration 2: Log likelihood = -8813.904  
 Iteration 3: Log likelihood = -8813.8805  
 Iteration 4: Log likelihood = -8813.8805  
 Refining estimates:  
 Iteration 0: Log likelihood = -8813.8805

Cox regression with Breslow method for ties

No. of subjects =	35,755	Number of obs =	35,755
No. of failures =	953		
Time at risk =	434,342.674	LR chi2(9) =	183.06
Log likelihood =	-8813.8805	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.198606	.1595517	10.86	0.000	1.907112 2.534654
zephx2	.9679727	.0385906	-0.82	0.414	.8952161 1.046642
_infectionburXzephx2_000	1.06728	.074075	0.94	0.348	.9315373 1.222802
AGE	1.03715	.0131777	2.87	0.004	1.011641 1.063302
SEX	.7513321	.0493676	-4.35	0.000	.6605447 .8545976
NonWhite	1.1167	.1899908	0.65	0.516	.8000487 1.558678
householdsize	.9379253	.0396733	-1.52	0.130	.863303 1.018998
SES	.8343917	.0415142	-3.64	0.000	.7568666 .9198575
LE8_TOTALSCORE	.998988	.0003582	-2.82	0.005	.9982861 .9996904

-> Model for the mediator

Iteration 0: Log likelihood = -50672.672  
 Iteration 1: Log likelihood = -50672.672

Linear regression (Maximum Likelihood)  
 Number of obs = 35,755  
 Wald chi2(7) = 122.16  
 Log likelihood = -50672.672 Prob > chi2 = 0.0000

zephx2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	.0046304	.0154129	0.30	0.764	-.0255784 .0348392
AGE	-.0042313	.001006	-4.21	0.000	-.006203 -.0022595
SEX	-.0496793	.0106731	-4.65	0.000	-.0705981 -.0287605
NonWhite	-.0196753	.0255568	-0.77	0.441	-.0697658 .0304151
householdsize	-.0087376	.0048671	-1.80	0.073	-.0182769 .0008018
SES	.014736	.0080144	1.84	0.066	-.000972 .030444
LE8_TOTALSCORE	-.0004996	.0000569	-8.79	0.000	-.000611 -.0003881
_cons	.6014884	.0727343	8.27	0.000	.4589318 .7440449
<b>sigma2</b>					
_cons	.9965672	.0074534	133.71	0.000	.9819589 1.011176

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.198846	.1594956	7.52	0.000	.8862407 1.511452
ereri_cde	1.197948	.1594331	7.51	0.000	.8854653 1.510431
ereri_intref	.0005664	.0042293	0.13	0.893	-.0077227 .0088556
ereri_intmed	.0004822	.0017164	0.28	0.779	-.0028818 .0038463
ereri_pie	-.0001507	.0005345	-0.28	0.778	-.0011984 .0008969

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zepo
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04646 2.216 -.07503 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9036.4379**  
 Iteration 1: Log likelihood = **-8952.4319**  
 Iteration 2: Log likelihood = **-8938.2076**  
 Iteration 3: Log likelihood = **-8937.8283**  
 Iteration 4: Log likelihood = **-8937.8272**  
 Iteration 5: Log likelihood = **-8937.8272**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8937.8272**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,352</b>	Number of obs =	<b>36,352</b>
No. of failures =	<b>965</b>		
Time at risk =	<b>441,650.762</b>	LR chi2(9) =	<b>197.22</b>
Log likelihood =	<b>-8937.8272</b>	Prob > chi2 =	<b>0.0000</b>

	<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.223287</b>	.1617503	<b>10.98</b>	<b>0.000</b>	<b>1.927828</b> <b>2.564029</b>
zepo		<b>1.047384</b>	.0399393	<b>1.21</b>	<b>0.225</b>	<b>.9719576</b> <b>1.128663</b>
_infectionburXzepo_000		<b>1.044721</b>	.0672077	<b>0.68</b>	<b>0.496</b>	<b>.9209625</b> <b>1.18511</b>
AGE		<b>1.031925</b>	.0130106	<b>2.49</b>	<b>0.013</b>	<b>1.006737</b> <b>1.057743</b>
SEX		<b>.7584751</b>	.0494706	<b>-4.24</b>	<b>0.000</b>	<b>.6674561</b> <b>.861906</b>
NonWhite		<b>1.034597</b>	.1787045	<b>0.20</b>	<b>0.844</b>	<b>.7374698</b> <b>1.451436</b>
householdszie		<b>.9342129</b>	.0397	<b>-1.60</b>	<b>0.109</b>	<b>.8595547</b> <b>1.015356</b>
SES		<b>.8239929</b>	.0407724	<b>-3.91</b>	<b>0.000</b>	<b>.7478332</b> <b>.9079088</b>
LE8_TOTALSCORE		<b>.9990559</b>	.0003553	<b>-2.66</b>	<b>0.008</b>	<b>.9983597</b> <b>.9997526</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-51286.136**  
 Iteration 1: Log likelihood = **-51286.136**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,352</b>
	Wald chi2(7) =	<b>594.04</b>
Log likelihood =	<b>-51286.136</b>	Prob > chi2 = <b>0.0000</b>

	<u>zepo</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.1592536</b>	.0151953	<b>10.48</b>	<b>0.000</b>	<b>.1294713</b> <b>.1890358</b>
AGE		<b>.0038063</b>	.0009919	<b>3.84</b>	<b>0.000</b>	<b>.0018622</b> <b>.0057504</b>
SEX		<b>.0644855</b>	.010517	<b>6.13</b>	<b>0.000</b>	<b>.0438725</b> <b>.0850985</b>
NonWhite		<b>.2843603</b>	.0252023	<b>11.28</b>	<b>0.000</b>	<b>.2349646</b> <b>.3337559</b>
householdszie		<b>.0007929</b>	.0048676	<b>0.16</b>	<b>0.871</b>	<b>-.0087474</b> <b>.0103332</b>
SES		<b>-.0787274</b>	.0078883	<b>-9.98</b>	<b>0.000</b>	<b>-.0941882</b> <b>-.0632666</b>
LE8_TOTALSCORE		<b>-.0004483</b>	.000056	<b>-8.01</b>	<b>0.000</b>	<b>-.0005581</b> <b>-.0003386</b>
_cons		<b>-.1463309</b>	.071756	<b>-2.04</b>	<b>0.041</b>	<b>-.28697</b> <b>-.0056918</b>
<b>sigma2</b>						
_cons		<b>.9838945</b>	.0072979	<b>134.82</b>	<b>0.000</b>	<b>.9695908</b> <b>.9981981</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.259843</b>	.1619234	7.78	<b>0.000</b>	.9424793 1.577208
ereri_cde	<b>1.223248</b>	.1617169	7.56	<b>0.000</b>	.9062884 1.540207
ereri_intref	<b>.0044207</b>	.0077576	0.57	0.569	-.0107839 .0196254
ereri_intmed	<b>.024775</b>	.019658	1.26	0.208	-.013754 .0633041
ereri_pie	<b>.0073999</b>	.0061586	1.20	0.230	-.0046707 .0194705

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zeps812
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04664 2.217 -.07498 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9189.5758

Iteration 1: Log likelihood = -9097.2731

Iteration 2: Log likelihood = -9088.648

Iteration 3: Log likelihood = -9088.6281

Iteration 4: Log likelihood = -9088.6281

Refining estimates:

Iteration 0: Log likelihood = -9088.6281

Cox regression with Breslow method for ties

No. of subjects = 36,666

Number of obs = 36,666

No. of failures = 981

Time at risk = 445,383.849

LR chi2(9) = 201.90

Log likelihood = -9088.6281

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.260774	.1616898	11.41	0.000	1.965077 2.600967
zeps812		.8956618	.036369	-2.71	0.007	.8271426 .9698569
_infectionburXzeps812_000		1.070721	.0755562	0.97	0.333	.9324179 1.229538
AGE		1.035045	.0129819	2.75	0.006	1.009911 1.060804
SEX		.7565206	.048947	-4.31	0.000	.6664199 .8588031
NonWhite		1.071465	.1821923	0.41	0.685	.7677846 1.49526
householdsize		.9331019	.0392535	-1.65	0.100	.8592528 1.013298
SES		.8215778	.0402874	-4.01	0.000	.7462917 .9044588
LE8_TOTALSCORE		.9989757	.0003572	-2.87	0.004	.9982758 .9996761

-> Model for the mediator

Iteration 0: Log likelihood = **-51192.702**  
 Iteration 1: Log likelihood = **-51192.702**

Linear regression (Maximum Likelihood) Number of obs = 36,666  
 Wald chi2(7) = 1705.68  
 Log likelihood = **-51192.702** Prob > chi2 = 0.0000

	zeps812	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.1116336	.0149167	7.48	0.000	.0823973 .1408698
AGE		.0157903	.0009725	16.24	0.000	.0138843 .0176964
SEX		-.0467921	.0103194	-4.53	0.000	-.0670178 -.0265664
NonWhite		-.0465316	.0246798	-1.89	0.059	-.0949032 .00184
householdsize		-.0172498	.0046969	-3.67	0.000	-.0264555 -.0080441
SES		-.0301569	.0077392	-3.90	0.000	-.0453254 -.0149883
LE8_TOTALSCORE		-.0017259	.000055	-31.40	0.000	-.0018337 -.0016182
_cons		.0079144	.0703246	0.11	0.910	-.1299194 .1457481
<b>sigma2</b>						
_cons		.9555224	.0070571	135.40	0.000	.9416908 .969354

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.236727	.1597267	7.74	0.000	.9236682 1.549785
ereri_cde	1.251347	.1605453	7.79	0.000	.9366841 1.56601
ereri_intref	-.0041436	.0087172	-0.48	0.635	-.0212289 .0129418
ereri_intmed	.0017491	.0152856	0.11	0.909	-.0282101 .0317083
ereri_pie	-.0122258	.0047628	-2.57	0.010	-.0215608 -.0028909

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```

Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zerbb2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

Model for the outcome (yreg): cox
Model for the mediator (mreg): linear

Referent exposure level (a0):          0
Actual exposure level (a1):           1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c):    60.19 1.531 .04641 2.217 -.0748 500.6

```

-> Model for the outcome

```

Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid

Iteration 0: Log likelihood = -9132.2436
Iteration 1: Log likelihood = -9034.5053
Iteration 2: Log likelihood = -9019.6081
Iteration 3: Log likelihood = -9018.4873
Iteration 4: Log likelihood = -9018.455
Iteration 5: Log likelihood = -9018.4549
Refining estimates:
Iteration 0: Log likelihood = -9018.4549

```

Cox regression with Breslow method for ties

No. of subjects =	36,540	Number of obs =	36,540
No. of failures =	975		
Time at risk =	443,893.259	LR chi2(9) =	227.58
Log likelihood =	-9018.4549	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.246396	.1617505	11.24	0.000	1.950725 2.586882
zerbb2	.809908	.0331736	-5.15	0.000	.7474302 .8776083
_infectionburXzerbb2_000	1.032128	.0690644	0.47	0.637	.9052646 1.176769
AGE	1.03184	.0129541	2.50	0.013	1.00676 1.057544
SEX	.7342413	.0479326	-4.73	0.000	.6460571 .8344624
NonWhite	1.081107	.186238	0.45	0.651	.7713213 1.515311
householdszie	.9300578	.0393467	-1.71	0.087	.8560503 1.010463
SES	.819787	.0403713	-4.04	0.000	.7443595 .9028578
LE8_TOTALSCORE	.9985606	.0003621	-3.97	0.000	.9978512 .9992705

-> Model for the mediator

Iteration 0: Log likelihood =	-49795.615	Number of obs =	36,540
Iteration 1: Log likelihood =	-49795.615	Wald chi2(7) =	4343.12
Log likelihood =	-49795.615	Prob > chi2 =	0.0000

	zerbb2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		-.014775	.0144451	-1.02	0.306	-.0430868 .0135368
AGE		-.0024154	.000942	-2.56	0.010	-.0042617 -.0005691
SEX		-.3271276	.0099981	-32.72	0.000	-.3467236 -.3075316
NonWhite		.0895041	.0239624	3.74	0.000	.0425387 .1364695
householdsize		-.0152643	.0045525	-3.35	0.001	-.0241871 -.0063415
SES		-.0135114	.0075052	-1.80	0.072	-.0282213 .0011985
LE8_TOTALSCORE		-.0027932	.0000532	-52.47	0.000	-.0028975 -.0026889
_cons		2.075402	.0681184	30.47	0.000	1.941892 2.208911
<b>sigma2</b>						
_cons		.8937429	.0066122	135.17	0.000	.8807833 .9067025

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.240117	.1599636	7.75	0.000	.9265941 1.55364
ereri_cde	1.22241	.1582699	7.72	0.000	.9122066 1.532613
ereri_intref	.0117834	.0202407	0.58	0.560	-.0278877 .0514544
ereri_intmed	.0028037	.0033517	0.84	0.403	-.0037655 .009373
ereri_pie	.0031199	.0031148	1.00	0.317	-.0029849 .0092247

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zerbb3
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

```
Model for the outcome (yreg): cox
Model for the mediator (mreg): linear
```

```
Referent exposure level (a0): 0
Actual exposure level (a1): 1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c): 60.19 1.532 .04632 2.216 -.07507 500.4
```

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9030.8062**  
 Iteration 1: Log likelihood = **-8932.9979**  
 Iteration 2: Log likelihood = **-8918.3042**  
 Iteration 3: Log likelihood = **-8918.0798**  
 Iteration 4: Log likelihood = **-8918.0797**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8918.0797**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,314</b>	Number of obs =	<b>36,314</b>
No. of failures =	<b>965</b>		
Time at risk =	<b>441,120.509</b>	LR chi2(9) =	<b>225.45</b>
Log likelihood =	<b>-8918.0797</b>	Prob > chi2 =	<b>0.0000</b>

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.259785</b>	.1693683	<b>10.88</b>	<b>0.000</b>	<b>1.95106</b> <b>2.617361</b>
zerbb3	<b>.7989498</b>	.0331353	<b>-5.41</b>	<b>0.000</b>	<b>.7365753</b> <b>.8666063</b>
_infectionburXzerbb3_000	<b>1.070126</b>	.0727191	<b>1.00</b>	<b>0.319</b>	<b>.9366826</b> <b>1.22258</b>
AGE	<b>1.030401</b>	.0130605	<b>2.36</b>	<b>0.018</b>	<b>1.005118</b> <b>1.056319</b>
SEX	<b>.895843</b>	.0646728	<b>-1.52</b>	<b>0.128</b>	<b>.7776458</b> <b>1.032005</b>
NonWhite	<b>1.085954</b>	.187258	<b>0.48</b>	<b>0.633</b>	<b>.7745213</b> <b>1.522613</b>
householdsize	<b>.9352615</b>	.0395014	<b>-1.58</b>	<b>0.113</b>	<b>.8609579</b> <b>1.015978</b>
SES	<b>.8269458</b>	.0408642	<b>-3.85</b>	<b>0.000</b>	<b>.7506099</b> <b>.911045</b>
LE8_TOTALSCORE	<b>.9986943</b>	.0003581	<b>-3.64</b>	<b>0.000</b>	<b>.9979927</b> <b>.9993963</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-48358.728**  
 Iteration 1: Log likelihood = **-48358.728**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,314</b>
	Wald chi2(7) =	<b>6922.60</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>-.04542</b>	.0140269	<b>-3.24</b>	<b>0.001</b>	<b>-.0729123</b> <b>-.0179277</b>
AGE	<b>-.0203046</b>	.0009157	<b>-22.17</b>	<b>0.000</b>	<b>-.0220995</b> <b>-.0185098</b>
SEX	<b>.7228727</b>	.0097231	<b>74.35</b>	<b>0.000</b>	<b>.7038157</b> <b>.7419297</b>
NonWhite	<b>.0274327</b>	.0233179	<b>1.18</b>	<b>0.239</b>	<b>-.0182695</b> <b>.0731349</b>
householdsize	<b>-.0208684</b>	.0044215	<b>-4.72</b>	<b>0.000</b>	<b>-.0295344</b> <b>-.0122024</b>
SES	<b>.02054</b>	.007299	<b>2.81</b>	<b>0.005</b>	<b>.0062342</b> <b>.0348458</b>
LE8_TOTALSCORE	<b>-.0015531</b>	.0000518	<b>-29.97</b>	<b>0.000</b>	<b>-.0016546</b> <b>-.0014515</b>
_cons	<b>.9448794</b>	.0661666	<b>14.28</b>	<b>0.000</b>	<b>.8151951</b> <b>1.074564</b>
<b>sigma2</b>					
_cons	<b>.8398672</b>	.0062329	<b>134.75</b>	<b>0.000</b>	<b>.827651</b> <b>.8520834</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.252333</b>	.1632047	7.67	<b>0.000</b>	.9324579 1.572208
ereri_cde	<b>1.235163</b>	.1649207	7.49	<b>0.000</b>	.911924 1.558401
ereri_intref	<b>.0011987</b>	.0169289	0.07	0.944	-.0319813 .0343787
ereri_intmed	<b>.0057247</b>	.006256	0.92	0.360	-.0065368 .0179863
ereri_pie	<b>.010247</b>	.0037065	2.76	<b>0.006</b>	.0029823 .0175117

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zerbb4
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04641 2.217 -.0748 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9132.2436

Iteration 1: Log likelihood = -9044.4965

Iteration 2: Log likelihood = -9035.696

Iteration 3: Log likelihood = -9035.6726

Iteration 4: Log likelihood = -9035.6726

Refining estimates:

Iteration 0: Log likelihood = -9035.6726

Cox regression with Breslow method for ties

No. of subjects = 36,540

Number of obs = 36,540

No. of failures = 975

Time at risk = 443,893.259

LR chi2(9) = 193.14

Log likelihood = -9035.6726

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.257337	.1610213	11.41	0.000	1.96281 2.59606
zerbb4	1.016498	.0400616	0.42	0.678	.9409351 1.09813
_infectionburXzerbb4_000	1.025385	.0740086	0.35	0.728	.890124 1.181201
AGE	1.033521	.0129949	2.62	0.009	1.008363 1.059307
SEX	.7625136	.0500045	-4.13	0.000	.6705437 .8670979
NonWhite	1.053718	.1819021	0.30	0.762	.7512467 1.477972
householdsize	.9320768	.0394966	-1.66	0.097	.8577924 1.012794
SES	.8220282	.0405088	-3.98	0.000	.7463461 .9053848
LE8_TOTALSCORE	.9990396	.0003545	-2.71	0.007	.9983451 .9997346

-> Model for the mediator

Iteration 0: Log likelihood = -51100.631  
 Iteration 1: Log likelihood = -51100.631

Linear regression (Maximum Likelihood) Number of obs = 36,540  
 Wald chi2(7) = 1524.72  
 Prob > chi2 = 0.0000

Log likelihood = -51100.631

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	-.0801221	.0149703	-5.35	0.000	-.1094633 -.0507809
AGE	.0146566	.0009763	15.01	0.000	.0127431 .0165701
SEX	.3046752	.0103617	29.40	0.000	.2843667 .3249837
NonWhite	.3217134	.0248337	12.95	0.000	.2730403 .3703864
householdsize	-.0155995	.0047181	-3.31	0.001	-.0248468 -.0063522
SES	.0136734	.0077781	1.76	0.079	-.0015714 .0289182
LE8_TOTALSCORE	.0007802	.0000552	14.14	0.000	.0006721 .0008884
_cons	-1.707514	.0705952	-24.19	0.000	-1.845878 -1.56915
<b>sigma2</b>					
_cons	.9599178	.0071017	135.17	0.000	.9459986 .9738369

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.252048	.1606514	7.79	0.000	.9371772 1.566919
ereri_cde	1.256947	.1609463	7.81	0.000	.9414979 1.572396
ereri_intref	.0025897	.0070879	0.37	0.715	-.0113023 .0164817
ereri_intmed	-.0061782	.0114943	-0.54	0.591	-.0287067 .0163503
ereri_pie	-.0013102	.0031631	-0.41	0.679	-.0075097 .0048892

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zerbin  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.18 1.531 .04658 2.216 -.07524 500.8

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9057.6167  
 Iteration 1: Log likelihood = -8966.9475  
 Iteration 2: Log likelihood = -8958.044  
 Iteration 3: Log likelihood = -8958.014  
 Iteration 4: Log likelihood = -8958.014  
 Refining estimates:  
 Iteration 0: Log likelihood = -8958.014

Cox regression with Breslow method for ties

No. of subjects =	36,264	Number of obs =	36,264
No. of failures =	968		
Time at risk =	440,524.906	LR chi2(9) =	199.21
Log likelihood =	-8958.014	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.256589	.1621653	11.33	0.000	1.96012 2.5979
zerbin	.9208828	.0353007	-2.15	0.032	.85423 .9927363
_infectionburXzerbin_000	1.014349	.0727702	0.20	0.843	.8812953 1.16749
AGE	1.031801	.0129838	2.49	0.013	1.006664 1.057565
SEX	.7529287	.0490459	-4.36	0.000	.6626839 .855463
NonWhite	1.091785	.1856951	0.52	0.606	.7822786 1.523747
householdsize	.9366468	.0393815	-1.56	0.120	.8625553 1.017103
SES	.8152067	.0402066	-4.14	0.000	.7400923 .8979447
LE8_TOTALSCORE	.9989959	.0003557	-2.82	0.005	.9982991 .9996933

-> Model for the mediator

Iteration 0: Log likelihood = -51298.565  
 Iteration 1: Log likelihood = -51298.565

Linear regression (Maximum Likelihood)

Number of obs =	36,264
Wald chi2(7) =	316.01
Prob > chi2 =	0.0000

Log likelihood = -51298.565

	zerbin	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		-.012886	.0152587	-0.84	0.398	-.0427925 .0170204
AGE		-.005404	.0009964	-5.42	0.000	-.0073568 -.0034512
SEX		.0125593	.0105695	1.19	0.235	-.0081565 .0332752
NonWhite		.0506602	.0252912	2.00	0.045	.0010904 .10023
householdsize		.0008609	.0048069	0.18	0.858	-.0085605 .0102822
SES		-.0260978	.007927	-3.29	0.001	-.0416345 -.0105612
LE8_TOTALSCORE		-.0008691	.0000563	-15.44	0.000	-.0009794 -.0007588
_cons		.7367453	.0720081	10.23	0.000	.5956119 .8778787
<b>sigma2</b>						
_cons		.9913337	.007362	134.66	0.000	.9769044 1.005763

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.256229	.1614807	7.78	0.000	.939733 1.572726
ereri_cde	1.25255	.1614908	7.76	0.000	.9360336 1.569066
ereri_intref	.0016984	.0094968	0.18	0.858	-.0169151 .0203118
ereri_intmed	.0009186	.0021341	0.43	0.667	-.0032641 .0051013
ereri_pie	.0010627	.0013526	0.79	0.432	-.0015884 .0037138

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zereg
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.17 1.531 .04636 2.216 -.07448 500.7

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8964.5425**  
 Iteration 1: Log likelihood = **-8872.4103**  
 Iteration 2: Log likelihood = **-8858.8328**  
 Iteration 3: Log likelihood = **-8858.7131**  
 Iteration 4: Log likelihood = **-8858.713**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8858.713**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,107</b>	Number of obs =	<b>36,107</b>
No. of failures =	<b>958</b>		
Time at risk =	<b>438,744.714</b>	LR chi2(9) =	<b>211.66</b>
Log likelihood =	<b>-8858.713</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.183346</b>	.1593062	<b>10.70</b>	<b>0.000</b>	<b>1.89241</b> 2.519009
zereg		<b>.9017698</b>	.0363929	<b>-2.56</b>	<b>0.010</b>	<b>.8331891</b> .9759954
_infectionburXzereg_000		<b>.8973587</b>	.0683578	<b>-1.42</b>	<b>0.155</b>	<b>.7729018</b> 1.041856
AGE		<b>1.03761</b>	.0131329	<b>2.92</b>	<b>0.004</b>	<b>1.012187</b> 1.063672
SEX		<b>.7410019</b>	.0485632	<b>-4.57</b>	<b>0.000</b>	<b>.6516793</b> .8425674
NonWhite		<b>1.039447</b>	.1815588	<b>0.22</b>	<b>0.825</b>	<b>.7381154</b> 1.463796
householdszie		<b>.9416343</b>	.0394456	<b>-1.44</b>	<b>0.151</b>	<b>.8674111</b> 1.022209
SES		<b>.8082093</b>	.0400347	<b>-4.30</b>	<b>0.000</b>	<b>.7334314</b> .8906113
LE8_TOTALSCORE		<b>.9988685</b>	.000358	<b>-3.16</b>	<b>0.002</b>	<b>.998167</b> .9995704

-> Model for the mediator

Iteration 0: Log likelihood = **-50996.489**  
 Iteration 1: Log likelihood = **-50996.489**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,107</b>	
	Wald chi2(7) =	<b>476.36</b>	
Log likelihood =	<b>-50996.489</b>	Prob > chi2 =	<b>0.0000</b>

	zereg	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.0030735</b>	.0152657	<b>0.20</b>	<b>0.840</b>	<b>-.0268468</b> .0329937
AGE		<b>-.0037802</b>	.0009991	<b>-3.78</b>	<b>0.000</b>	<b>-.0057385</b> -.0018219
SEX		<b>-.0065728</b>	.01057	<b>-0.62</b>	<b>0.534</b>	<b>-.0272897</b> .014144
NonWhite		<b>.0733404</b>	.0253569	<b>2.89</b>	<b>0.004</b>	<b>.0236417</b> .123039
householdszie		<b>-.0054759</b>	.0050121	<b>-1.09</b>	<b>0.275</b>	<b>-.0152994</b> .0043476
SES		<b>-.0250621</b>	.0079472	<b>-3.15</b>	<b>0.002</b>	<b>-.0406382</b> -.0094859
LE8_TOTALSCORE		<b>-.0011059</b>	.0000563	<b>-19.66</b>	<b>0.000</b>	<b>-.0012161</b> -.0009956
_cons		<b>.7976449</b>	.0724132	<b>11.02</b>	<b>0.000</b>	<b>.6557177</b> .9395722
<b>sigma2</b>						
_cons		<b>.9869513</b>	.0073454	<b>134.36</b>	<b>0.000</b>	<b>.9725546</b> 1.001348

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.219082</b>	.160121	7.61	<b>0.000</b>	.9052504 1.532913
ereri_cde	<b>1.177067</b>	.1583059	7.44	<b>0.000</b>	.8667934 1.487341
ereri_intref	<b>.0434587</b>	.0301597	1.44	<b>0.150</b>	-.0156532 .1025706
ereri_intmed	<b>-.0011266</b>	.0056139	-0.20	<b>0.841</b>	-.0121295 .0098764
ereri_pie	<b>-.0003177</b>	.0015828	-0.20	<b>0.841</b>	-.0034199 .0027845

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zerp44
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04663 2.217 -.07538 500.7

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9046.1942

Iteration 1: Log likelihood = -8953.7696

Iteration 2: Log likelihood = -8934.0066

Iteration 3: Log likelihood = -8933.6351

Iteration 4: Log likelihood = -8933.6349

Refining estimates:

Iteration 0: Log likelihood = -8933.6349

Cox regression with Breslow method for ties

No. of subjects = 36,203 Number of obs = 36,203

No. of failures = 967

Time at risk = 439,812.019

Log likelihood = -8933.6349

LR chi2(9) = 225.12

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.253353	.1627206	11.25	0.000	1.955967 2.595952
zerp44	.8549958	.0341622	-3.92	0.000	.7905939 .924644
_infectionburXzerp44_000	.9145757	.0668933	-1.22	0.222	.7924314 1.055547
AGE	1.03301	.0130047	2.58	0.010	1.007833 1.058816
SEX	.7550898	.0491947	-4.31	0.000	.6645722 .8579363
NonWhite	1.061048	.1805267	0.35	0.728	.7601712 1.481011
householdsize	.9370269	.0391355	-1.56	0.119	.8633783 1.016958
SES	.8148344	.0401027	-4.16	0.000	.7399064 .8973501
LE8_TOTALSCORE	.998777	.0003584	-3.41	0.001	.9980748 .9994797

-> Model for the mediator

Iteration 0: Log likelihood = -50796.125  
 Iteration 1: Log likelihood = -50796.125

Linear regression (Maximum Likelihood)  
 Number of obs = 36,203  
 Wald chi2(7) = 1164.76  
 Prob > chi2 = 0.0000  
 Log likelihood = -50796.125

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	.0271235	.0151007	1.80	0.072	-.0024733 .0567203
AGE	.0036913	.0009857	3.74	0.000	.0017593 .0056232
SEX	-.0414199	.0104574	-3.96	0.000	-.0619161 -.0209237
NonWhite	-.1186455	.0250098	-4.74	0.000	-.1676638 -.0696271
householdsize	.0011315	.0047537	0.24	0.812	-.0081855 .0104485
SES	-.0172833	.0078431	-2.20	0.028	-.0326555 -.0019111
LE8_TOTALSCORE	-.0017479	.0000557	-31.38	0.000	-.0018571 -.0016388
_cons	.7145016	.0712418	10.03	0.000	.5748702 .854133
<b>sigma2</b>					
_cons	.9688031	.0072008	134.54	0.000	.9546899 .9829163

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.278458	.163492	7.82	0.000	.9580199 1.598897
ereri_cde	1.23781	.1604575	7.71	0.000	.9233195 1.552301
ereri_intref	.0558985	.0345627	1.62	0.106	-.0118432 .1236403
ereri_intmed	-.0110106	.0074078	-1.49	0.137	-.0255296 .0035085
ereri_pie	-.0042401	.002591	-1.64	0.102	-.0093185 .0008382

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zesam  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.18 1.531 .04648 2.216 -.0752 500.5

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9225.1762  
 Iteration 1: Log likelihood = -9136.1545  
 Iteration 2: Log likelihood = -9127.6065  
 Iteration 3: Log likelihood = -9127.5827  
 Iteration 4: Log likelihood = -9127.5827  
 Refining estimates:  
 Iteration 0: Log likelihood = -9127.5827

Cox regression with Breslow method for ties

No. of subjects =	36,896	Number of obs =	36,896
No. of failures =	984		
Time at risk =	448,211.761	LR chi2(9) =	195.19
Log likelihood =	-9127.5827	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.26231	.1617233	11.42	0.000	1.966542 2.602562
zesam	.9800644	.0384773	-0.51	0.608	.9074787 1.058456
_infectionburXzesam_000	.9455362	.0656514	-0.81	0.420	.8252332 1.083377
AGE	1.035142	.0129675	2.76	0.006	1.010036 1.060872
SEX	.7478785	.0485913	-4.47	0.000	.6584558 .8494454
NonWhite	1.060508	.1806951	0.34	0.730	.7594189 1.48097
householdsize	.9360055	.0392219	-1.58	0.115	.8622041 1.016124
SES	.8218963	.0402799	-4.00	0.000	.7466223 .9047593
LE8_TOTALSCORE	.999027	.0003537	-2.75	0.006	.9983341 .9997205

-> Model for the mediator

Iteration 0: Log likelihood = -51525.948  
 Iteration 1: Log likelihood = -51525.948

Linear regression (Maximum Likelihood)  
 Number of obs = 36,896  
 Wald chi2(7) = 1691.02  
 Log likelihood = -51525.948 Prob > chi2 = 0.0000

	zesam	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.1249825	.0148515	8.42	0.000	.0958742 .1540909
AGE		.0150669	.0009696	15.54	0.000	.0131666 .0169672
SEX		-.2360645	.0102914	-22.94	0.000	-.2562353 -.2158936
NonWhite		-.3983523	.0246447	-16.16	0.000	-.4466551 -.3500495
householdsize		-.0115836	.004692	-2.47	0.014	-.0207798 -.0023874
SES		-.0595672	.0077232	-7.71	0.000	-.0747045 -.04443
LE8_TOTALSCORE		-.000741	.0000548	-13.52	0.000	-.0008484 -.0006336
_cons		-.1521932	.0700988	-2.17	0.030	-.2895843 -.014802
<b>sigma2</b>						
_cons		.9561505	.0070397	135.82	0.000	.942353 .9699479

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.248854	.1605489	7.78	0.000	.9341842 1.563524
ereri_cde	1.261624	.1617283	7.80	0.000	.9446421 1.578605
ereri_intref	.0087332	.0120127	0.73	0.467	-.0148112 .0322776
ereri_intmed	-.018989	.0173989	-1.09	0.275	-.0530902 .0151121
ereri_pie	-.0025136	.0049036	-0.51	0.608	-.0121244 .0070972

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zesm1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.532 .04636 2.216 -.0746 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9073.1164**  
 Iteration 1: Log likelihood = **-8978.5224**  
 Iteration 2: Log likelihood = **-8970.5751**  
 Iteration 3: Log likelihood = **-8970.5587**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8970.5587**

Cox regression with Breslow method for ties

No. of subjects = **36,432** Number of obs = **36,432**  
 No. of failures = **969**  
 Time at risk = **442,512.06**  
 Log likelihood = **-8970.5587** LR chi2(9) = **205.12**  
 Prob > chi2 = **0.0000**

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.268709</b>	.1641223	<b>11.32</b>	<b>0.000</b>	<b>1.968799</b> <b>2.614304</b>
zesm1		<b>1.165026</b>	.0455911	<b>3.90</b>	<b>0.000</b>	<b>1.07901</b> <b>1.257899</b>
_infectionburXzesm1_000		<b>.8863147</b>	.062149	<b>-1.72</b>	<b>0.085</b>	<b>.7725046</b> <b>1.016892</b>
AGE		<b>1.032318</b>	.0130293	<b>2.52</b>	<b>0.012</b>	<b>1.007095</b> <b>1.058173</b>
SEX		<b>.7397904</b>	.0483796	<b>-4.61</b>	<b>0.000</b>	<b>.6507935</b> <b>.8409577</b>
NonWhite		<b>1.140277</b>	.1943302	<b>0.77</b>	<b>0.441</b>	<b>.8164799</b> <b>1.592485</b>
householdszie		<b>.93828</b>	.0392739	<b>-1.52</b>	<b>0.128</b>	<b>.8643774</b> <b>1.018501</b>
SES		<b>.8262928</b>	.040869	<b>-3.86</b>	<b>0.000</b>	<b>.7499512</b> <b>.9104057</b>
LE8_TOTALSCORE		<b>.9988097</b>	.0003606	<b>-3.30</b>	<b>0.001</b>	<b>.9981032</b> <b>.9995167</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50355.955**  
 Iteration 1: Log likelihood = **-50355.955**  
  
 Linear regression (Maximum Likelihood) Number of obs = **36,432**  
 Log likelihood = **-50355.955** Wald chi2(7) = **2777.40**  
 Prob > chi2 = **0.0000**

	zesm1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.0638016</b>	.0147434	<b>4.33</b>	<b>0.000</b>	<b>.034905</b> <b>.0926981</b>
AGE		<b>.0232507</b>	.0009618	<b>24.17</b>	<b>0.000</b>	<b>.0213657</b> <b>.0251358</b>
SEX		<b>.1377723</b>	.0102103	<b>13.49</b>	<b>0.000</b>	<b>.1177605</b> <b>.157784</b>
NonWhite		<b>-.3496397</b>	.0244754	<b>-14.29</b>	<b>0.000</b>	<b>-.3976107</b> <b>-.3016688</b>
householdszie		<b>.0080767</b>	.0046454	<b>1.74</b>	<b>0.082</b>	<b>-.0010281</b> <b>.0171815</b>
SES		<b>.0035037</b>	.0076637	<b>0.46</b>	<b>0.648</b>	<b>-.0115169</b> <b>.0185244</b>
LE8_TOTALSCORE		<b>.0021526</b>	.0000544	<b>39.58</b>	<b>0.000</b>	<b>.002046</b> <b>.0022592</b>
_cons		<b>-2.698055</b>	.0694885	<b>-38.83</b>	<b>0.000</b>	<b>-2.83425</b> <b>-2.56186</b>
<b>sigma2</b>						
_cons		<b>.9291393</b>	.0068842	<b>134.97</b>	<b>0.000</b>	<b>.9156465</b> <b>.9426322</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.252328</b>	.1615408	7.75	<b>0.000</b>	.9357134 1.568942
ereri_cde	<b>1.256731</b>	.1620778	7.75	<b>0.000</b>	.9390643 1.574398
ereri_intref	<b>-.0090059</b>	.0058153	-1.55	<b>0.121</b>	-.0204036 .0023918
ereri_intmed	<b>-.0051905</b>	.0088673	-0.59	<b>0.558</b>	-.0225701 .0121891
ereri_pie	<b>.0097929</b>	.0033952	2.88	<b>0.004</b>	.0031384 .0164474

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zezr
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04637 2.216 -.07448 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9160.406

Iteration 1: Log likelihood = -9071.0025

Iteration 2: Log likelihood = -9062.4525

Iteration 3: Log likelihood = -9062.4261

Iteration 4: Log likelihood = -9062.4261

Refining estimates:

Iteration 0: Log likelihood = -9062.4261

Cox regression with Breslow method for ties

No. of subjects = 36,751 Number of obs = 36,751

No. of failures = 977

Time at risk = 446,451.479

LR chi2(9) = 195.96

Log likelihood = -9062.4261

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.233372	.159361	11.26	0.000	1.941887
zezr		.9543417	.0381259	-1.17	0.242	.8824669
_infectionburXzezr_000		.980909	.0699085	-0.27	0.787	.8530301
AGE		1.034317	.0129646	2.69	0.007	1.009216
SEX		.7608422	.0494832	-4.20	0.000	.6697838
NonWhite		1.095806	.1864262	0.54	0.591	.7850932
householdsize		.933562	.0393752	-1.63	0.103	.8594918
SES		.815191	.0400347	-4.16	0.000	.7403825
LE8_TOTALSCORE		.9989203	.0003606	-2.99	0.003	.9982138
						.9996272

-> Model for the mediator

Iteration 0: Log likelihood = -50883.965  
Iteration 1: Log likelihood = -50883.965

Linear regression (Maximum Likelihood) Number of obs = 36,751  
Log likelihood = -50883.965 Wald chi2(7) = 2614.72  
Prob > chi2 = 0.0000

	zezr	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.0382492	.0147112	2.60	0.009	.0094157 .0670827
AGE		.0066138	.0009627	6.87	0.000	.004727 .0085005
SEX		.110294	.0101906	10.82	0.000	.0903209 .1302672
NonWhite		.2374499	.0244473	9.71	0.000	.1895341 .2853657
householdsiz		-.0082708	.0048406	-1.71	0.088	-.0177582 .0012165
SES		-.0661031	.007653	-8.64	0.000	-.0811028 -.0511035
LE8_TOTALSCORE		-.0023756	.0000543	-43.77	0.000	-.0024819 -.0022692
_cons		.6193605	.0698007	8.87	0.000	.4825535 .7561674
<b>sigma2</b>						
	_cons	.9335535	.0068868	135.56	0.000	.9200555 .9470514

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.23023</b>	.159378	<b>7.72</b>	<b>0.000</b>	.9178545    1.542605
ereri_cde	<b>1.23181</b>	.1591981	<b>7.74</b>	<b>0.000</b>	.919787    1.543832
ereri_intref	<b>.0040579</b>	.0091747	<b>0.44</b>	<b>0.658</b>	-.0139242    .02204
ereri_intmed	<b>-.0038521</b>	.0055538	<b>-0.69</b>	<b>0.488</b>	-.0147373    .0070332
ereri_pie	<b>-.0017859</b>	.0016726	<b>-1.07</b>	<b>0.286</b>	-.0050642    .0014923

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intre to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
Warning: this analysis assumes a rare outcome.  
Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zf11r  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.19 1.531 .04638 2.215 -.07464 500.5

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9121.8147  
 Iteration 1: Log likelihood = -9031.0028  
 Iteration 2: Log likelihood = -9021.5757  
 Iteration 3: Log likelihood = -9021.5323  
 Iteration 4: Log likelihood = -9021.5323  
 Refining estimates:  
 Iteration 0: Log likelihood = -9021.5323

Cox regression with Breslow method for ties

No. of subjects =	36,459	Number of obs =	36,459
No. of failures =	974		
Time at risk =	442,828.345	LR chi2(9) =	200.56
Log likelihood =	-9021.5323	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.243709	.1603214	11.31	0.000	1.950496 2.581
zf11r	.9147115	.0365409	-2.23	0.026	.8458247 .9892087
_infectionburXzf11r_000	.9760203	.0714214	-0.33	0.740	.8456121 1.12654
AGE	1.03559	.0130117	2.78	0.005	1.010399 1.061409
SEX	.7525108	.0488838	-4.38	0.000	.6625489 .8546879
NonWhite	1.079671	.1835461	0.45	0.652	.7737227 1.506597
householdsize	.9383158	.0393044	-1.52	0.129	.8643581 1.018602
SES	.8213533	.0404042	-4.00	0.000	.7458604 .9044873
LE8_TOTALSCORE	.9988768	.0003576	-3.14	0.002	.9981762 .9995779

-> Model for the mediator

Iteration 0: Log likelihood = -51259.617  
 Iteration 1: Log likelihood = -51259.617

Linear regression (Maximum Likelihood)

Number of obs =	36,459
Wald chi2(7) =	958.30
Prob > chi2 =	0.0000

Log likelihood = -51259.617

	zf11r	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.0433133	.0150854	2.87	0.004	.0137466 .0728801
AGE		-.0010817	.0009873	-1.10	0.273	-.0030168 .0008535
SEX		-.03107	.0104534	-2.97	0.003	-.0515582 -.0105818
NonWhite		-.0487989	.0250619	-1.95	0.052	-.0979192 .0003215
householdsize		.0006379	.0049674	0.13	0.898	-.0090981 .0103738
SES		-.0388435	.0078515	-4.95	0.000	-.0542321 -.0234549
LE8_TOTALSCORE		-.0015586	.0000557	-28.01	0.000	-.0016677 -.0014495
_cons		.8847729	.071602	12.36	0.000	.7444355 1.02511
<b>sigma2</b>						
_cons		.974362	.0072166	135.02	0.000	.9602177 .9885063

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.238395	.1598992	7.74	0.000	.9249986 1.551792
ereri_cde	1.238239	.1595159	7.76	0.000	.9255934 1.550884
ereri_intref	.0111796	.0165989	0.67	0.501	-.0213536 .0437128
ereri_intmed	-.0071694	.0067911	-1.06	0.291	-.0204797 .0061408
ereri_pie	-.0038538	.002183	-1.77	0.078	-.0081324 .0004248

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zf2r
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04634 2.216 -.07461 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9114.2295**  
 Iteration 1: Log likelihood = **-9025.8658**  
 Iteration 2: Log likelihood = **-9017.3847**  
 Iteration 3: Log likelihood = **-9017.3586**  
 Iteration 4: Log likelihood = **-9017.3586**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-9017.3586**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,537</b>	Number of obs =	<b>36,537</b>
No. of failures =	<b>973</b>		
Time at risk =	<b>443,808.024</b>	LR chi2(9) =	<b>193.74</b>
Log likelihood =	<b>-9017.3586</b>	Prob > chi2 =	<b>0.0000</b>

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.238807</b>	.1599961	11.28	<b>0.000</b>	<b>1.946192</b> <b>2.575417</b>
zf2r	<b>.9411886</b>	.0370408	-1.54	<b>0.124</b>	<b>.8713194</b> <b>1.016661</b>
_infectionburXzf2r_000	<b>.9861519</b>	.0726556	-0.19	<b>0.850</b>	<b>.8535535</b> <b>1.139349</b>
AGE	<b>1.036294</b>	.013019	2.84	<b>0.005</b>	<b>1.011089</b> <b>1.062128</b>
SEX	<b>.7590102</b>	.0493081	-4.24	<b>0.000</b>	<b>.6682677</b> <b>.8620744</b>
NonWhite	<b>1.089262</b>	.1853664	0.50	<b>0.615</b>	<b>.7803301</b> <b>1.520501</b>
householdszie	<b>.9372429</b>	.0393206	-1.54	<b>0.122</b>	<b>.8632594</b> <b>1.017567</b>
SES	<b>.8246601</b>	.0406678	-3.91	<b>0.000</b>	<b>.7486836</b> <b>.9083468</b>
LE8_TOTALSCORE	<b>.9989681</b>	.0003556	-2.90	<b>0.004</b>	<b>.9982714</b> <b>.9996653</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-51607.106**  
 Iteration 1: Log likelihood = **-51607.106**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,537</b>
	Wald chi2(7) =	<b>475.37</b>
Log likelihood =	<b>-51607.106</b>	Prob > chi2 = <b>0.0000</b>

<u>zf2r</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.0447152</b>	.0151673	2.95	<b>0.003</b>	<b>.0149878</b> <b>.0744425</b>
AGE	<b>.0021518</b>	.0009899	2.17	<b>0.030</b>	<b>.0002117</b> <b>.0040919</b>
SEX	<b>.0244053</b>	.0105092	2.32	<b>0.020</b>	<b>.0038077</b> <b>.0450028</b>
NonWhite	<b>-.0701793</b>	.0251971	-2.79	<b>0.005</b>	<b>-.1195647</b> <b>-.020794</b>
householdszie	<b>-.0038877</b>	.0047837	-0.81	<b>0.416</b>	<b>-.0132636</b> <b>.0054883</b>
SES	<b>-.0515633</b>	.0078886	-6.54	<b>0.000</b>	<b>-.0670247</b> <b>-.0361019</b>
LE8_TOTALSCORE	<b>-.0009938</b>	.000056	-17.76	<b>0.000</b>	<b>-.0011035</b> <b>-.0008841</b>
_cons	<b>.332368</b>	.0715137	4.65	<b>0.000</b>	<b>.1922036</b> <b>.4725323</b>
<b>sigma2</b>					
_cons	<b>.9871295</b>	.0073034	135.16	<b>0.000</b>	<b>.9728152</b> <b>1.001444</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.233626</b>	.1597581	7.72	<b>0.000</b>	.9205057 1.546746
ereri_cde	<b>1.236097</b>	.1596332	7.74	<b>0.000</b>	.9232215 1.548972
ereri_intref	<b>.0049879</b>	.0114949	0.43	0.664	-.0175417 .0275175
ereri_intmed	<b>-.0047523</b>	.0067334	-0.71	0.480	-.0179495 .0084449
ereri_pie	<b>-.0027066</b>	.0019801	-1.37	0.172	-.0065874 .0011743

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zf3
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04666 2.218 -.07458 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9140.2313

Iteration 1: Log likelihood = -9051.5308

Iteration 2: Log likelihood = -9043.1066

Iteration 3: Log likelihood = -9043.0884

Iteration 4: Log likelihood = -9043.0884

Refining estimates:

Iteration 0: Log likelihood = -9043.0884

Cox regression with Breslow method for ties

No. of subjects = 36,497

Number of obs = 36,497

No. of failures = 976

Time at risk = 443,426.913

LR chi2(9) = 194.29

Log likelihood = -9043.0884

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.258281</b>	.1637583	11.23	<b>0.000</b>	<b>1.959086</b> <b>2.60317</b>
zf3	<b>1.057835</b>	.0415084	1.43	<b>0.152</b>	<b>.9795295</b> <b>1.1424</b>
_infectionburXzf3_000	<b>.9588892</b>	.0658713	-0.61	<b>0.541</b>	<b>.838098</b> <b>1.097089</b>
AGE	<b>1.032587</b>	.0130149	2.54	<b>0.011</b>	<b>1.007391</b> <b>1.058413</b>
SEX	<b>.7563443</b>	.0493196	-4.28	<b>0.000</b>	<b>.6656018</b> <b>.8594577</b>
NonWhite	<b>1.077013</b>	.1831945	0.44	<b>0.663</b>	<b>.7716775</b> <b>1.503163</b>
householdsize	<b>.9365277</b>	.0392364	-1.57	<b>0.118</b>	<b>.8626985</b> <b>1.016675</b>
SES	<b>.8167925</b>	.0401458	-4.12	<b>0.000</b>	<b>.7417793</b> <b>.8993914</b>
LE8_TOTALSCORE	<b>.9990719</b>	.0003544	-2.62	<b>0.009</b>	<b>.9983776</b> <b>.9997667</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50942.343**  
 Iteration 1: Log likelihood = **-50942.343**

Linear regression (Maximum Likelihood)                          Number of obs = **36,497**  
     Wald chi2(7) = **1727.97**  
 Log likelihood = **-50942.343**                                      Prob > chi2 = **0.0000**

zf3	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.0647234</b>	.0149465	4.33	<b>0.000</b>	<b>.0354288</b> <b>.0940181</b>
AGE	<b>.0339556</b>	.0009746	34.84	<b>0.000</b>	<b>.0320454</b> <b>.0358657</b>
SEX	<b>.1458766</b>	.0103399	14.11	<b>0.000</b>	<b>.1256107</b> <b>.1661425</b>
NonWhite	<b>.0902111</b>	.0247165	3.65	<b>0.000</b>	<b>.0417677</b> <b>.1386546</b>
householdsize	<b>-.0212917</b>	.0047035	-4.53	<b>0.000</b>	<b>-.0305105</b> <b>-.012073</b>
SES	<b>-.0025264</b>	.0077569	-0.33	<b>0.745</b>	<b>-.0177296</b> <b>.0126768</b>
LE8_TOTALSCORE	<b>.0005579</b>	.0000551	10.13	<b>0.000</b>	<b>.00045</b> <b>.0006659</b>
_cons	<b>-2.512379</b>	.070469	-35.65	<b>0.000</b>	<b>-2.650496</b> <b>-2.374263</b>
<b>sigma2</b>					
_cons	<b>.9547685</b>	.0070678	<b>135.09</b>	<b>0.000</b>	<b>.9409159</b> <b>.9686211</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.258024</b>	.162321	7.75	<b>0.000</b>	<b>.9398805</b> <b>1.576167</b>
ereri_cde	<b>1.257017</b>	.1634072	7.69	<b>0.000</b>	<b>.936745</b> <b>1.577289</b>
ereri_intref	<b>-.0010742</b>	.0018492	-0.58	<b>0.561</b>	<b>-.0046986</b> <b>.0025503</b>
ereri_intmed	<b>-.0015648</b>	.0086505	-0.18	<b>0.856</b>	<b>-.0185195</b> <b>.0153898</b>
ereri_pie	<b>.0036456</b>	.0026849	1.36	<b>0.175</b>	<b>-.0016166</b> <b>.0089079</b>

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zf7  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.19 1.531 .04649 2.216 -.07518 500.6

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9121.5428  
 Iteration 1: Log likelihood = -9029.6146  
 Iteration 2: Log likelihood = -9013.7306  
 Iteration 3: Log likelihood = -9013.3554  
 Iteration 4: Log likelihood = -9013.3549  
 Iteration 5: Log likelihood = -9013.3549  
 Refining estimates:  
 Iteration 0: Log likelihood = -9013.3549

Cox regression with Breslow method for ties

No. of subjects = 36,548	Number of obs = 36,548
No. of failures = 974	
Time at risk = 444,006.995	LR chi2(9) = 216.38
Log likelihood = -9013.3549	Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.257045	.1618331	11.35	0.000	1.961137 2.597601
zf7	.847132	.0319519	-4.40	0.000	.7867662 .9121294
_infectionburXzf7_000	1.018133	.0643294	0.28	0.776	.8995441 1.152356
AGE	1.032875	.0129837	2.57	0.010	1.007739 1.058639
SEX	.8223308	.0550461	-2.92	0.003	.7212201 .9376166
NonWhite	1.028389	.1771982	0.16	0.871	.7336516 1.441535
householdsize	.9371466	.0394347	-1.54	0.123	.8629575 1.017714
SES	.823481	.0405312	-3.95	0.000	.7477527 .9068787
LE8_TOTALSCORE	.9986537	.0003623	-3.71	0.000	.9979439 .999364

-> Model for the mediator

Iteration 0: Log likelihood = -49969.59	Number of obs = 36,548
Iteration 1: Log likelihood = -49969.59	Wald chi2(7) = 3980.78
Log likelihood = -49969.59	Prob > chi2 = 0.0000

	zf7	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>-.0041855</b>	<b>.0145049</b>	<b>-0.29</b>	<b>0.773</b>	<b>-.0326145</b>
AGE		<b>.0018767</b>	<b>.0009461</b>	<b>1.98</b>	<b>0.047</b>	<b>.0000224</b>
SEX		<b>.396365</b>	<b>.0100412</b>	<b>39.47</b>	<b>0.000</b>	<b>.3766846</b>
NonWhite		<b>-.2296982</b>	<b>.0240431</b>	<b>-9.55</b>	<b>0.000</b>	<b>-.2768218</b>
householdsize		<b>-.0016561</b>	<b>.0045739</b>	<b>-0.36</b>	<b>0.717</b>	<b>-.0106207</b>
SES		<b>-.0418471</b>	<b>.007537</b>	<b>-5.55</b>	<b>0.000</b>	<b>-.0566194</b>
LE8_TOTALSCORE		<b>-.002601</b>	<b>.0000536</b>	<b>-48.56</b>	<b>0.000</b>	<b>-.002706</b>
_cons		<b>.5940734</b>	<b>.0683855</b>	<b>8.69</b>	<b>0.000</b>	<b>.4600404</b>
<b>sigma2</b>						
_cons		<b>.9017542</b>	<b>.00666707</b>	<b>135.18</b>	<b>0.000</b>	<b>.8886798</b>
						<b>.9148285</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.252731</b>	<b>.1608173</b>	<b>7.79</b>	<b>0.000</b>	<b>.9375346</b>
ereri_cde	<b>1.241662</b>	<b>.1596026</b>	<b>7.78</b>	<b>0.000</b>	<b>.9288464</b>
ereri_intref	<b>.0096746</b>	<b>.0163993</b>	<b>0.59</b>	<b>0.555</b>	<b>-.0224674</b>
ereri_intmed	<b>.0006997</b>	<b>.0024817</b>	<b>0.28</b>	<b>0.778</b>	<b>-.0041643</b>
ereri_pie	<b>.0006946</b>	<b>.0024132</b>	<b>0.29</b>	<b>0.773</b>	<b>-.0040352</b>

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zf9
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .0465 2.216 -.07519 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9110.8828**  
 Iteration 1: Log likelihood = **-9021.7593**  
 Iteration 2: Log likelihood = **-9012.0773**  
 Iteration 3: Log likelihood = **-9012.0229**  
 Iteration 4: Log likelihood = **-9012.0229**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-9012.0229**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,534</b>	Number of obs =	<b>36,534</b>
No. of failures =	<b>973</b>		
Time at risk =	<b>443,839.498</b>	LR chi2(9) =	<b>197.72</b>
Log likelihood =	<b>-9012.0229</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.264192</b>	.1619696	<b>11.42</b>	<b>0.000</b>	<b>1.967987</b> <b>2.604979</b>
zf9		<b>.9366755</b>	.0376819	<b>-1.63</b>	<b>0.104</b>	<b>.8656571</b> <b>1.01352</b>
_infectionburXzf9_000		<b>.9456152</b>	.0675932	<b>-0.78</b>	<b>0.434</b>	<b>.8219966</b> <b>1.087825</b>
AGE		<b>1.034978</b>	.0130275	<b>2.73</b>	<b>0.006</b>	<b>1.009757</b> <b>1.060829</b>
SEX		<b>.7559019</b>	.0491346	<b>-4.31</b>	<b>0.000</b>	<b>.6654819</b> <b>.8586074</b>
NonWhite		<b>1.074174</b>	.182777	<b>0.42</b>	<b>0.674</b>	<b>.7695514</b> <b>1.499379</b>
householdsize		<b>.9341713</b>	.0396398	<b>-1.60</b>	<b>0.109</b>	<b>.8596216</b> <b>1.015186</b>
SES		<b>.8214464</b>	.0405673	<b>-3.98</b>	<b>0.000</b>	<b>.7456628</b> <b>.9049321</b>
LE8_TOTALSCORE		<b>.998806</b>	.0003691	<b>-3.23</b>	<b>0.001</b>	<b>.9980829</b> <b>.9995297</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-49462.695**  
 Iteration 1: Log likelihood = **-49462.695**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,534</b>
	Wald chi2(7) =	<b>5075.59</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	zf9	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.0524161</b>	.014318	<b>3.66</b>	<b>0.000</b>	<b>.0243534</b> <b>.0804788</b>
AGE		<b>.0103188</b>	.0009338	<b>11.05</b>	<b>0.000</b>	<b>.0084887</b> <b>.0121489</b>
SEX		<b>-.0940815</b>	.0099106	<b>-9.49</b>	<b>0.000</b>	<b>-.113506</b> <b>-.0746571</b>
NonWhite		<b>-.2117324</b>	.0237246	<b>-8.92</b>	<b>0.000</b>	<b>-.2582317</b> <b>-.1652331</b>
householdsize		<b>-.0105304</b>	.0045139	<b>-2.33</b>	<b>0.020</b>	<b>-.0193774</b> <b>-.0016834</b>
SES		<b>-.065292</b>	.0074394	<b>-8.78</b>	<b>0.000</b>	<b>-.0798729</b> <b>-.0507111</b>
LE8_TOTALSCORE		<b>-.0033226</b>	.0000528	<b>-62.87</b>	<b>0.000</b>	<b>-.0034262</b> <b>-.003219</b>
_cons		<b>1.207185</b>	.0674902	<b>17.89</b>	<b>0.000</b>	<b>1.074907</b> <b>1.339463</b>
<b>sigma2</b>						
_cons		<b>.8779947</b>	.0064962	<b>135.16</b>	<b>0.000</b>	<b>.8652624</b> <b>.890727</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.261094</b>	.162794	7.75	<b>0.000</b>	.9420237 1.580164
ereri_cde	<b>1.261219</b>	.1617267	7.80	<b>0.000</b>	.9442408 1.578198
ereri_intref	<b>.0143012</b>	.0160154	0.89	0.372	-.0170883 .0456908
ereri_intmed	<b>-.0110034</b>	.0082295	-1.34	0.181	-.027133 .0051261
ereri_pie	<b>-.0034231</b>	.0022994	-1.49	0.137	-.0079299 .0010837

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zfabp1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.532 .04636 2.216 -.0746 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9073.1164

Iteration 1: Log likelihood = -8987.4193

Iteration 2: Log likelihood = -8977.4434

Iteration 3: Log likelihood = -8977.3707

Iteration 4: Log likelihood = -8977.3707

Refining estimates:

Iteration 0: Log likelihood = -8977.3707

Cox regression with Breslow method for ties

No. of subjects = 36,432

Number of obs = 36,432

No. of failures = 969

Time at risk = 442,512.06

LR chi2(9) = 191.49

Log likelihood = -8977.3707

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.23347	.1654413	10.85	0.000	1.93165 2.582449
zfabp1	1.048912	.0417482	1.20	0.230	.9701975 1.134014
_infectionburXzfabp1_000	.9826413	.068039	-0.25	0.800	.8579403 1.125468
AGE	1.034877	.0130514	2.72	0.007	1.00961 1.060776
SEX	.763851	.0500439	-4.11	0.000	.6718031 .868511
NonWhite	1.087352	.1851137	0.49	0.623	.7788601 1.518032
householdsize	.9400022	.0392194	-1.48	0.138	.8661926 1.020101
SES	.8305364	.0411275	-3.75	0.000	.7537162 .9151863
LE8_TOTALSCORE	.9991243	.0003614	-2.42	0.015	.9984162 .9998329

-> Model for the mediator

Iteration 0: Log likelihood = -49715.74  
 Iteration 1: Log likelihood = -49715.74

Linear regression (Maximum Likelihood)  
 Number of obs = 36,432  
 Wald chi2(7) = 4179.95  
 Prob > chi2 = 0.0000  
 Log likelihood = -49715.74

	zfabp1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr	.1911248	.0144866	13.19	0.000	.1627316	.219518
AGE	.0175322	.000945	18.55	0.000	.01568	.0193844
SEX	-.2523972	.0100324	-25.16	0.000	-.2720604	-.232734
NonWhite	.1550832	.0240491	6.45	0.000	.1079478	.2022185
householdsize	-.0145365	.0045645	-3.18	0.001	-.0234827	-.0055903
SES	-.1121318	.0075302	-14.89	0.000	-.1268907	-.0973728
LE8_TOTALSCORE	-.0021959	.0000534	-41.09	0.000	-.0023007	-.0020912
_cons	.4205898	.068278	6.16	0.000	.2867674	.5544122
<b>sigma2</b>						
_cons	.8970512	.0066465	134.97	0.000	.8840244	.9100781

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.246085	.1621009	7.69	0.000	.9283729 1.563797
ereri_cde	1.233771	.165417	7.46	0.000	.9095601 1.557983
ereri_intref	-.0006318	.0006693	-0.94	0.345	-.0019437 .0006801
ereri_intmed	.0037765	.0255854	0.15	0.883	-.04637 .053923
ereri_pie	.0091687	.0077085	1.19	0.234	-.0059396 .024277

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zfabp2  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.18 1.531 .04649 2.218 -.07578 500.5

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9064.8284  
 Iteration 1: Log likelihood = -8975.5662  
 Iteration 2: Log likelihood = -8965.9496  
 Iteration 3: Log likelihood = -8965.911  
 Iteration 4: Log likelihood = -8965.911  
 Refining estimates:  
 Iteration 0: Log likelihood = -8965.911

Cox regression with Breslow method for ties

No. of subjects =	<b>36,441</b>	Number of obs =	<b>36,441</b>
No. of failures =	<b>968</b>		
Time at risk =	<b>442,700.115</b>	LR chi2(9) =	<b>197.83</b>
Log likelihood =	<b>-8965.911</b>	Prob > chi2 =	<b>0.0000</b>

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.275901</b>	.1636304	<b>11.44</b>	<b>0.000</b>	<b>1.976763</b> <b>2.620307</b>
zfabp2	<b>1.036731</b>	.0394323	<b>0.95</b>	<b>0.343</b>	<b>.9622558</b> <b>1.116971</b>
_infectionburXzfabp2_000	<b>.9942715</b>	.0678095	<b>-0.08</b>	<b>0.933</b>	<b>.8698671</b> <b>1.136468</b>
AGE	<b>1.033013</b>	.0130229	<b>2.58</b>	<b>0.010</b>	<b>1.007802</b> <b>1.058856</b>
SEX	<b>.7510154</b>	.0489455	<b>-4.39</b>	<b>0.000</b>	<b>.6609581</b> <b>.8533432</b>
NonWhite	<b>1.002942</b>	.1775116	<b>0.02</b>	<b>0.987</b>	<b>.7089585</b> <b>1.418831</b>
householdsize	<b>.928254</b>	.0398538	<b>-1.73</b>	<b>0.083</b>	<b>.8533383</b> <b>1.009747</b>
SES	<b>.8269144</b>	.0408872	<b>-3.84</b>	<b>0.000</b>	<b>.7505376</b> <b>.9110636</b>
LE8_TOTALSCORE	<b>.9990699</b>	.0003557	<b>-2.61</b>	<b>0.009</b>	<b>.9983729</b> <b>.9997673</b>

-> Model for the mediator

Iteration 0: Log likelihood = -51522.77  
 Iteration 1: Log likelihood = -51522.77

Linear regression (Maximum Likelihood)                          Number of obs = 36,441  
 Log likelihood = -51522.77                                      Wald chi2(7) = 370.41  
 Prob > chi2 = 0.0000

	zfabp2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.098802	.0152054	6.50	0.000	.069 .1286041
AGE		.0099858	.0009931	10.06	0.000	.0080394 .0119323
SEX		-.0424554	.0105367	-4.03	0.000	-.063107 -.0218038
NonWhite		.1452207	.0252296	5.76	0.000	.0957716 .1946699
householdsize		-.0195572	.0047951	-4.08	0.000	-.0289555 -.010159
SES		-.0198954	.0079069	-2.52	0.012	-.0353927 -.0043982
LE8_TOTALSCORE		-.0004312	.0000562	-7.68	0.000	-.0005413 -.0003211
_cons		-.2987738	.0717749	-4.16	0.000	-.4394499 -.1580976
<b>sigma2</b>						
_cons		.9899105	.0073336	134.98	0.000	.9755369 1.004284

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.28248	.1629567	7.87	0.000	.9630905 1.601869
ereri_cde	1.275711	.1635733	7.80	0.000	.9551134 1.596309
ereri_intref	-.0000604	.0022671	-0.03	0.979	-.0045038 .0043831
ereri_intmed	.0032587	.0132883	0.25	0.806	-.022786 .0293033
ereri_pie	.0035704	.0038113	0.94	0.349	-.0038997 .0110405

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zfabp4
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04648 2.216 -.0752 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9225.1762**  
 Iteration 1: Log likelihood = **-9135.0521**  
 Iteration 2: Log likelihood = **-9126.5004**  
 Iteration 3: Log likelihood = **-9126.4743**  
 Iteration 4: Log likelihood = **-9126.4743**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-9126.4743**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,896</b>	Number of obs =	<b>36,896</b>
No. of failures =	<b>984</b>		
Time at risk =	<b>448,211.761</b>	LR chi2(9) =	<b>197.40</b>
Log likelihood =	<b>-9126.4743</b>	Prob > chi2 =	<b>0.0000</b>

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.221895</b>	.1618063	<b>10.96</b>	<b>0.000</b>	<b>1.926353</b> <b>2.562778</b>
_zfabp4	<b>.9158884</b>	.0407397	<b>-1.98</b>	<b>0.048</b>	<b>.8394217</b> <b>.9993206</b>
_infectionburXzfabp4_000	<b>1.106533</b>	.0737119	<b>1.52</b>	<b>0.129</b>	<b>.9710941</b> <b>1.260861</b>
AGE	<b>1.0357</b>	.0129785	<b>2.80</b>	<b>0.005</b>	<b>1.010572</b> <b>1.061452</b>
SEX	<b>.7908129</b>	.0565119	<b>-3.28</b>	<b>0.001</b>	<b>.6874585</b> <b>.9097059</b>
NonWhite	<b>1.067337</b>	.1814354	<b>0.38</b>	<b>0.701</b>	<b>.7649037</b> <b>1.489349</b>
householdszie	<b>.9369023</b>	.0392108	<b>-1.56</b>	<b>0.119</b>	<b>.8631181</b> <b>1.016994</b>
SES	<b>.8196128</b>	.040244	<b>-4.05</b>	<b>0.000</b>	<b>.7444125</b> <b>.9024098</b>
LE8_TOTALSCORE	<b>.9988727</b>	.0003777	<b>-2.98</b>	<b>0.003</b>	<b>.9981327</b> <b>.9996133</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-46061.989**  
 Iteration 1: Log likelihood = **-46061.989**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,896</b>	
	Wald chi2(7) =	<b>14992.53</b>	
Log likelihood =	<b>-46061.989</b>	Prob > chi2 =	<b>0.0000</b>

zfabp4	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.1897262</b>	.0128072	<b>14.81</b>	<b>0.000</b>	<b>.1646246</b> <b>.2148279</b>
AGE	<b>.0161126</b>	.0008361	<b>19.27</b>	<b>0.000</b>	<b>.0144738</b> <b>.0177513</b>
SEX	<b>.7729781</b>	.0088748	<b>87.10</b>	<b>0.000</b>	<b>.7555837</b> <b>.7903725</b>
NonWhite	<b>-.0582533</b>	.0212525	<b>-2.74</b>	<b>0.006</b>	<b>-.0999074</b> <b>-.0165993</b>
householdszie	<b>-.0031011</b>	.0040462	<b>-0.77</b>	<b>0.443</b>	<b>-.0110315</b> <b>.0048293</b>
SES	<b>-.0848374</b>	.0066602	<b>-12.74</b>	<b>0.000</b>	<b>-.0978911</b> <b>-.0717838</b>
LE8_TOTALSCORE	<b>-.003794</b>	.0000473	<b>-80.26</b>	<b>0.000</b>	<b>-.0038867</b> <b>-.0037014</b>
_cons	<b>-.2773118</b>	.0604499	<b>-4.59</b>	<b>0.000</b>	<b>-.3957915</b> <b>-.1588321</b>
<b>sigma2</b>					
_cons	<b>.7110435</b>	.0052351	<b>135.82</b>	<b>0.000</b>	<b>.700783</b> <b>.721304</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.215651</b>	.158454	7.67	<b>0.000</b>	.9050869 1.526215
ereri_cde	<b>1.215725</b>	.1609581	7.55	<b>0.000</b>	.9002534 1.531197
ereri_intref	<b>-.0056879</b>	.0042106	-1.35	<b>0.177</b>	-.0139406 .0025647
ereri_intmed	<b>.0221448</b>	.0239569	0.92	<b>0.355</b>	-.0248099 .0690995
ereri_pie	<b>-.0165313</b>	.0083732	-1.97	<b>0.048</b>	-.0329424 -.0001202

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zfabp5
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04647 2.216 -.07521 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9112.5746

Iteration 1: Log likelihood = -9021.5014

Iteration 2: Log likelihood = -9013.6262

Iteration 3: Log likelihood = -9013.6097

Iteration 4: Log likelihood = -9013.6097

Refining estimates:

Iteration 0: Log likelihood = -9013.6097

Cox regression with Breslow method for ties

No. of subjects = 36,626 Number of obs = 36,626

No. of failures = 972

Time at risk = 444,936.665

LR chi2(9) = 197.93

Log likelihood = -9013.6097

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.227528	.1596201	11.18	0.000	1.935655 2.563413
zfabp5	.9136955	.0366732	-2.25	0.025	.8445719 .9884764
_infectionburXzfabp5_000	1.039268	.0753671	0.53	0.595	.9015689 1.197998
AGE	1.036042	.0130089	2.82	0.005	1.010857 1.061856
SEX	.7576554	.0492602	-4.27	0.000	.6670057 .860625
NonWhite	1.089636	.1853119	0.50	0.614	.7807632 1.520699
householdszie	.9323869	.0395141	-1.65	0.099	.8580699 1.013141
SES	.8119126	.0400056	-4.23	0.000	.7371702 .8942331
LE8_TOTALSCORE	.9988821	.0003608	-3.10	0.002	.9981752 .9995894

-> Model for the mediator

Iteration 0: Log likelihood = **-51089.811**  
 Iteration 1: Log likelihood = **-51089.811**

Linear regression (Maximum Likelihood) Number of obs = 36,626  
 Wald chi2(7) = 1802.41  
 Log likelihood = **-51089.811** Prob > chi2 = 0.0000

	zfabp5	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr	.0539244	.0148913	3.62	0.000	.0247379	.0831108
AGE	.0007295	.0009742	0.75	0.454	-.0011799	.0026388
SEX	.0262061	.0103137	2.54	0.011	.0059917	.0464206
NonWhite	.0467855	.0247185	1.89	0.058	-.001662	.0952329
householdszie	-.0043459	.0048961	-0.89	0.375	-.0139421	.0052503
SES	-.0655355	.0077442	-8.46	0.000	-.0807139	-.0503571
LE8_TOTALSCORE	-.0020789	.0000549	-37.86	0.000	-.0021865	-.0019712
_cons	.9516557	.0706194	13.48	0.000	.8132442	1.090067
<b>sigma2</b>						
_cons	.9530709	.0070428	135.33	0.000	.9392673	.9668745

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.214901	.1587039	7.66	0.000	.9038476 1.525955
ereri_cde	1.221946	.1588221	7.69	0.000	.910661 1.533232
ereri_intref	-.0008566	.0085277	-0.10	0.920	-.0175706 .0158574
ereri_intmed	-.0013332	.0076428	-0.17	0.862	-.0163128 .0136464
ereri_pie	-.0048553	.0025354	-1.92	0.055	-.0098245 .000114

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdszie SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zfabp6  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.17 1.531 .04651 2.218 -.07478 500.6

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -8893.2895  
 Iteration 1: Log likelihood = -8809.1861  
 Iteration 2: Log likelihood = -8801.7762  
 Iteration 3: Log likelihood = -8801.76  
 Iteration 4: Log likelihood = -8801.76  
 Refining estimates:  
 Iteration 0: Log likelihood = -8801.76

Cox regression with Breslow method for ties

No. of subjects = 35,694	Number of obs = 35,694
No. of failures = 952	
Time at risk = 433,582.65	
Log likelihood = -8801.76	LR chi2(9) = 183.06
	Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.2034	.1602211	10.86	0.000	1.910724 2.540907
zfabp6	1.004183	.0383396	0.11	0.913	.9317818 1.082211
_infectionburXzfabp6_000	.9787909	.0667239	-0.31	0.753	.8563746 1.118706
AGE	1.037615	.0132004	2.90	0.004	1.012063 1.063813
SEX	.7516216	.0494781	-4.34	0.000	.6606417 .8551308
NonWhite	1.11735	.1901999	0.65	0.515	.8003765 1.559855
householdsize	.9388323	.0396978	-1.49	0.136	.8641629 1.019954
SES	.8324964	.0414229	-3.68	0.000	.7551423 .9177745
LE8_TOTALSCORE	.998997	.0003582	-2.80	0.005	.9982953 .9996992

-> Model for the mediator

Iteration 0: Log likelihood = -50522.592  
 Iteration 1: Log likelihood = -50522.592

Linear regression (Maximum Likelihood)

Log likelihood = -50522.592	Number of obs = 35,694
	Wald chi2(7) = 249.87
	Prob > chi2 = 0.0000

zfabp6	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	.0677971	.0153998	4.40	0.000	.0376141 .09798
AGE	.011077	.0010049	11.02	0.000	.0091074 .0130466
SEX	.0865911	.010663	8.12	0.000	.0656919 .1074903
NonWhite	.1434599	.0255267	5.62	0.000	.0934285 .1934914
householdsize	-.001699	.0048613	-0.35	0.727	-.011227 .0078291
SES	-.0083337	.0080058	-1.04	0.298	-.0240247 .0073574
LE8_TOTALSCORE	-7.81e-06	.0000568	-0.14	0.891	-.0001192 .0001035
_cons	-.8081164	.0726612	-11.12	0.000	-.9505298 -.6657031
<b>sigma2</b>					
_cons	.9930205	.0074332	133.59	0.000	.9784517 1.007589

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.201573	.1598391	7.52	0.000	.8882944 1.514852
ereri_cde	1.203437	.1602303	7.51	0.000	.8893911 1.517482
ereri_intref	.0007148	.0033283	0.21	0.830	-.0058085 .0072381
ereri_intmed	-.0028612	.008867	-0.32	0.747	-.0202403 .0145179
ereri_pie	.0002831	.00259	0.11	0.913	-.0047932 .0053594

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zfabp9
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04646 2.216 -.07503 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9036.4379**  
 Iteration 1: Log likelihood = **-8947.6786**  
 Iteration 2: Log likelihood = **-8939.1068**  
 Iteration 3: Log likelihood = **-8939.0863**  
 Iteration 4: Log likelihood = **-8939.0863**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8939.0863**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,352</b>	Number of obs =	<b>36,352</b>
No. of failures =	<b>965</b>		
Time at risk =	<b>441,650.762</b>	LR chi2(9) =	<b>194.70</b>
Log likelihood =	<b>-8939.0863</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.261151</b>	.1631829	<b>11.31</b>	<b>0.000</b>	<b>1.962909</b> <b>2.604709</b>
_zfabp9		<b>.9547132</b>	.0374274	<b>-1.18</b>	<b>0.237</b>	<b>.8841042</b> <b>1.030961</b>
_infectionburXzfabp9_000		<b>1.01161</b>	.0719739	<b>0.16</b>	<b>0.871</b>	<b>.8799378</b> <b>1.162986</b>
AGE		<b>1.031542</b>	.0130197	<b>2.46</b>	<b>0.014</b>	<b>1.006337</b> <b>1.057378</b>
SEX		<b>.7517855</b>	.0493047	<b>-4.35</b>	<b>0.000</b>	<b>.6611031</b> <b>.8549066</b>
NonWhite		<b>1.052644</b>	.1814509	<b>0.30</b>	<b>0.766</b>	<b>.7508523</b> <b>1.475735</b>
householdszie		<b>.933207</b>	.039679	<b>-1.63</b>	<b>0.104</b>	<b>.8585899</b> <b>1.014309</b>
SES		<b>.8183589</b>	.0404248	<b>-4.06</b>	<b>0.000</b>	<b>.7428424</b> <b>.9015522</b>
LE8_TOTALSCORE		<b>.9990302</b>	.0003554	<b>-2.73</b>	<b>0.006</b>	<b>.9983339</b> <b>.999727</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-51125.074**  
 Iteration 1: Log likelihood = **-51125.074**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,352</b>
	Wald chi2(7) =	<b>922.88</b>
Log likelihood =	<b>-51125.074</b>	Prob > chi2 = <b>0.0000</b>

	<u>zfabp9</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.0040788</b>	.0151281	<b>0.27</b>	<b>0.787</b>	<b>-.0255718</b> <b>.0337294</b>
AGE		<b>-.0223102</b>	.0009875	<b>-22.59</b>	<b>0.000</b>	<b>-.0242457</b> <b>-.0203747</b>
SEX		<b>-.2027418</b>	.0104705	<b>-19.36</b>	<b>0.000</b>	<b>-.2232637</b> <b>-.1822199</b>
NonWhite		<b>-.1234268</b>	.0250909	<b>-4.92</b>	<b>0.000</b>	<b>-.1726041</b> <b>-.0742495</b>
householdszie		<b>.008015</b>	.0048461	<b>1.65</b>	<b>0.098</b>	<b>-.0014831</b> <b>.0175131</b>
SES		<b>-.0255754</b>	.0078534	<b>-3.26</b>	<b>0.001</b>	<b>-.0409678</b> <b>-.010183</b>
LE8_TOTALSCORE		<b>.0003349</b>	.0000557	<b>6.01</b>	<b>0.000</b>	<b>.0002256</b> <b>.0004442</b>
_cons		<b>1.471022</b>	.0714388	<b>20.59</b>	<b>0.000</b>	<b>1.331004</b> <b>1.611039</b>
<b>sigma2</b>						
_cons		<b>.9752144</b>	.0072335	<b>134.82</b>	<b>0.000</b>	<b>.9610369</b> <b>.9893919</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.259783</b>	.1624729	7.75	<b>0.000</b>	.9413423 1.578224
ereri_cde	<b>1.259798</b>	.1628563	7.74	<b>0.000</b>	.9406058 1.578991
ereri_intref	<b>.0003058</b>	.0049673	0.06	0.951	-.0094299 .0100416
ereri_intmed	<b>-.0001318</b>	.000751	-0.18	0.861	-.0016037 .0013401
ereri_pie	<b>-.000189</b>	.000719	-0.26	0.793	-.0015982 .0012201

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zfadd
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): **cox**

Model for the mediator (mreg): **linear**

Referent exposure level (a0): **0**

Actual exposure level (a1): **1**

Mediator level for the decomposition (m): **0**

Fixed values of the covariates (c): **60.18 1.531 .04649 2.218 -.07578 500.5**

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9064.8284**

Iteration 1: Log likelihood = **-8972.2648**

Iteration 2: Log likelihood = **-8962.7272**

Iteration 3: Log likelihood = **-8962.6937**

Iteration 4: Log likelihood = **-8962.6937**

Refining estimates:

Iteration 0: Log likelihood = **-8962.6937**

Cox regression with Breslow method for ties

No. of subjects = **36,441** Number of obs = **36,441**

No. of failures = **968**

Time at risk = **442,700.115**

LR chi2(9) = **204.27**

Log likelihood = **-8962.6937** Prob > chi2 = **0.0000**

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.284956	.1635512	11.54	0.000	1.985871
zfadd		.9050746	.0358664	-2.52	0.012	.8374384
_infectionburXzfadd_000		1.033635	.0742907	0.46	0.645	.8978189
AGE		1.033832	.0130207	2.64	0.008	1.008624
SEX		.7527342	.0490663	-4.36	0.000	.6624557
NonWhite		1.011842	.1790281	0.07	0.947	.7153312
householdsize		.9263381	.0398896	-1.78	0.076	.8513642
SES		.8253543	.0408084	-3.88	0.000	.7491246
LE8_TOTALSCORE		.9989956	.000356	-2.82	0.005	.9982981

### -> Model for the mediator

Iteration 0: Log likelihood = -51596.156  
Iteration 1: Log likelihood = -51596.156

Linear regression (Maximum Likelihood)  
Number of obs = 36,441  
Log likelihood = -51596.156 Wald chi2(7) = 222.44  
Prob > chi2 = 0.0000

	zfadd	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		-.0137567	.0152361	-0.90	0.367	-.0436188 .0161055
AGE		-.0006318	.0009951	-0.63	0.525	-.0025822 .0013185
SEX		.0173755	.010558	1.65	0.100	-.0033177 .0380687
NonWhite		.0390303	.0252805	1.54	0.123	-.0105185 .0885791
householdsiz		-.0037167	.0048048	-0.77	0.439	-.0131339 .0057005
SES		-.0204584	.0079229	-2.58	0.010	-.0359869 -.0049298
LE8_TOTALSCORE		-.0007639	.0000563	-13.57	0.000	-.0008742 -.0006536
_cons		.4005237	.0719196	5.57	0.000	.2595639 .5414834
<b>sigma2</b>						
_cons		.9939056	.0073632	134.98	0.000	.979474 1.008337

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.280948</b>	.1627569	<b>7.87</b>	<b>0.000</b>	.9619508 <b>1.599946</b>
ereri_cde	<b>1.278863</b>	.1626054	<b>7.86</b>	<b>0.000</b>	.9601623 <b>1.597564</b>
ereri_intref	<b>-5.24e-06</b>	.0095842	<b>-0.00</b>	<b>1.000</b>	-.01879 <b>.0187795</b>
ereri_intmed	<b>.0007176</b>	.00212	<b>0.34</b>	<b>0.735</b>	-.0034375 <b>.0048727</b>
ereri_pie	<b>.001373</b>	.0016167	<b>0.85</b>	<b>0.396</b>	-.0017956 <b>.0045416</b>

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intre to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
Warning: this analysis assumes a rare outcome.  
Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zfam3b  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.18 1.531 .04658 2.216 -.07524 500.8

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9057.6167  
 Iteration 1: Log likelihood = -8969.5449  
 Iteration 2: Log likelihood = -8956.4731  
 Iteration 3: Log likelihood = -8956.3388  
 Iteration 4: Log likelihood = -8956.3387  
 Refining estimates:  
 Iteration 0: Log likelihood = -8956.3387

Cox regression with Breslow method for ties

No. of subjects =	36,264	Number of obs =	36,264
No. of failures =	968		
Time at risk =	440,524.906	LR chi2(9) =	202.56
Log likelihood =	-8956.3387	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.220509	.1638113	10.81	0.000	1.921576 2.565945
zfam3b	1.095824	.0437613	2.29	0.022	1.013324 1.185041
_infectionburXzfam3b_000	1.027358	.0738297	0.38	0.707	.8923828 1.182748
AGE	1.029885	.0129764	2.34	0.019	1.004763 1.055635
SEX	.7538224	.0490892	-4.34	0.000	.6634963 .8564452
NonWhite	1.125893	.1918624	0.70	0.487	.8062036 1.572352
householdsize	.9386369	.0391652	-1.52	0.129	.8649295 1.018626
SES	.8195246	.0403847	-4.04	0.000	.7440742 .9026257
LE8_TOTALSCORE	.9991079	.0003548	-2.51	0.012	.9984127 .9998036

-> Model for the mediator

Iteration 0: Log likelihood = -51035.035	Number of obs = 36,264
Iteration 1: Log likelihood = -51035.035	Wald chi2(7) = 851.55
Linear regression (Maximum Likelihood)	Prob > chi2 = 0.0000
Log likelihood = -51035.035	

zfam3b	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	.0914842	.0151482	6.04	0.000	.0617942 .1211741
AGE	.0152767	.0009891	15.44	0.000	.013338 .0172154
SEX	-.0639721	.010493	-6.10	0.000	-.0845379 -.0434062
NonWhite	-.4454096	.0251081	-17.74	0.000	-.4946205 -.3961987
householdsize	-.0071474	.0047721	-1.50	0.134	-.0165005 .0022057
SES	-.0505373	.0078696	-6.42	0.000	-.0659615 -.0351131
LE8_TOTALSCORE	-.0001812	.0000559	-3.24	0.001	-.0002907 -.0000716
_cons	-.7106026	.0714868	-9.94	0.000	-.850714 -.5704911
<b>sigma2</b>					
_cons	.9770299	.0072558	134.66	0.000	.9628088 .991251

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.250163	.1616994	7.73	0.000	.9332384 1.567088
ereri_cde	1.21694	.1630586	7.46	0.000	.8973514 1.536529
ereri_intref	.0089616	.0139352	0.64	0.520	-.0183509 .0362741
ereri_intmed	.0158548	.0129881	1.22	0.222	-.0096014 .041311
ereri_pie	.0084066	.0039404	2.13	0.033	.0006836 .0161295

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zfam3c
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04653 2.218 -.07587 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9043.1078**  
 Iteration 1: Log likelihood = **-8953.572**  
 Iteration 2: Log likelihood = **-8942.1419**  
 Iteration 3: Log likelihood = **-8942.0309**  
 Iteration 4: Log likelihood = **-8942.0309**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8942.0309**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,384</b>	Number of obs =	<b>36,384</b>
No. of failures =	<b>966</b>		
Time at risk =	<b>442,032.251</b>	LR chi2(9) =	<b>202.15</b>
Log likelihood =	<b>-8942.0309</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.278597</b>	.1705619	<b>11.00</b>	<b>0.000</b>	<b>1.967667</b> <b>2.638659</b>
_zfam3c		<b>1.082512</b>	.0431298	<b>1.99</b>	<b>0.047</b>	<b>1.001196</b> <b>1.170433</b>
_infectionburXzfam3c_000		<b>.9634822</b>	.0627888	<b>-0.57</b>	<b>0.568</b>	<b>.8479537</b> <b>1.094751</b>
AGE		<b>1.031923</b>	.0130841	<b>2.48</b>	<b>0.013</b>	<b>1.006594</b> <b>1.057889</b>
SEX		<b>.7557467</b>	.049502	<b>-4.28</b>	<b>0.000</b>	<b>.6646942</b> <b>.8592719</b>
NonWhite		<b>1.016492</b>	.1799052	<b>0.09</b>	<b>0.926</b>	<b>.7185436</b> <b>1.437987</b>
householdszie		<b>.9284615</b>	.0398787	<b>-1.73</b>	<b>0.084</b>	<b>.8535002</b> <b>1.010006</b>
SES		<b>.8280844</b>	.0410256	<b>-3.81</b>	<b>0.000</b>	<b>.7514562</b> <b>.9125265</b>
LE8_TOTALSCORE		<b>.9991472</b>	.0003598	<b>-2.37</b>	<b>0.018</b>	<b>.9984422</b> <b>.9998526</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50107.655**  
 Iteration 1: Log likelihood = **-50107.655**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,384</b>
	Wald chi2(7) =	<b>3167.36</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	zfam3c	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.1951202</b>	.0146705	<b>13.30</b>	<b>0.000</b>	<b>.1663665</b> <b>.2238739</b>
AGE		<b>.0292311</b>	.0009581	<b>30.51</b>	<b>0.000</b>	<b>.0273532</b> <b>.0311089</b>
SEX		<b>-.1999516</b>	.0101654	<b>-19.67</b>	<b>0.000</b>	<b>-.2198754</b> <b>-.1800278</b>
NonWhite		<b>-.1737478</b>	.0243293	<b>-7.14</b>	<b>0.000</b>	<b>-.2214325</b> <b>-.1260632</b>
householdszie		<b>-.0064648</b>	.0046247	<b>-1.40</b>	<b>0.162</b>	<b>-.0155291</b> <b>.0025995</b>
SES		<b>-.0821444</b>	.0076279	<b>-10.77</b>	<b>0.000</b>	<b>-.0970947</b> <b>-.0671941</b>
LE8_TOTALSCORE		<b>-.001435</b>	.0000542	<b>-26.48</b>	<b>0.000</b>	<b>-.0015412</b> <b>-.0013288</b>
_cons		<b>-.7457572</b>	.0692393	<b>-10.77</b>	<b>0.000</b>	<b>-.8814638</b> <b>-.6100506</b>
<b>sigma2</b>						
_cons		<b>.9198925</b>	.0068202	<b>134.88</b>	<b>0.000</b>	<b>.9065251</b> <b>.9332598</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.294931</b>	.1663209	7.79	<b>0.000</b>	.9689481 1.620914
ereri_cde	<b>1.277648</b>	.1701658	7.51	<b>0.000</b>	.9441295 1.611167
ereri_intref	<b>-.0014844</b>	.0022813	-0.65	<b>0.515</b>	-.0059556 .0029868
ereri_intmed	<b>.0031769</b>	.0242804	0.13	<b>0.896</b>	-.0444117 .0507656
ereri_pie	<b>.0155903</b>	.0079831	1.95	<b>0.051</b>	-.0000563 .0312369

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zfap
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04648 2.216 -.0752 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9225.1762

Iteration 1: Log likelihood = -9130.6945

Iteration 2: Log likelihood = -9116.5085

Iteration 3: Log likelihood = -9116.2808

Iteration 4: Log likelihood = -9116.2807

Refining estimates:

Iteration 0: Log likelihood = -9116.2807

Cox regression with Breslow method for ties

No. of subjects = 36,896 Number of obs = 36,896

No. of failures = 984

Time at risk = 448,211.761

LR chi2(9) = 217.79

Log likelihood = -9116.2807

Prob > chi2 = 0.0000

-> Model for the mediator

```
Iteration 0: Log likelihood = -52176.317  
Iteration 1: Log likelihood = -52176.317
```

Linear regression (Maximum Likelihood) Number of obs = 36,896  
Log likelihood = -52176.317 Wald chi2(7) = 354.37  
Prob > chi2 = 0.0000

	zfp	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		-.1082356	.0151156	-7.16	0.000	-.1378616
AGE		.0074841	.0009868	7.58	0.000	.00555
SEX		-.0434234	.0104744	-4.15	0.000	-.0639529
NonWhite		.3388198	.025083	13.51	0.000	.289658
householdszie		.0004616	.0047755	0.10	0.923	-.0088981
SES		.0672818	.0078606	8.56	0.000	.0518753
LE8_TOTALSCORE		-.0002302	.0000558	-4.13	0.000	-.0003396
_cons		-.2653773	.0713454	-3.72	0.000	-.4052118
<b>sigma2</b>						
_cons		.99046	.0072923	135.82	0.000	.9761674
						1.004753

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.233174	.1587526	7.77	0.000	.9220247 1.544323
ereri_cde	1.200529	.1578979	7.60	0.000	.8910549 1.510003
ereri_intref	.0019221	.0146203	0.13	0.895	-.0267332 .0305774
ereri_intmed	.0121697	.0140579	0.87	0.387	-.0153833 .0397226
ereri_pie	.0185531	.0049732	3.73	0.000	.0088059 .0283003

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intre to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
Warning: this analysis assumes a rare outcome.  
Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zfas  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.18 1.531 .04648 2.216 -.07561 500.4

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9184.0417  
 Iteration 1: Log likelihood = -9093.7548  
 Iteration 2: Log likelihood = -9085.2952  
 Iteration 3: Log likelihood = -9085.2725  
 Iteration 4: Log likelihood = -9085.2725  
 Refining estimates:  
 Iteration 0: Log likelihood = -9085.2725

Cox regression with Breslow method for ties

No. of subjects =	36,787	Number of obs =	36,787
No. of failures =	980		
Time at risk =	446,939.679	LR chi2(9) =	197.54
Log likelihood =	-9085.2725	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.298523	.1671676	11.44	0.000	1.993161 2.650667
zfas	1.032537	.0374972	0.88	0.378	.9615984 1.108709
_infectionburXzfas_000	.8850512	.0661312	-1.63	0.102	.7644805 1.024638
AGE	1.035649	.0130398	2.78	0.005	1.010405 1.061525
SEX	.7511482	.0488216	-4.40	0.000	.6613036 .853199
NonWhite	1.045426	.1800295	0.26	0.796	.7459513 1.465129
householdsize	.9393792	.0392603	-1.50	0.135	.8654977 1.019567
SES	.819925	.0402202	-4.05	0.000	.7447658 .9026689
LE8_TOTALSCORE	.9990217	.0003559	-2.75	0.006	.9983244 .9997196

-> Model for the mediator

Iteration 0: Log likelihood = -50669.269  
 Iteration 1: Log likelihood = -50669.269

Linear regression (Maximum Likelihood)  
 Number of obs = 36,787  
 Wald chi2(7) = 3188.09  
 Log likelihood = -50669.269 Prob > chi2 = 0.0000

	zfas	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.1125414	.0145844	7.72	0.000	.0839564 .1411264
AGE		.0313678	.0009525	32.93	0.000	.0295009 .0332347
SEX		-.2185979	.0101112	-21.62	0.000	-.2384154 -.1987804
NonWhite		-.1845837	.0242115	-7.62	0.000	-.2320373 -.13713
householdsize		-.0100293	.0046077	-2.18	0.030	-.0190601 -.0009984
SES		-.0402865	.007587	-5.31	0.000	-.0551566 -.0254163
LE8_TOTALSCORE		-.0015106	.0000539	-28.05	0.000	-.0016161 -.001405
_cons		-.7851141	.0688662	-11.40	0.000	-.9200893 -.6501389
<b>sigma2</b>						
_cons		.920223	.0067852	135.62	0.000	.9069243 .9335217

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.287141	.1658783	7.76	0.000	.9620257 1.612256
ereri_cde	1.298561	.1671053	7.77	0.000	.9710407 1.626082
ereri_intref	.0118871	.0152746	0.78	0.436	-.0180506 .0418249
ereri_intmed	-.0269171	.0182933	-1.47	0.141	-.0627714 .0089371
ereri_pie	.0036099	.0041284	0.87	0.382	-.0044817 .0117015

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zfaslg
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .0466 2.218 -.07544 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9166.3755  
 Iteration 1: Log likelihood = -9075.6609  
 Iteration 2: Log likelihood = -9065.7485  
 Iteration 3: Log likelihood = -9065.7038  
 Iteration 4: Log likelihood = -9065.7038  
 Refining estimates:  
 Iteration 0: Log likelihood = -9065.7038

Cox regression with Breslow method for ties

No. of subjects =	36,824	Number of obs =	36,824
No. of failures =	978		
Time at risk =	447,356.911	LR chi2(9) =	201.34
Log likelihood =	-9065.7038	Prob > chi2 =	0.0000

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.298459	.1676304	11.41	0.000	1.992311 2.65165
zfaslg	.9477251	.0387875	-1.31	0.190	.8746721 1.026879
_infectionburXzfaslg_000	1.050069	.0726179	0.71	0.480	.916965 1.202494
AGE	1.034584	.0130042	2.70	0.007	1.009407 1.060388
SEX	.770489	.052193	-3.85	0.000	.6746926 .8798872
NonWhite	1.033756	.1785927	0.19	0.848	.7368236 1.450349
householdszie	.9358481	.0392777	-1.58	0.114	.8619465 1.016086
SES	.8200514	.0402667	-4.04	0.000	.7448088 .9028951
LE8_TOTALSCORE	.9991145	.0003547	-2.50	0.013	.9984195 .9998099

-> Model for the mediator

Iteration 0: Log likelihood = -49811.293  
 Iteration 1: Log likelihood = -49811.293

Linear regression (Maximum Likelihood)	Number of obs = 36,824
	Wald chi2(7) = 5216.30
Log likelihood = -49811.293	Prob > chi2 = 0.0000

<u>zfaslg</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	-.0748539	.0142401	-5.26	0.000	-.102764 -.0469437
AGE	-.0214146	.0009288	-23.06	0.000	-.023235 -.0195942
SEX	.5582733	.0098601	56.62	0.000	.5389479 .5775988
NonWhite	-.3787177	.0235868	-16.06	0.000	-.4249469 -.3324884
householdszie	-.0028852	.0044952	-0.64	0.521	-.0116957 .0059253
SES	.0609274	.0073938	8.24	0.000	.0464358 .075419
LE8_TOTALSCORE	.0010914	.0000525	20.79	0.000	.0009885 .0011943
_cons	-.0731298	.0671383	-1.09	0.276	-.2047184 .0584588
<b>sigma2</b>					
_cons	.8758977	.0064551	135.69	0.000	.863246 .8885495

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.297579</b>	.1656754	7.83	<b>0.000</b>	.972861 1.622297
ereri_cde	<b>1.297544</b>	.1673202	7.75	<b>0.000</b>	.9696023 1.625486
ereri_intref	<b>-.0007964</b>	.0017589	-0.45	0.651	-.0042438 .002651
ereri_intmed	<b>-.0031957</b>	.0102767	-0.31	0.756	-.0233376 .0169462
ereri_pie	<b>.0040271</b>	.0031702	1.27	0.204	-.0021865 .0102406

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zfbp1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04649 2.218 -.07578 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9064.8284

Iteration 1: Log likelihood = -8974.5248

Iteration 2: Log likelihood = -8963.984

Iteration 3: Log likelihood = -8963.9291

Iteration 4: Log likelihood = -8963.9291

Refining estimates:

Iteration 0: Log likelihood = -8963.9291

Cox regression with Breslow method for ties

No. of subjects = 36,441 Number of obs = 36,441

No. of failures = 968

Time at risk = 442,700.115

LR chi2(9) = 201.80

Log likelihood = -8963.9291

Prob > chi2 = 0.0000

-> Model for the mediator

Iteration 0: Log likelihood = -51075.447  
Iteration 1: Log likelihood = -51075.447

Linear regression (Maximum Likelihood) Number of obs = 36,441  
Log likelihood = -51075.447 Wald chi2(7) = 1285.33  
Prob > chi2 = 0.0000

	zfbp1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0342926	.0150199	2.28	0.022	.0048542 .0637311
AGE		.0098717	.000981	10.06	0.000	.007949 .0117944
SEX		-.0242285	.0104082	-2.33	0.020	-.0446281 -.0038288
NonWhite		.1320149	.0249218	5.30	0.000	.0831691 .1808608
householdsiz		-.02111514	.0047366	-4.47	0.000	-.030435 -.0118678
SES		.0153197	.0078105	1.96	0.050	.0000115 .0306279
LE8_TOTALSCORE		-.001757	.0000555	-31.67	0.000	-.0018658 -.0016482
_cons		.3595197	.0708992	5.07	0.000	.2205598 .4984795
sigma2						
_cons		.9659036	.0071557	134.98	0.000	.9518786 .9799286

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.283557</b>	.1632225	7.86	<b>0.000</b>	.9636466 <b>1.603467</b>
ereri_cde	<b>1.281242</b>	.1626336	7.88	<b>0.000</b>	.9624856 <b>1.599998</b>
ereri_intref	<b>.0102555</b>	.0147771	0.69	<b>0.488</b>	- .018707 <b>.0392181</b>
ereri_intmed	<b>-.0058137</b>	.0056947	-1.02	<b>0.307</b>	- .016975 <b>.0053477</b>
ereri_pie	<b>-.0021267</b>	.0016486	-1.29	<b>0.197</b>	- .0053578 <b>.0011045</b>

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intre to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
Warning: this analysis assumes a rare outcome.  
Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zfcar  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.19 1.531 .04646 2.216 -.07503 500.6

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9036.4379  
 Iteration 1: Log likelihood = -8947.9583  
 Iteration 2: Log likelihood = -8939.5202  
 Iteration 3: Log likelihood = -8939.5021  
 Iteration 4: Log likelihood = -8939.5021  
 Refining estimates:  
 Iteration 0: Log likelihood = -8939.5021

Cox regression with Breslow method for ties

No. of subjects =	36,352	Number of obs =	36,352
No. of failures =	965		
Time at risk =	441,650.762	LR chi2(9) =	193.87
Log likelihood =	-8939.5021	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.267699	.1634609	11.36	0.000	1.968924 2.611813
zfcar	1.03676	.0401021	0.93	0.351	.961067 1.118415
_infectionburXzfcar_000	.954438	.0669676	-0.66	0.506	.8318091 1.095145
AGE	1.032159	.0130147	2.51	0.012	1.006963 1.057985
SEX	.7595575	.0495426	-4.22	0.000	.6684063 .863139
NonWhite	1.065014	.1838638	0.36	0.715	.7592833 1.493848
householdsize	.9331023	.0397336	-1.63	0.104	.8583871 1.014321
SES	.8206489	.0405751	-4.00	0.000	.7448549 .9041555
LE8_TOTALSCORE	.9990411	.0003572	-2.68	0.007	.9983413 .9997414

-> Model for the mediator

Iteration 0: Log likelihood = -51080.721  
 Iteration 1: Log likelihood = -51080.721

Linear regression (Maximum Likelihood)  
 Number of obs = 36,352  
 Wald chi2(7) = 1013.95  
 Log likelihood = -51080.721 Prob > chi2 = 0.0000

zfcar	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	.0870815	.0151097	5.76	0.000	.0574671 .1166959
AGE	.0066294	.0009863	6.72	0.000	.0046962 .0085625
SEX	-.043353	.0104578	-4.15	0.000	-.0638499 -.0228562
NonWhite	-.2895863	.0250603	-11.56	0.000	-.3387036 -.240469
householdsize	-.0090271	.0048402	-1.87	0.062	-.0185137 .0004594
SES	-.0745932	.0078438	-9.51	0.000	-.0899668 -.0592195
LE8_TOTALSCORE	-.0012112	.0000557	-21.75	0.000	-.0013203 -.0011021
_cons	.2895536	.0713516	4.06	0.000	.1497069 .4294002
<b>sigma2</b>					
_cons	.9728376	.0072159	134.82	0.000	.9586947 .9869806

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.265582	.1625326	7.79	0.000	.9470238 1.58414
ereri_cde	1.267448	.16337	7.76	0.000	.9472489 1.587647
ereri_intref	.0002125	.003136	0.07	0.946	-.005934 .0063589
ereri_intmed	-.0052274	.0121204	-0.43	0.666	-.028983 .0185281
ereri_pie	.0031486	.003423	0.92	0.358	-.0035602 .0098575

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zfcer2
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04638 2.215 -.07464 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9121.8147**  
 Iteration 1: Log likelihood = **-9032.721**  
 Iteration 2: Log likelihood = **-9024.4983**  
 Iteration 3: Log likelihood = **-9024.4783**  
 Iteration 4: Log likelihood = **-9024.4783**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-9024.4783**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,459</b>	Number of obs =	<b>36,459</b>
No. of failures =	<b>974</b>		
Time at risk =	<b>442,828.345</b>	LR chi2(9) =	<b>194.67</b>
Log likelihood =	<b>-9024.4783</b>	Prob > chi2 =	<b>0.0000</b>

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.256407</b>	.1621087	<b>11.33</b>	<b>0.000</b>	<b>1.960036</b> <b>2.597592</b>
zfcer2	<b>1.05767</b>	.0402274	<b>1.47</b>	<b>0.140</b>	<b>.9816928</b> <b>1.139527</b>
_infectionburXzfcer2_000	<b>.9178837</b>	.0582349	<b>-1.35</b>	<b>0.177</b>	<b>.8105567</b> <b>1.039422</b>
AGE	<b>1.034718</b>	.0130113	<b>2.71</b>	<b>0.007</b>	<b>1.009528</b> <b>1.060536</b>
SEX	<b>.7505328</b>	.0488109	<b>-4.41</b>	<b>0.000</b>	<b>.6607113</b> <b>.8525651</b>
NonWhite	<b>1.086538</b>	.1847201	<b>0.49</b>	<b>0.625</b>	<b>.7786352</b> <b>1.516198</b>
householdszie	<b>.9387054</b>	.0393462	<b>-1.51</b>	<b>0.131</b>	<b>.8646711</b> <b>1.019079</b>
SES	<b>.8266549</b>	.0406868	<b>-3.87</b>	<b>0.000</b>	<b>.7506358</b> <b>.9103726</b>
LE8_TOTALSCORE	<b>.9990401</b>	.000355	<b>-2.70</b>	<b>0.007</b>	<b>.9983445</b> <b>.9997361</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-51286.3**  
 Iteration 1: Log likelihood = **-51286.3**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,459</b>
	Wald chi2(7) =	<b>903.57</b>
Log likelihood =	<b>-51286.3</b>	Prob > chi2 = <b>0.0000</b>

<u>zfcer2</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.1257974</b>	.0150964	<b>8.33</b>	<b>0.000</b>	<b>.096209</b> <b>.1553858</b>
AGE	<b>.0123427</b>	.0009881	<b>12.49</b>	<b>0.000</b>	<b>.0104061</b> <b>.0142793</b>
SEX	<b>.1084756</b>	.010461	<b>10.37</b>	<b>0.000</b>	<b>.0879724</b> <b>.1289788</b>
NonWhite	<b>.0397707</b>	.0250802	<b>1.59</b>	<b>0.113</b>	<b>-.0093856</b> <b>.088927</b>
householdszie	<b>-.0058225</b>	.0049711	<b>-1.17</b>	<b>0.241</b>	<b>-.0155656</b> <b>.0039206</b>
SES	<b>-.0668376</b>	.0078572	<b>-8.51</b>	<b>0.000</b>	<b>-.0822374</b> <b>-.0514377</b>
LE8_TOTALSCORE	<b>-.0009565</b>	.0000557	<b>-17.17</b>	<b>0.000</b>	<b>-.0010656</b> <b>-.0008473</b>
_cons	<b>-.4416208</b>	.0716544	<b>-6.16</b>	<b>0.000</b>	<b>-.5820609</b> <b>-.3011807</b>
<b>sigma2</b>					
_cons	<b>.9757893</b>	.0072272	<b>135.02</b>	<b>0.000</b>	<b>.9616243</b> <b>.9899543</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.248897</b>	.1607758	7.77	<b>0.000</b>	.9337818 1.564011
ereri_cde	<b>1.255711</b>	.1619182	7.76	<b>0.000</b>	.9383574 1.573065
ereri_intref	<b>.0015795</b>	.0055817	0.28	<b>0.777</b>	-.0093604 .0125195
ereri_intmed	<b>-.0154724</b>	.0153851	-1.01	<b>0.315</b>	-.0456267 .0146818
ereri_pie	<b>.0070782</b>	.0048933	1.45	<b>0.148</b>	-.0025124 .0166688

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zfcgr2a
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04662 2.216 -.07594 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9009.929

Iteration 1: Log likelihood = -8924.1824

Iteration 2: Log likelihood = -8915.5278

Iteration 3: Log likelihood = -8915.4994

Iteration 4: Log likelihood = -8915.4994

Refining estimates:

Iteration 0: Log likelihood = -8915.4994

Cox regression with Breslow method for ties

No. of subjects = 36,311 Number of obs = 36,311

No. of failures = 963

Time at risk = 441,210.056

LR chi2(9) = 188.86

Log likelihood = -8915.4994

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.21121	.1602679	10.95	0.000	1.918382 2.548736
zfcgr2a		.9909162	.0377297	-0.24	0.811	.9196593 1.067694
_infectionburXzfcgr2a_000		1.067367	.0796975	0.87	0.383	.9220552 1.23558
AGE		1.035023	.0131161	2.72	0.007	1.009632 1.061052
SEX		.7572134	.0495583	-4.25	0.000	.6660527 .860851
NonWhite		1.063488	.1838017	0.36	0.722	.7579139 1.492261
householdszie		.9384784	.0397242	-1.50	0.134	.8637625 1.019657
SES		.8208967	.0407264	-3.98	0.000	.7448326 .9047288
LE8_TOTALSCORE		.9990564	.0003571	-2.64	0.008	.9983567 .9997564

-> Model for the mediator

Iteration 0: Log likelihood = -51162.577  
 Iteration 1: Log likelihood = -51162.577

Linear regression (Maximum Likelihood)  
 Number of obs = 36,311  
 Wald chi2(7) = 727.19  
 Log likelihood = -51162.577 Prob > chi2 = 0.0000

	zfcgr2a	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.0635061	.0151673	4.19	0.000	.0337788 .0932335
AGE		.0078449	.0009897	7.93	0.000	.005905 .0097847
SEX		.129367	.0105052	12.31	0.000	.1087771 .1499569
NonWhite		.3958004	.0251167	15.76	0.000	.3465726 .4450282
householdszie		.0106227	.0047958	2.21	0.027	.001223 .0200223
SES		-.055808	.0078873	-7.08	0.000	-.0712668 -.0403492
LE8_TOTALSCORE		-.0005744	.000056	-10.25	0.000	-.0006842 -.0004646
_cons		-.4377486	.0715493	-6.12	0.000	-.5779826 -.2975146
<b>sigma2</b>						
_cons		.9803396	.0072757	134.74	0.000	.9660796 .9945996

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.221152	.1598032	7.64	0.000	.9079436 1.534361
ereri_cde	1.211063	.1602613	7.56	0.000	.8969564 1.525169
ereri_intref	.0021943	.0066601	0.33	0.742	-.0108592 .0152478
ereri_intmed	.0084743	.0095858	0.88	0.377	-.0103135 .0272622
ereri_pie	-.0005793	.0024206	-0.24	0.811	-.0053236 .0041649

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdszie SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zfcgr2b  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.19 1.531 .04669 2.217 -.07551 500.6

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -8882.1967  
 Iteration 1: Log likelihood = -8795.1406  
 Iteration 2: Log likelihood = -8787.121  
 Iteration 3: Log likelihood = -8787.1038  
 Iteration 4: Log likelihood = -8787.1038  
 Refining estimates:  
 Iteration 0: Log likelihood = -8787.1038

Cox regression with Breslow method for ties

No. of subjects =	35,573	Number of obs =	35,573
No. of failures =	951		
Time at risk =	432,088.637	LR chi2(9) =	190.19
Log likelihood =	-8787.1038	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.248877	.1625553	11.21	0.000	1.951814 2.591153
zfcgr2b	.9304965	.0368822	-1.82	0.069	.8609454 1.005666
_infectionburXzfcgr2b_000	1.033575	.0741291	0.46	0.645	.8980345 1.189573
AGE	1.037661	.0131963	2.91	0.004	1.012116 1.06385
SEX	.7447247	.0489967	-4.48	0.000	.6546268 .847223
NonWhite	1.119046	.190567	0.66	0.509	.8014808 1.562437
householdsize	.9392209	.0396139	-1.49	0.137	.8647016 1.020162
SES	.827791	.0412878	-3.79	0.000	.750698 .912801
LE8_TOTALSCORE	.9991621	.0003601	-2.33	0.020	.9984565 .9998682

-> Model for the mediator

Iteration 0: Log likelihood = -50179.54  
 Iteration 1: Log likelihood = -50179.54

Linear regression (Maximum Likelihood)

Number of obs =	35,573
Wald chi2(7) =	596.67
Prob > chi2 =	0.0000

Log likelihood = -50179.54

	zfcgr2b	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		-.0347167	.0153621	-2.26	0.024	-.0648258 -.0046075
AGE		-.0011289	.0010017	-1.13	0.260	-.0030922 .0008345
SEX		-.0679987	.0106297	-6.40	0.000	-.0888326 -.0471648
NonWhite		.0904321	.0254041	3.56	0.000	.040641 .1402232
householdsize		-.0088737	.004838	-1.83	0.067	-.0183559 .0006086
SES		-.0223331	.0079726	-2.80	0.005	-.0379591 -.0067071
LE8_TOTALSCORE		-.0012015	.0000566	-21.23	0.000	-.0013124 -.0010905
_cons		.792101	.0723964	10.94	0.000	.6502066 .9339954
<b>sigma2</b>						
_cons		.9834759	.0073743	133.37	0.000	.9690226 .9979292

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.248225	.1623651	7.69	0.000	.9299953 1.566455
ereri_cde	1.246126	.1621563	7.68	0.000	.9283058 1.563947
ereri_intref	-.0009442	.0052065	-0.18	0.856	-.0111488 .0092604
ereri_intmed	.0005389	.0048838	0.11	0.912	-.0090331 .010111
ereri_pie	.002504	.0017703	1.41	0.157	-.0009656 .0059737

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zfcgr3b
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04651 2.216 -.07505 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9091.2508**  
 Iteration 1: Log likelihood = **-9003.4186**  
 Iteration 2: Log likelihood = **-8994.3819**  
 Iteration 3: Log likelihood = **-8994.3537**  
 Iteration 4: Log likelihood = **-8994.3537**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8994.3537**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,489</b>	Number of obs =	<b>36,489</b>
No. of failures =	<b>971</b>		
Time at risk =	<b>443,262.009</b>	LR chi2(9) =	<b>193.79</b>
Log likelihood =	<b>-8994.3537</b>	Prob > chi2 =	<b>0.0000</b>

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.261333	.1614888	11.43	0.000	1.965973 2.601066
zfcgr3b	1.031569	.0400482	0.80	0.423	.9559875 1.113125
_infectionburXzfcgr3b_000	1.023661	.0720697	0.33	0.740	.8917193 1.175125
AGE	1.034501	.0130292	2.69	0.007	1.009277 1.060355
SEX	.7510094	.0493557	-4.36	0.000	.660245 .8542512
NonWhite	1.06877	.1841361	0.39	0.699	.7624867 1.498083
householdszie	.9377469	.0394459	-1.53	0.127	.8635356 1.018336
SES	.8294453	.0409728	-3.79	0.000	.7529051 .9137666
LE8_TOTALSCORE	.9990672	.0003552	-2.63	0.009	.9983714 .9997636

-> Model for the mediator

Iteration 0: Log likelihood = **-51337.401**  
 Iteration 1: Log likelihood = **-51337.401**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,489</b>	
	Wald chi2(7) =	<b>886.08</b>	
Log likelihood =	<b>-51337.401</b>	Prob > chi2 =	<b>0.0000</b>

<u>zfcgr3b</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	.0171315	.0151032	1.13	0.257	-.0124701 .0467332
AGE	-.0037133	.0009853	-3.77	0.000	-.0056444 -.0017822
SEX	.2790773	.010456	26.69	0.000	.2585839 .2995708
NonWhite	-.1413184	.0250317	-5.65	0.000	-.1903796 -.0922573
householdszie	.0072364	.0047669	1.52	0.129	-.0021065 .0165794
SES	-.0572132	.0078488	-7.29	0.000	-.0725966 -.0418299
LE8_TOTALSCORE	-.0004657	.0000558	-8.35	0.000	-.0005749 -.0003564
_cons	.0132783	.0712122	0.19	0.852	-.1262951 .1528516
<b>sigma2</b>					
_cons	.9762654	.0072277	135.07	0.000	.9620993 .9904315

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.265529</b>	.1617466	7.82	<b>0.000</b>	.9485119 1.582547
ereri_cde	<b>1.260831</b>	.1614253	7.81	<b>0.000</b>	.9444435 1.577219
ereri_intref	<b>.002585</b>	.0068956	0.37	<b>0.708</b>	-.01093 .0161001
ereri_intmed	<b>.0015803</b>	.0027675	0.57	<b>0.568</b>	-.0038438 .0070044
ereri_pie	<b>.0005326</b>	.0008145	0.65	<b>0.513</b>	-.0010638 .002129

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zfcn2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .0465 2.215 -.0759 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9056.8694

Iteration 1: Log likelihood = -8968.8855

Iteration 2: Log likelihood = -8955.2776

Iteration 3: Log likelihood = -8954.7251

Iteration 4: Log likelihood = -8954.721

Iteration 5: Log likelihood = -8954.721

Refining estimates:

Iteration 0: Log likelihood = -8954.721

Cox regression with Breslow method for ties

No. of subjects = 36,299 Number of obs = 36,299

No. of failures = 968

Time at risk = 440,985.007

LR chi2(9) = 204.30

Log likelihood = -8954.721 Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.224049	.1615469	11.00	0.000	1.928929
zfcn2		.8858562	.0316278	-3.39	0.001	.8259861
_infectionburXzfcn2_000		1.002064	.0628913	0.03	0.974	.8860794
AGE		1.032146	.0130431	2.50	0.012	1.006896
SEX		.77453	.0505738	-3.91	0.000	.6814879
NonWhite		1.05739	.1802549	0.33	0.743	.7570586
householdsize		.9340462	.0396331	-1.61	0.108	.8595091
SES		.8280832	.0409687	-3.81	0.000	.7515563
LE8_TOTALSCORE		.9988667	.0003587	-3.16	0.002	.9981639
						.99957

-> Model for the mediator

Iteration 0: Log likelihood = -50872.455  
Iteration 1: Log likelihood = -50872.455

Linear regression (Maximum Likelihood)  
Number of obs = 36,299  
Log likelihood = -50872.455 Wald chi2(7) = 1288.53  
Prob > chi2 = 0.0000

	zfcn2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0401545	.0150673	-2.67	0.008	-.0696859
AGE		-.0094649	.0009822	-9.64	0.000	-.01139
SEX		.0589493	.0104289	5.65	0.000	.038509
NonWhite		-.3176374	.024963	-12.72	0.000	-.366564
householdsiz		-.0003837	.0047453	-0.08	0.936	-.0096844
SES		.0176192	.007827	2.25	0.024	.0022786
LE8_TOTALSCORE		-.0018011	.0000556	-32.38	0.000	-.0019101
_cons		1.40359	.0709939	19.77	0.000	1.264444
sigma2						
_cons		.9656926	.0071681	134.72	0.000	.9516433
						.9797419

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.234205	.1602942	7.70	0.000	.9200344 1.548376
ereri_cde	1.216218	.1602416	7.59	0.000	.9021501 1.530286
ereri_intref	.0073245	.0131494	0.56	0.578	-.0184479 .033097
ereri_intmed	.0057842	.0053404	1.08	0.279	-.0046827 .0162511
ereri_pie	.0048786	.002333	2.09	0.037	.000306 .0094512

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intre to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
Warning: this analysis assumes a rare outcome.  
Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zfcrl1  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.18 1.531 .04649 2.218 -.07578 500.5

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9064.8284  
 Iteration 1: Log likelihood = -8974.0465  
 Iteration 2: Log likelihood = -8964.8559  
 Iteration 3: Log likelihood = -8964.8298  
 Iteration 4: Log likelihood = -8964.8298  
 Refining estimates:  
 Iteration 0: Log likelihood = -8964.8298

Cox regression with Breslow method for ties

No. of subjects =	<b>36,441</b>	Number of obs =	<b>36,441</b>
No. of failures =	<b>968</b>		
Time at risk =	<b>442,700.115</b>	LR chi2(9) =	<b>200.00</b>
Log likelihood =	<b>-8964.8298</b>	Prob > chi2 =	<b>0.0000</b>

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.289825</b>	.1636535	<b>11.59</b>	<b>0.000</b>	<b>1.990522</b> <b>2.634132</b>
zfcrl1	<b>.9307862</b>	.0373602	<b>-1.79</b>	<b>0.074</b>	<b>.8603678</b> <b>1.006968</b>
_infectionburXzfcrl1_000	<b>1.052483</b>	.0690505	<b>0.78</b>	<b>0.436</b>	<b>.925487</b> <b>1.196907</b>
AGE	<b>1.033022</b>	.0130179	<b>2.58</b>	<b>0.010</b>	<b>1.00782</b> <b>1.058855</b>
SEX	<b>.7681484</b>	.0511187	<b>-3.96</b>	<b>0.000</b>	<b>.6742165</b> <b>.8751669</b>
NonWhite	<b>1.015872</b>	.1797651	<b>0.09</b>	<b>0.929</b>	<b>.7181474</b> <b>1.437026</b>
householdsize	<b>.9280078</b>	.0398661	<b>-1.74</b>	<b>0.082</b>	<b>.8530707</b> <b>1.009528</b>
SES	<b>.8250525</b>	.0408005	<b>-3.89</b>	<b>0.000</b>	<b>.7488382</b> <b>.9090236</b>
LE8_TOTALSCORE	<b>.9990157</b>	.000356	<b>-2.76</b>	<b>0.006</b>	<b>.9983181</b> <b>.9997138</b>

-> Model for the mediator

Iteration 0: Log likelihood = -50814.582	Number of obs = 36,441
Iteration 1: Log likelihood = -50814.582	Wald chi2(7) = 1829.35
Linear regression (Maximum Likelihood)	Prob > chi2 = 0.0000
Log likelihood = -50814.582	

	zfcrl1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.0146411	.0149128	0.98	0.326	-.0145874 .0438696
AGE		-.0021691	.000974	-2.23	0.026	-.0040781 -.0002601
SEX		.3982249	.0103339	38.54	0.000	.3779708 .4184791
NonWhite		.1584696	.024744	6.40	0.000	.1099722 .206967
householdsize		.0055358	.0047028	1.18	0.239	-.0036815 .0147532
SES		-.04724	.0077547	-6.09	0.000	-.062439 -.032041
LE8_TOTALSCORE		-.0008393	.0000551	-15.23	0.000	-.0009473 -.0007313
_cons		-.0844152	.0703935	-1.20	0.230	-.2223839 .0535535
<b>sigma2</b>						
_cons		.9521731	.007054	134.98	0.000	.9383475 .9659987

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.283758	.163009	7.88	0.000	.9642663 1.60325
ereri_cde	1.286482	.1630886	7.89	0.000	.9668342 1.60613
ereri_intref	-.0020359	.0037981	-0.54	0.592	-.0094801 .0054082
ereri_intmed	.0003616	.0018826	0.19	0.848	-.0033283 .0040515
ereri_pie	-.0010496	.0012192	-0.86	0.389	-.0034391 .0013399

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zfcrl2
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04662 2.217 -.07556 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9132.2766**  
 Iteration 1: Log likelihood = **-9039.7099**  
 Iteration 2: Log likelihood = **-9030.8345**  
 Iteration 3: Log likelihood = **-9030.8148**  
 Iteration 4: Log likelihood = **-9030.8148**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-9030.8148**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,637</b>	Number of obs =	<b>36,637</b>
No. of failures =	<b>975</b>		
Time at risk =	<b>445,098.392</b>	LR chi2(9) =	<b>202.92</b>
Log likelihood =	<b>-9030.8148</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.26336</b>	.1616811	<b>11.44</b>	<b>0.000</b>	<b>1.967655</b> <b>2.603506</b>
_zfcrl2		<b>.9307278</b>	.0365689	<b>-1.83</b>	<b>0.068</b>	<b>.8617443</b> <b>1.005234</b>
_infectionburXzfcrl2_000		<b>1.077077</b>	.0693094	<b>1.15</b>	<b>0.249</b>	<b>.9494501</b> <b>1.221859</b>
AGE		<b>1.036226</b>	.013029	<b>2.83</b>	<b>0.005</b>	<b>1.011002</b> <b>1.06208</b>
SEX		<b>.7536488</b>	.0489295	<b>-4.36</b>	<b>0.000</b>	<b>.6635995</b> <b>.8559177</b>
NonWhite		<b>1.053375</b>	.1814932	<b>0.30</b>	<b>0.763</b>	<b>.7514909</b> <b>1.47653</b>
householdszie		<b>.9380512</b>	.0393155	<b>-1.53</b>	<b>0.127</b>	<b>.8640743</b> <b>1.018361</b>
SES		<b>.8120618</b>	.0399195	<b>-4.23</b>	<b>0.000</b>	<b>.7374721</b> <b>.8941957</b>
LE8_TOTALSCORE		<b>.9990802</b>	.0003541	<b>-2.60</b>	<b>0.009</b>	<b>.9983863</b> <b>.9997745</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-51757.048**  
 Iteration 1: Log likelihood = **-51757.048**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,637</b>	
	Wald chi2(7) =	<b>459.06</b>	
Log likelihood =	<b>-51757.048</b>	Prob > chi2 =	<b>0.0000</b>

	<u>zfcrl2</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.0491148</b>	.0151588	<b>3.24</b>	<b>0.001</b>	<b>.0194041</b> <b>.0788256</b>
AGE		<b>.0163515</b>	.0009885	<b>16.54</b>	<b>0.000</b>	<b>.014414</b> <b>.018289</b>
SEX		<b>.0504643</b>	.0104965	<b>4.81</b>	<b>0.000</b>	<b>.0298915</b> <b>.071037</b>
NonWhite		<b>.0335674</b>	.025106	<b>1.34</b>	<b>0.181</b>	<b>-.0156394</b> <b>.0827741</b>
householdszie		<b>.011442</b>	.0047811	<b>2.39</b>	<b>0.017</b>	<b>.0020712</b> <b>.0208128</b>
SES		<b>-.0445489</b>	.0078715	<b>-5.66</b>	<b>0.000</b>	<b>-.0599767</b> <b>-.0291212</b>
LE8_TOTALSCORE		<b>-.000394</b>	.0000559	<b>-7.05</b>	<b>0.000</b>	<b>-.0005035</b> <b>-.0002845</b>
_cons		<b>-.9011199</b>	.0714578	<b>-12.61</b>	<b>0.000</b>	<b>-.1.041175</b> <b>-.7610652</b>
<b>sigma2</b>						
_cons		<b>.9875982</b>	.0072968	<b>135.35</b>	<b>0.000</b>	<b>.9732967</b> <b>1.0019</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.256745</b>	.1610568	7.80	<b>0.000</b>	.9410794 1.572411
ereri_cde	<b>1.259533</b>	.1612614	7.81	<b>0.000</b>	.9434662 1.575599
ereri_intref	<b>-.0030607</b>	.003115	-0.98	0.326	-.0091661 .0030446
ereri_intmed	<b>.0037926</b>	.0060821	0.62	0.533	-.0081282 .0157133
ereri_pie	<b>-.0035197</b>	.0022076	-1.59	0.111	-.0078466 .0008072

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zfcr13
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.53 .04656 2.215 -.07626 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -8913.3312

Iteration 1: Log likelihood = -8827.5818

Iteration 2: Log likelihood = -8819.3525

Iteration 3: Log likelihood = -8819.3261

Iteration 4: Log likelihood = -8819.3261

Refining estimates:

Iteration 0: Log likelihood = -8819.3261

Cox regression with Breslow method for ties

No. of subjects = 35,761 Number of obs = 35,761

No. of failures = 953

Time at risk = 434,427.923

LR chi2(9) = 188.01

Log likelihood = -8819.3261

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.218834	.1605613	11.01	0.000	1.925437 2.556938
zfcr13	.9517423	.0365526	-1.29	0.198	.8827305 1.026149
_infectionburXzfcr13_000	1.010257	.0696209	0.15	0.882	.8826165 1.156356
AGE	1.037306	.0131621	2.89	0.004	1.011827 1.063426
SEX	.7543937	.0496905	-4.28	0.000	.6630267 .8583513
NonWhite	1.05316	.1838892	0.30	0.767	.747943 1.482928
householdszie	.9356655	.03981	-1.56	0.118	.8608041 1.017037
SES	.8263951	.0411364	-3.83	0.000	.7495775 .9110851
LE8_TOTALSCORE	.9990425	.0003586	-2.67	0.008	.9983399 .9997456

-> Model for the mediator

Iteration 0: Log likelihood = -50570.939  
 Iteration 1: Log likelihood = -50570.939

Linear regression (Maximum Likelihood)  
 Number of obs = 35,761  
 Wald chi2(7) = 344.09  
 Log likelihood = -50570.939 Prob > chi2 = 0.0000

	zfcr13	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr	.0017207	.015379	0.11	0.911	-.0284216	.031863
AGE	.0084436	.0010017	8.43	0.000	.0064803	.0104068
SEX	.1474901	.0106376	13.87	0.000	.1266408	.1683393
NonWhite	-.0565692	.0254525	-2.22	0.026	-.1064551	-.0066833
householdszie	.0116366	.0048385	2.41	0.016	.0021534	.0211199
SES	-.0229219	.0079756	-2.87	0.004	-.0385537	-.00729
LE8_TOTALSCORE	-.0004906	.0000567	-8.66	0.000	-.0006017	-.0003795
_cons	-.5133181	.0723513	-7.09	0.000	-.6551241	-.3715121
<b>sigma2</b>						
_cons	.9904421	.0074069	133.72	0.000	.9759248	1.004959

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.217684	.1605287	7.59	0.000	.9030537 1.532315
ereri_cde	1.217344	.1603767	7.59	0.000	.9030114 1.531677
ereri_intref	.0004901	.00532	0.09	0.927	-.0099368 .0109171
ereri_intmed	-.0000647	.0006219	-0.10	0.917	-.0012836 .0011542
ereri_pie	-.0000851	.0007635	-0.11	0.911	-.0015815 .0014113

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdszie SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zfcrl5  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.19 1.531 .04638 2.215 -.07464 500.5

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9121.8147  
 Iteration 1: Log likelihood = -9029.5786  
 Iteration 2: Log likelihood = -9021.2696  
 Iteration 3: Log likelihood = -9021.2493  
 Iteration 4: Log likelihood = -9021.2493  
 Refining estimates:  
 Iteration 0: Log likelihood = -9021.2493

Cox regression with Breslow method for ties

No. of subjects =	36,459	Number of obs =	36,459
No. of failures =	974		
Time at risk =	442,828.345	LR chi2(9) =	201.13
Log likelihood =	-9021.2493	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.236936	.1597641	11.27	0.000	1.944732 2.573043
zfcrl5	.8980178	.0361277	-2.67	0.008	.8299284 .9716934
_infectionburXzfcrl5_000	1.027262	.0687798	0.40	0.688	.9009422 1.171293
AGE	1.035795	.0130159	2.80	0.005	1.010596 1.061623
SEX	.7080702	.0482108	-5.07	0.000	.6196123 .8091567
NonWhite	1.145671	.1956214	0.80	0.426	.8198201 1.601036
householdsize	.9429041	.039243	-1.41	0.158	.8690426 1.023043
SES	.8187621	.0403059	-4.06	0.000	.7434554 .9016968
LE8_TOTALSCORE	.9989577	.0003548	-2.94	0.003	.9982625 .9996534

-> Model for the mediator

Iteration 0: Log likelihood = -49722.183  
 Iteration 1: Log likelihood = -49722.183

Linear regression (Maximum Likelihood)  
 Number of obs = 36,459  
 Wald chi2(7) = 4250.89  
 Log likelihood = -49722.183 Prob > chi2 = 0.0000

	zfcrl5	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.0412759	.0144624	2.85	0.004	.01293 .0696217
AGE		.0016412	.0009466	1.73	0.083	-.0002141 .0034964
SEX		-.5439365	.0100217	-54.28	0.000	-.5635787 -.5242943
NonWhite		.5812239	.024027	24.19	0.000	.5341318 .628316
householdsize		.0275888	.0047623	5.79	0.000	.0182549 .0369228
SES		-.0711866	.0075273	-9.46	0.000	-.0859398 -.0564334
LE8_TOTALSCORE		-.000734	.0000534	-13.76	0.000	-.0008386 -.0006294
_cons		1.002336	.0686454	14.60	0.000	.8677934 1.136878
<b>sigma2</b>						
_cons		.8955564	.00666329	135.02	0.000	.8825561 .9085568

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.224108	.159172	7.69	0.000	.9121364 1.536079
ereri_cde	1.229785	.1588836	7.74	0.000	.9183788 1.541191
ereri_intref	.0017409	.0103396	0.17	0.866	-.0185243 .0220061
ereri_intmed	-.0029878	.0054525	-0.55	0.584	-.0136745 .0076988
ereri_pie	-.00443	.0022653	-1.96	0.051	-.00887 9.96e-06

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zfcrl6
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04646 2.216 -.07503 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9036.4379**  
 Iteration 1: Log likelihood = **-8949.0217**  
 Iteration 2: Log likelihood = **-8939.0005**  
 Iteration 3: Log likelihood = **-8938.9427**  
 Iteration 4: Log likelihood = **-8938.9427**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8938.9427**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,352</b>	Number of obs =	<b>36,352</b>
No. of failures =	<b>965</b>		
Time at risk =	<b>441,650.762</b>	LR chi2(9) =	<b>194.99</b>
Log likelihood =	<b>-8938.9427</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.279233</b>	.1635732	<b>11.48</b>	<b>0.000</b>	<b>1.980162</b> <b>2.623474</b>
zfcrl6		<b>1.015575</b>	.039246	<b>0.40</b>	<b>0.689</b>	<b>.9414956</b> <b>1.095484</b>
_infectionburXzfcrl6_000		<b>.9117369</b>	.0620624	<b>-1.36</b>	<b>0.175</b>	<b>.797862</b> <b>1.041865</b>
AGE		<b>1.03252</b>	.0130298	<b>2.54</b>	<b>0.011</b>	<b>1.007295</b> <b>1.058376</b>
SEX		<b>.7605618</b>	.0498484	<b>-4.18</b>	<b>0.000</b>	<b>.6688757</b> <b>.8648157</b>
NonWhite		<b>1.059977</b>	.1827172	<b>0.34</b>	<b>0.735</b>	<b>.7560799</b> <b>1.486022</b>
householdszie		<b>.9334495</b>	.0398165	<b>-1.61</b>	<b>0.106</b>	<b>.8585836</b> <b>1.014843</b>
SES		<b>.8179274</b>	.0404855	<b>-4.06</b>	<b>0.000</b>	<b>.7423048</b> <b>.901254</b>
LE8_TOTALSCORE		<b>.9990161</b>	.0003558	<b>-2.76</b>	<b>0.006</b>	<b>.9983191</b> <b>.9997137</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-51091.955**  
 Iteration 1: Log likelihood = **-51091.955**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,352</b>
	Wald chi2(7) =	<b>990.86</b>
Log likelihood =	<b>-51091.955</b>	Prob > chi2 = <b>0.0000</b>

	<u>zfcrl6</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.0451219</b>	.0151144	<b>2.99</b>	<b>0.003</b>	<b>.0154983</b> <b>.0747454</b>
AGE		<b>.0216765</b>	.0009866	<b>21.97</b>	<b>0.000</b>	<b>.0197427</b> <b>.0236102</b>
SEX		<b>.1895011</b>	.010461	<b>18.12</b>	<b>0.000</b>	<b>.1689979</b> <b>.2100043</b>
NonWhite		<b>.1097536</b>	.0250681	<b>4.38</b>	<b>0.000</b>	<b>.0606211</b> <b>.1588861</b>
householdszie		<b>.0318474</b>	.0048417	<b>6.58</b>	<b>0.000</b>	<b>.0223579</b> <b>.0413369</b>
SES		<b>-.08229</b>	.0078463	<b>-10.49</b>	<b>0.000</b>	<b>-.0976684</b> <b>-.0669116</b>
LE8_TOTALSCORE		<b>-.0000274</b>	.0000557	<b>-0.49</b>	<b>0.622</b>	<b>-.0001366</b> <b>.0000817</b>
_cons		<b>-1.669147</b>	.0713737	<b>-23.39</b>	<b>0.000</b>	<b>-1.809037</b> <b>-1.529257</b>
<b>sigma2</b>						
_cons		<b>.9734391</b>	.0072204	<b>134.82</b>	<b>0.000</b>	<b>.9592874</b> <b>.9875908</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.278941</b>	.163815	<b>7.81</b>	<b>0.000</b>	<b>.9578692</b> <b>1.600012</b>
ereri_cde	<b>1.279208</b>	.1635448	<b>7.82</b>	<b>0.000</b>	<b>.9586665</b> <b>1.59975</b>
ereri_intref	<b>.0076586</b>	.0105709	<b>0.72</b>	<b>0.469</b>	<b>-.01306</b> <b>.0283772</b>
ereri_intmed	<b>-.008624</b>	.0067817	<b>-1.27</b>	<b>0.203</b>	<b>-.0219159</b> <b>.004668</b>
ereri_pie	<b>.0006976</b>	.0017605	<b>0.40</b>	<b>0.692</b>	<b>-.0027529</b> <b>.0041481</b>

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zfcrlb
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04669 2.217 -.07551 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -8882.1967

Iteration 1: Log likelihood = -8796.7762

Iteration 2: Log likelihood = -8788.6538

Iteration 3: Log likelihood = -8788.6328

Iteration 4: Log likelihood = -8788.6328

Refining estimates:

Iteration 0: Log likelihood = -8788.6328

Cox regression with Breslow method for ties

No. of subjects = 35,573 Number of obs = 35,573

No. of failures = 951

Time at risk = 432,088.637

LR chi2(9) = 187.13

Log likelihood = -8788.6328

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.26044	.1644205	11.21	0.000	1.960099 2.606801
zfcrlb	1.03169	.0384986	0.84	0.403	.9589276 1.109974
_infectionburXzfcrlb_000	.9634202	.0643605	-0.56	0.577	.8451852 1.098195
AGE	1.037111	.0132036	2.86	0.004	1.011552 1.063315
SEX	.7509623	.0499826	-4.30	0.000	.659119 .8556032
NonWhite	1.110038	.1888293	0.61	0.539	.7953151 1.549302
householdsize	.9398357	.0395877	-1.47	0.141	.8653617 1.020719
SES	.8292319	.0413595	-3.75	0.000	.7520051 .9143895
LE8_TOTALSCORE	.9992338	.0003596	-2.13	0.033	.9985293 .9999389

-> Model for the mediator

Iteration 0: Log likelihood = **-49753.797**  
 Iteration 1: Log likelihood = **-49753.797**

Linear regression (Maximum Likelihood) Number of obs = 35,573  
 Wald chi2(7) = 1472.88  
 Log likelihood = **-49753.797** Prob > chi2 = 0.0000

zfcrlb	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	.0889588	.0151793	5.86	0.000	.0592079 .1187097
AGE	.0149775	.0009898	15.13	0.000	.0130375 .0169175
SEX	-.3034891	.0105033	-28.89	0.000	-.3240752 -.2829031
NonWhite	-.0784376	.0251019	-3.12	0.002	-.1276364 -.0292388
householdsize	-.0011112	.0047804	-0.23	0.816	-.0104807 .0082582
SES	-.0288059	.0078777	-3.66	0.000	-.044246 -.0133658
LE8_TOTALSCORE	-.0006071	.0000559	-10.85	0.000	-.0007167 -.0004975
_cons	-.1413541	.0715351	-1.98	0.048	-.2815604 -.0011479
<b>sigma2</b>					
_cons	.9602147	.0071998	133.37	0.000	.9461032 .9743261

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.259243	.1635712	7.70	0.000	.938649 1.579836
ereri_cde	1.260336	.1643537	7.67	0.000	.9382083 1.582463
ereri_intref	.0001266	.0024116	0.05	0.958	-.0046001 .0048532
ereri_intmed	-.003999	.011711	-0.34	0.733	-.0269521 .0189542
ereri_pie	.0027792	.0033625	0.83	0.409	-.0038112 .0093696

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```

Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zfen1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

Model for the outcome (yreg): cox
Model for the mediator (mreg): linear

Referent exposure level (a0):          0
Actual exposure level (a1):           1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c):    60.19 1.531 .04669 2.217 -.07551 500.6

```

-> Model for the outcome

```

Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid

Iteration 0: Log likelihood = -8882.1967
Iteration 1: Log likelihood = -8797.7881
Iteration 2: Log likelihood = -8787.199
Iteration 3: Log likelihood = -8787.0264
Iteration 4: Log likelihood = -8787.0259
Refining estimates:
Iteration 0: Log likelihood = -8787.0259

```

Cox regression with Breslow method for ties

No. of subjects =	35,573	Number of obs =	35,573
No. of failures =	951		
Time at risk =	432,088.637	LR chi2(9) =	190.34
Log likelihood =	-8787.0259	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.236671	.1624377	11.08	0.000	1.93992 2.578817
zfén1	.9365779	.0390255	-1.57	0.116	.8631294 1.016277
_infectionburXzfén1_000	1.137694	.0780281	1.88	0.060	.9945951 1.301382
AGE	1.037796	.013203	2.92	0.004	1.012239 1.063999
SEX	.7413542	.0488854	-4.54	0.000	.6514737 .8436349
NonWhite	1.106097	.1881875	0.59	0.553	.7924511 1.54388
householdsize	.9400308	.0396199	-1.47	0.142	.865498 1.020982
SES	.8299041	.0413748	-3.74	0.000	.752647 .9150916
LE8_TOTALSCORE	.9992096	.0003598	-2.20	0.028	.9985047 .999915

-> Model for the mediator

Iteration 0: Log likelihood = -50211.906	Number of obs = 35,573
Iteration 1: Log likelihood = -50211.906	Wald chi2(7) = 530.91
Log likelihood = -50211.906	Prob > chi2 = 0.0000

	zfen1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.0156743	.0153761	1.02	0.308	-.0144622 .0458108
AGE		.0031337	.0010026	3.13	0.002	.0011686 .0050988
SEX		-.1589324	.0106394	-14.94	0.000	-.1797853 -.1380796
NonWhite		-.0344315	.0254272	-1.35	0.176	-.0842679 .015405
householdsize		.0078827	.0048424	1.63	0.104	-.0016082 .0173736
SES		-.0012989	.0079799	-0.16	0.871	-.0169391 .0143414
LE8_TOTALSCORE		-.0008533	.0000567	-15.06	0.000	-.0009643 -.0007422
_cons		.4636991	.0724623	6.40	0.000	.3216756 .6057226
<b>sigma2</b>						
_cons		.9852672	.0073877	133.37	0.000	.9707876 .9997468

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.23798	.1618727	7.65	0.000	.9207153 1.555245
ereri_cde	1.233883	.1620442	7.61	0.000	.916282 1.551484
ereri_intref	.0018714	.0079575	0.24	0.814	-.013725 .0174679
ereri_intmed	.0032522	.0037756	0.86	0.389	-.0041478 .0106522
ereri_pie	-.0010265	.0011994	-0.86	0.392	-.0033773 .0013243

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zfec
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04669 2.217 -.07551 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8882.1967**  
 Iteration 1: Log likelihood = **-8795.4149**  
 Iteration 2: Log likelihood = **-8787.2625**  
 Iteration 3: Log likelihood = **-8787.2434**  
 Iteration 4: Log likelihood = **-8787.2434**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8787.2434**

Cox regression with Breslow method for ties

No. of subjects = **35,573** Number of obs = **35,573**  
 No. of failures = **951**  
 Time at risk = **432,088.637**  
**LR chi2(9) = 189.91**  
**Prob > chi2 = 0.0000**  
**Log likelihood = -8787.2434**

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.251313</b>	.162587	<b>11.24</b>	<b>0.000</b>	<b>1.954174</b> <b>2.593633</b>
zfes	<b>.9311493</b>	.0379054	<b>-1.75</b>	<b>0.080</b>	<b>.8597426</b> <b>1.008487</b>
_infectionburXzfes_000	<b>1.037796</b>	.0788389	<b>0.49</b>	<b>0.625</b>	<b>.8942276</b> <b>1.204414</b>
AGE	<b>1.038242</b>	.0132062	<b>2.95</b>	<b>0.003</b>	<b>1.012678</b> <b>1.064451</b>
SEX	<b>.7461754</b>	.0490823	<b>-4.45</b>	<b>0.000</b>	<b>.655919</b> <b>.8488514</b>
NonWhite	<b>1.104317</b>	.187914	<b>0.58</b>	<b>0.560</b>	<b>.7911355</b> <b>1.541477</b>
householdsize	<b>.9391278</b>	.0395998	<b>-1.49</b>	<b>0.136</b>	<b>.8646343</b> <b>1.020039</b>
SES	<b>.8292137</b>	.0413427	<b>-3.76</b>	<b>0.000</b>	<b>.7520168</b> <b>.9143352</b>
LE8_TOTALSCORE	<b>.9992079</b>	.0003589	<b>-2.21</b>	<b>0.027</b>	<b>.9985048</b> <b>.9999115</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50404.122**  
 Iteration 1: Log likelihood = **-50404.122**

Linear regression (Maximum Likelihood) Number of obs = **35,573**  
 Wald chi2(7) = **142.84**  
**Prob > chi2 = 0.0000**  
**Log likelihood = -50404.122**

<u>zifes</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.0139426</b>	.0154594	<b>0.90</b>	<b>0.367</b>	<b>-.0163573</b> <b>.0442424</b>
AGE	<b>.0079817</b>	.0010081	<b>7.92</b>	<b>0.000</b>	<b>.0060059</b> <b>.0099575</b>
SEX	<b>-.0215248</b>	.0106971	<b>-2.01</b>	<b>0.044</b>	<b>-.0424906</b> <b>-.0005589</b>
NonWhite	<b>-.0709822</b>	.025565	<b>-2.78</b>	<b>0.005</b>	<b>-.1210887</b> <b>-.0208757</b>
householdsize	<b>-.0038076</b>	.0048686	<b>-0.78</b>	<b>0.434</b>	<b>-.0133499</b> <b>.0057347</b>
SES	<b>-.0031306</b>	.0080231	<b>-0.39</b>	<b>0.696</b>	<b>-.0188556</b> <b>.0125944</b>
LE8_TOTALSCORE	<b>-.0003569</b>	.000057	<b>-6.27</b>	<b>0.000</b>	<b>-.0004685</b> <b>-.0002452</b>
_cons	<b>-.2592142</b>	.0728549	<b>-3.56</b>	<b>0.000</b>	<b>-.4020072</b> <b>-.1164212</b>
<b>sigma2</b>					
_cons	<b>.9959726</b>	.007468	<b>133.37</b>	<b>0.000</b>	<b>.9813356</b> <b>1.01061</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.245693	.1623078	7.67	0.000	.9275756 1.56381
ereri_cde	1.247974	.1621457	7.70	0.000	.9301743 1.565774
ereri_intref	-.0012088	.0059823	-0.20	0.840	-.0129339 .0105163
ereri_intmed	-.0000781	.0020945	-0.04	0.970	-.0041833 .0040271
ereri_pie	-.0009941	.0012391	-0.80	0.422	-.0034226 .0014344

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zfetub
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .0465 2.216 -.07519 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9110.8828

Iteration 1: Log likelihood = -9022.9678

Iteration 2: Log likelihood = -9013.9913

Iteration 3: Log likelihood = -9013.9545

Iteration 4: Log likelihood = -9013.9545

Refining estimates:

Iteration 0: Log likelihood = -9013.9545

Cox regression with Breslow method for ties

No. of subjects = 36,534

Number of obs = 36,534

No. of failures = 973

Time at risk = 443,839.498

LR chi2(9) = 193.86

Log likelihood = -9013.9545

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.252607	.1610966	11.36	0.000	1.957993 2.59155
zfetub	.9456023	.0366756	-1.44	0.149	.8763838 1.020288
_infectionburXzfetub_000	1.014141	.0704379	0.20	0.840	.8850699 1.162035
AGE	1.034085	.0130221	2.66	0.008	1.008874 1.059925
SEX	.7763885	.051956	-3.78	0.000	.6809521 .8852004
NonWhite	1.114361	.1899232	0.64	0.525	.7979095 1.556317
householdszie	.9338531	.0395252	-1.62	0.106	.8595112 1.014625
SES	.8218303	.0405978	-3.97	0.000	.7459907 .90538
LE8_TOTALSCORE	.9989947	.0003564	-2.82	0.005	.9982963 .9996936

-> Model for the mediator

Iteration 0: Log likelihood = -50258.219  
 Iteration 1: Log likelihood = -50258.219

Linear regression (Maximum Likelihood)  
 Number of obs = 36,534  
 Wald chi2(7) = 3302.39  
 Prob > chi2 = 0.0000  
 Log likelihood = -50258.219

	zfetub	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr	.0838571	.0146332	5.73	0.000	.0551766	.1125376
AGE	-.008617	.0009543	-9.03	0.000	-.0104874	-.0067466
SEX	.4433779	.0101288	43.77	0.000	.4235259	.4632299
NonWhite	.3267934	.0242468	13.48	0.000	.2792705	.3743163
householdszie	.0068301	.0046132	1.48	0.139	-.0022117	.0158719
SES	-.0985984	.0076031	-12.97	0.000	-.1135003	-.0836965
LE8_TOTALSCORE	-.0014213	.000054	-26.31	0.000	-.0015271	-.0013154
_cons	.5020071	.0689759	7.28	0.000	.3668169	.6371974
<b>sigma2</b>						
_cons	.917076	.0067853	135.16	0.000	.903777	.930375

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.242928	.1603053	7.75	0.000	.9287354 1.557121
ereri_cde	1.249998	.1606369	7.78	0.000	.9351556 1.564841
ereri_intref	.0008228	.0070068	0.12	0.907	-.0129103 .014556
ereri_intmed	-.0032136	.0115073	-0.28	0.780	-.0257675 .0193404
ereri_pie	-.0046794	.0033381	-1.40	0.161	-.0112221 .0018632

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdszie SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zfgf19  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.18 1.531 .04635 2.216 -.07488 500.5

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9125.8833  
 Iteration 1: Log likelihood = -9039.6832  
 Iteration 2: Log likelihood = -9029.2846  
 Iteration 3: Log likelihood = -9029.2131  
 Iteration 4: Log likelihood = -9029.2131  
 Refining estimates:  
 Iteration 0: Log likelihood = -9029.2131

Cox regression with Breslow method for ties

No. of subjects = 36,595	Number of obs = 36,595
No. of failures = 974	
Time at risk = 444,506.48	LR chi2(9) = 193.34
Log likelihood = -9029.2131	Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.230187	.1595741	11.21	0.000	1.938368 2.565939
zfgf19	.964766	.0372406	-0.93	0.353	.8944686 1.040588
_infectionburXzfgf19_000	.9619826	.0666287	-0.56	0.576	.8398688 1.101851
AGE	1.035969	.0130078	2.81	0.005	1.010786 1.06178
SEX	.764903	.0498463	-4.11	0.000	.6731878 .8691134
NonWhite	1.086775	.1849337	0.49	0.625	.7785617 1.517003
householdsize	.9369607	.0393285	-1.55	0.121	.8629637 1.017303
SES	.8285698	.0408032	-3.82	0.000	.7523351 .9125293
LE8_TOTALSCORE	.9990467	.0003538	-2.69	0.007	.9983535 .9997404

-> Model for the mediator

Iteration 0: Log likelihood = -51770.742  
 Iteration 1: Log likelihood = -51770.742

Linear regression (Maximum Likelihood)  
 Number of obs = 36,595  
 Wald chi2(7) = 310.94  
 Log likelihood = -51770.742 Prob > chi2 = 0.0000

	zfgf19	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>-.0134066</b>	<b>.0151892</b>	<b>-0.88</b>	<b>0.377</b>	<b>-.0431769</b>
AGE		<b>.0086988</b>	<b>.0009913</b>	<b>8.78</b>	<b>0.000</b>	<b>.0067559</b>
SEX		<b>.1388447</b>	<b>.0105244</b>	<b>13.19</b>	<b>0.000</b>	<b>.1182173</b>
NonWhite		<b>-.0438918</b>	<b>.0252322</b>	<b>-1.74</b>	<b>0.082</b>	<b>-.0933461</b>
householdsize		<b>-.0076002</b>	<b>.0047918</b>	<b>-1.59</b>	<b>0.113</b>	<b>-.0169919</b>
SES		<b>.0119571</b>	<b>.0078995</b>	<b>1.51</b>	<b>0.130</b>	<b>.0035256</b>
LE8_TOTALSCORE		<b>.0003145</b>	<b>.000056</b>	<b>5.61</b>	<b>0.000</b>	<b>.0002047</b>
_cons		<b>-.8719623</b>	<b>.0716018</b>	<b>-12.18</b>	<b>0.000</b>	<b>-.1.012299</b>
<b>sigma2</b>						
_cons		<b>.9915477</b>	<b>.0073302</b>	<b>135.27</b>	<b>0.000</b>	<b>.9771807</b>
						<b>1.005915</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.237003</b>	<b>.1597545</b>	<b>7.74</b>	<b>0.000</b>	<b>.9238901</b>
ereri_cde	<b>1.229485</b>	<b>.159497</b>	<b>7.71</b>	<b>0.000</b>	<b>.9168766</b>
ereri_intref	<b>.0052813</b>	<b>.0093948</b>	<b>0.56</b>	<b>0.574</b>	<b>-.0131323</b>
ereri_intmed	<b>.001756</b>	<b>.0026905</b>	<b>0.65</b>	<b>0.514</b>	<b>-.0035172</b>
ereri_pie	<b>.000481</b>	<b>.0007518</b>	<b>0.64</b>	<b>0.522</b>	<b>-.0009925</b>

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zfgf2
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04646 2.216 -.07503 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9036.4379**  
 Iteration 1: Log likelihood = **-8946.8813**  
 Iteration 2: Log likelihood = **-8938.3125**  
 Iteration 3: Log likelihood = **-8938.2916**  
 Iteration 4: Log likelihood = **-8938.2916**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8938.2916**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,352</b>	Number of obs =	<b>36,352</b>
No. of failures =	<b>965</b>		
Time at risk =	<b>441,650.762</b>	LR chi2(9) =	<b>196.29</b>
Log likelihood =	<b>-8938.2916</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.261843</b>	<b>.1620319</b>	<b>11.39</b>	<b>0.000</b>	<b>1.965553</b>	<b>2.602796</b>
zfgf2	<b>.9359919</b>	<b>.0368499</b>	<b>-1.68</b>	<b>0.093</b>	<b>.8664836</b>	<b>1.011076</b>
_infectionburXzfgf2_000	<b>1.025278</b>	<b>.0738455</b>	<b>0.35</b>	<b>0.729</b>	<b>.8902951</b>	<b>1.180727</b>
AGE	<b>1.032599</b>	<b>.013009</b>	<b>2.55</b>	<b>0.011</b>	<b>1.007414</b>	<b>1.058414</b>
SEX	<b>.7576319</b>	<b>.0494191</b>	<b>-4.26</b>	<b>0.000</b>	<b>.6667082</b>	<b>.8609555</b>
NonWhite	<b>1.040708</b>	<b>.1796079</b>	<b>0.23</b>	<b>0.817</b>	<b>.7420384</b>	<b>1.459591</b>
householdsize	<b>.9329125</b>	<b>.0397066</b>	<b>-1.63</b>	<b>0.103</b>	<b>.8582466</b>	<b>1.014074</b>
SES	<b>.8186839</b>	<b>.0404332</b>	<b>-4.05</b>	<b>0.000</b>	<b>.743151</b>	<b>.9018939</b>
LE8_TOTALSCORE	<b>.9989949</b>	<b>.0003555</b>	<b>-2.83</b>	<b>0.005</b>	<b>.9982984</b>	<b>.999692</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-51476.127**  
 Iteration 1: Log likelihood = **-51476.127**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,352</b>
	Wald chi2(7) =	<b>209.86</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	zfgf2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.0469634</b>	<b>.0152749</b>	<b>3.07</b>	<b>0.002</b>	<b>.0170251</b>
AGE		<b>.0017167</b>	<b>.0009971</b>	<b>1.72</b>	<b>0.085</b>	<b>-.0002376</b>
SEX		<b>-.0266841</b>	<b>.0105721</b>	<b>-2.52</b>	<b>0.012</b>	<b>-.0474052</b>
NonWhite		<b>-.2202966</b>	<b>.0253344</b>	<b>-8.70</b>	<b>0.000</b>	<b>-.2699511</b>
householdsize		<b>-.0077405</b>	<b>.0048931</b>	<b>-1.58</b>	<b>0.114</b>	<b>-.0173308</b>
SES		<b>-.0134768</b>	<b>.0079296</b>	<b>-1.70</b>	<b>0.089</b>	<b>-.0290186</b>
LE8_TOTALSCORE		<b>-.0005115</b>	<b>.0000563</b>	<b>-9.09</b>	<b>0.000</b>	<b>-.0006218</b>
_cons		<b>.2134794</b>	<b>.072132</b>	<b>2.96</b>	<b>0.003</b>	<b>.0721033</b>
<b>sigma2</b>						
_cons		<b>.9942329</b>	<b>.0073746</b>	<b>134.82</b>	<b>0.000</b>	<b>.9797789</b>
						<b>1.008687</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.254101</b>	.1614069	7.77	<b>0.000</b>	.9377493 1.570453
ereri_cde	<b>1.258559</b>	.1615364	7.79	<b>0.000</b>	.9419535 1.575165
ereri_intref	<b>-.000094</b>	.0070652	-0.01	0.989	-.0139415 .0137536
ereri_intmed	<b>-.0012623</b>	.0066792	-0.19	0.850	-.0143532 .0118286
ereri_pie	<b>-.0031017</b>	.0021005	-1.48	0.140	-.0072186 .0010151

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zfgf21
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04661 2.218 -.07452 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9189.6152

Iteration 1: Log likelihood = -9102.5399

Iteration 2: Log likelihood = -9092.0007

Iteration 3: Log likelihood = -9091.9266

Iteration 4: Log likelihood = -9091.9265

Refining estimates:

Iteration 0: Log likelihood = -9091.9265

Cox regression with Breslow method for ties

No. of subjects = 36,668 Number of obs = 36,668

No. of failures = 981

Time at risk = 445,408.659

LR chi2(9) = 195.38

Log likelihood = -9091.9265

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.239214	.161087	11.21	0.000	1.944737 2.578281
zfgf21	.9527995	.0394707	-1.17	0.243	.8784957 1.033388
_infectionburXzfgf21_000	1.072761	.0756144	1.00	0.319	.9343408 1.231687
AGE	1.033852	.0129579	2.66	0.008	1.008764 1.059563
SEX	.7580969	.0491198	-4.27	0.000	.6676861 .8607502
NonWhite	1.077602	.1831973	0.44	0.660	.7722366 1.503719
householdszie	.9321854	.0393207	-1.66	0.096	.8582181 1.012528
SES	.8200303	.0403071	-4.04	0.000	.7447159 .9029613
LE8_TOTALSCORE	.9989976	.0003713	-2.70	0.007	.99827 .9997256

-> Model for the mediator

Iteration 0: Log likelihood = **-49636.354**  
 Iteration 1: Log likelihood = **-49636.354**

Linear regression (Maximum Likelihood) Number of obs = 36,668  
 Wald chi2(7) = 5111.89  
 Log likelihood = **-49636.354** Prob > chi2 = 0.0000

zfgf21	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	.1130363	.0142947	7.91	0.000	.0850192 .1410533
AGE	-.0020169	.0009322	-2.16	0.030	-.0038439 -.0001899
SEX	-.1400409	.0098899	-14.16	0.000	-.1594248 -.120657
NonWhite	-.0788807	.0236591	-3.33	0.001	-.1252516 -.0325097
householdszie	-.0173182	.0045025	-3.85	0.000	-.026143 -.0084934
SES	-.0911942	.0074184	-12.29	0.000	-.105734 -.0766544
LE8_TOTALSCORE	-.0032747	.0000527	-62.16	0.000	-.0033779 -.0031714
_cons	1.994634	.0674049	29.59	0.000	1.862523 2.126745
<b>sigma2</b>					
_cons	.8776231	.0064816	135.40	0.000	.8649195 .8903267

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.240464	.1599186	7.76	0.000	.9270296 1.553899
ereri_cde	1.237006	.1608475	7.69	0.000	.9217511 1.552262
ereri_intref	-.0020777	.0025271	-0.82	0.411	-.0070308 .0028754
ereri_intmed	.010986	.0155166	0.71	0.479	-.0194259 .041398
ereri_pie	-.0054505	.0047076	-1.16	0.247	-.0146772 .0037762

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdszie SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zfgf23  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.19 1.531 .04653 2.217 -.07485 500.6

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9161.8024  
 Iteration 1: Log likelihood = -9075.1916  
 Iteration 2: Log likelihood = -9062.5796  
 Iteration 3: Log likelihood = -9062.3272  
 Iteration 4: Log likelihood = -9062.3265  
 Refining estimates:  
 Iteration 0: Log likelihood = -9062.3265

Cox regression with Breslow method for ties

No. of subjects =	36,664	Number of obs =	36,664
No. of failures =	978		
Time at risk =	445,357.694	LR chi2(9) =	198.95
Log likelihood =	-9062.3265	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.230584	.1621773	11.03	0.000	1.934332 2.572209
zfgf23	1.019233	.0422615	0.46	0.646	.939678 1.105523
_infectionburXzfgf23_000	1.044505	.064646	0.70	0.482	.9251844 1.179214
AGE	1.034358	.0130042	2.69	0.007	1.009181 1.060162
SEX	.746754	.0489018	-4.46	0.000	.6568042 .8490224
NonWhite	1.08627	.1846342	0.49	0.626	.7784994 1.515714
householdsize	.9339126	.03951	-1.62	0.106	.859598 1.014652
SES	.8213585	.0404243	-4.00	0.000	.7458298 .9045359
LE8_TOTALSCORE	.9991989	.0003583	-2.23	0.025	.9984969 .9999014

-> Model for the mediator

Iteration 0: Log likelihood = -50860.142	Number of obs = 36,664
Iteration 1: Log likelihood = -50860.142	Wald chi2(7) = 2402.05
Log likelihood = -50860.142	Prob > chi2 = 0.0000

	zfgf23	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.2234406	.0147765	15.12	0.000	.1944793 .252402
AGE		.007371	.000964	7.65	0.000	.0054815 .0092604
SEX		.3079713	.0102274	30.11	0.000	.2879259 .3280166
NonWhite		-.1008738	.0244803	-4.12	0.000	-.1488544 -.0528933
householdsize		-.0090919	.0046592	-1.95	0.051	-.0182238 .0000399
SES		-.076826	.0076741	-10.01	0.000	-.091867 -.0617851
LE8_TOTALSCORE		-.001577	.0000545	-28.94	0.000	-.0016838 -.0014702
_cons		-.1376392	.0697257	-1.97	0.048	-.2742992 -.0009793
<b>sigma2</b>						
_cons		.9384875	.0069314	135.40	0.000	.9249021 .9520729

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.262721	.1612878	7.83	0.000	.9466027 1.578839
ereri_cde	1.231101	.1622594	7.59	0.000	.9130784 1.549124
ereri_intref	.0001942	.0030557	0.06	0.949	-.0057949 .0061833
ereri_intmed	.0271601	.0250713	1.08	0.279	-.0219786 .0762989
ereri_pie	.0042656	.0093086	0.46	0.647	-.0139788 .0225101

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zfgf5
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.53 .04656 2.215 -.07626 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8913.3312**  
 Iteration 1: Log likelihood = **-8824.366**  
 Iteration 2: Log likelihood = **-8816.4446**  
 Iteration 3: Log likelihood = **-8816.4221**  
 Iteration 4: Log likelihood = **-8816.4221**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8816.4221**

Cox regression with Breslow method for ties

No. of subjects =	<b>35,761</b>	Number of obs =	<b>35,761</b>
No. of failures =	<b>953</b>		
Time at risk =	<b>434,427.923</b>	LR chi2(9) =	<b>193.82</b>
Log likelihood =	<b>-8816.4221</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.23991</b>	.1670328	<b>10.81</b>	<b>0.000</b>	<b>1.935332</b> <b>2.592422</b>
zfgf5		<b>1.113842</b>	.0433495	<b>2.77</b>	<b>0.006</b>	<b>1.032038</b> <b>1.20213</b>
_infectionburXzfgf5_000		<b>.9403832</b>	.0660871	<b>-0.87</b>	<b>0.382</b>	<b>.8193796</b> <b>1.079256</b>
AGE		<b>1.033281</b>	.0131795	<b>2.57</b>	<b>0.010</b>	<b>1.00777</b> <b>1.059438</b>
SEX		<b>.7240843</b>	.0483469	<b>-4.84</b>	<b>0.000</b>	<b>.6352645</b> <b>.8253225</b>
NonWhite		<b>1.065264</b>	.1860037	<b>0.36</b>	<b>0.717</b>	<b>.7565378</b> <b>1.499975</b>
householdszie		<b>.9369887</b>	.0397987	<b>-1.53</b>	<b>0.125</b>	<b>.8621433</b> <b>1.018332</b>
SES		<b>.8289933</b>	.04125	<b>-3.77</b>	<b>0.000</b>	<b>.7519621</b> <b>.9139157</b>
LE8_TOTALSCORE		<b>.9990231</b>	.0003584	<b>-2.72</b>	<b>0.006</b>	<b>.9983209</b> <b>.9997259</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-49194.237**  
 Iteration 1: Log likelihood = **-49194.237**

Linear regression (Maximum Likelihood)	Number of obs =	<b>35,761</b>
	Wald chi2(7) =	<b>3233.80</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	zfgf5	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.0725154</b>	.0147982	<b>4.90</b>	<b>0.000</b>	<b>.0435115</b> <b>.1015194</b>
AGE		<b>.0390867</b>	.0009638	<b>40.55</b>	<b>0.000</b>	<b>.0371977</b> <b>.0409758</b>
SEX		<b>.3493984</b>	.0102358	<b>34.13</b>	<b>0.000</b>	<b>.3293365</b> <b>.3694602</b>
NonWhite		<b>-.1189963</b>	.0244912	<b>-4.86</b>	<b>0.000</b>	<b>-.1669982</b> <b>-.0709943</b>
householdszie		<b>-.0153336</b>	.0046557	<b>-3.29</b>	<b>0.001</b>	<b>-.0244586</b> <b>-.0062085</b>
SES		<b>-.0224406</b>	.0076744	<b>-2.92</b>	<b>0.003</b>	<b>-.0374821</b> <b>-.0073991</b>
LE8_TOTALSCORE		<b>.0005916</b>	.0000545	<b>10.85</b>	<b>0.000</b>	<b>.0004848</b> <b>.0006985</b>
_cons		<b>-3.155314</b>	.0696189	<b>-45.32</b>	<b>0.000</b>	<b>-3.291764</b> <b>-3.018863</b>
<b>sigma2</b>						
_cons		<b>.9170453</b>	.0068581	<b>133.72</b>	<b>0.000</b>	<b>.9036037</b> <b>.9304868</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.239089	.1638626	7.56	0.000	.9179239 1.560253
ereri_cde	1.234655	.1658821	7.44	0.000	.9095321 1.559778
ereri_intref	-.0030792	.0054307	-0.57	0.571	-.0137232 .0075649
ereri_intmed	-.0003362	.0099031	-0.03	0.973	-.0197458 .0190735
ereri_pie	.0078489	.0032674	2.40	0.016	.0014449 .014253

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zfgfbp1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04641 2.217 -.0748 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9132.2436

Iteration 1: Log likelihood = -9046.225

Iteration 2: Log likelihood = -9035.8374

Iteration 3: Log likelihood = -9035.7673

Iteration 4: Log likelihood = -9035.7673

Refining estimates:

Iteration 0: Log likelihood = -9035.7673

Cox regression with Breslow method for ties

No. of subjects = 36,540

Number of obs = 36,540

No. of failures = 975

Time at risk = 443,893.259

LR chi2(9) = 192.95

Log likelihood = -9035.7673

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.241826	.1621109	11.16	0.000	1.945583 2.583176
zfgfbp1		.9877601	.038751	-0.31	0.754	.9146561 1.066707
_infectionburXzfgfbp1_000		.9781662	.0668756	-0.32	0.747	.8554948 1.118428
AGE		1.033728	.0129941	2.64	0.008	1.008571 1.059512
SEX		.7756474	.0525078	-3.75	0.000	.6792691 .8857002
NonWhite		1.070646	.1848573	0.40	0.693	.7632689 1.501806
householdsize		.9316094	.0394555	-1.67	0.094	.8574008 1.012241
SES		.8234245	.0406099	-3.94	0.000	.7475565 .9069923
LE8_TOTALSCORE		.9990591	.0003538	-2.66	0.008	.998366 .9997528

-> Model for the mediator

Iteration 0: Log likelihood = -50522.206  
 Iteration 1: Log likelihood = -50522.206

Linear regression (Maximum Likelihood) Number of obs = 36,540  
 Wald chi2(7) = 2749.12  
 Prob > chi2 = 0.0000  
 Log likelihood = -50522.206

	zfgfbp1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		-.1455817	.0147352	-9.88	0.000	-.1744621 -.1167013
AGE		-.0041381	.0009609	-4.31	0.000	-.0060215 -.0022547
SEX		.4939795	.0101989	48.43	0.000	.47399 .5139691
NonWhite		.2915991	.0244436	11.93	0.000	.2436904 .3395077
householdsize		-.0032528	.004644	-0.70	0.484	-.0123548 .0058493
SES		.0514715	.0076559	6.72	0.000	.0364661 .0664768
LE8_TOTALSCORE		.000041	.0000543	0.76	0.450	-.0000654 .001475
_cons		-.5101849	.0694865	-7.34	0.000	-.6463759 -.3739938
<b>sigma2</b>						
_cons		.930003	.0068804	135.17	0.000	.9165176 .9434884

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.253155	.1609847	7.78	0.000	.9376303 1.568679
ereri_cde	1.242047	.1621564	7.66	0.000	.9242265 1.559868
ereri_intref	-.0001454	.0016215	-0.09	0.929	-.0033236 .0030327
ereri_intmed	.0094582	.0194534	0.49	0.627	-.0286698 .0475862
ereri_pie	.0017945	.0057245	0.31	0.754	-.0094253 .0130143

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zfgfr2  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.19 1.531 .04641 2.217 -.0748 500.6

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9132.2436  
 Iteration 1: Log likelihood = -9044.8056  
 Iteration 2: Log likelihood = -9035.702  
 Iteration 3: Log likelihood = -9035.6675  
 Iteration 4: Log likelihood = -9035.6675  
 Refining estimates:  
 Iteration 0: Log likelihood = -9035.6675

Cox regression with Breslow method for ties

No. of subjects = 36,540	Number of obs = 36,540
No. of failures = 975	
Time at risk = 443,893.259	
Log likelihood = -9035.6675	LR chi2(9) = 193.15 Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.267773	.1654235	11.22	0.000	1.96566 2.616319
zfgfr2	1.032439	.0416879	0.79	0.429	.9538818 1.117466
_infectionburXzfgfr2_000	.9633418	.0663635	-0.54	0.588	.8416705 1.102602
AGE	1.033496	.0129949	2.62	0.009	1.008338 1.059282
SEX	.770823	.0503197	-3.99	0.000	.6782469 .8760351
NonWhite	1.066176	.1836871	0.37	0.710	.76064 1.494442
householdsize	.9322518	.039483	-1.66	0.098	.8579913 1.01294
SES	.8235143	.0406752	-3.93	0.000	.7475296 .9072227
LE8_TOTALSCORE	.9991028	.0003634	-2.47	0.014	.9983908 .9998153

-> Model for the mediator

Iteration 0: Log likelihood = -49599.315  
 Iteration 1: Log likelihood = -49599.315

Linear regression (Maximum Likelihood)

Number of obs = 36,540
Wald chi2(7) = 4784.75
Prob > chi2 = 0.0000

Log likelihood = -49599.315

zfgfr2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	.16363	.0143677	11.39	0.000	.1354699 .1917901
AGE	.0164292	.000937	17.53	0.000	.0145927 .0182656
SEX	-.3133319	.0099446	-31.51	0.000	-.3328229 -.2938409
NonWhite	-.1324479	.023834	-5.56	0.000	-.1791617 -.0857341
householdsize	-.0088247	.0045282	-1.95	0.051	-.0176997 .0000503
SES	-.1141407	.007465	-15.29	0.000	-.1287718 -.0995096
LE8_TOTALSCORE	-.0023614	.0000529	-44.60	0.000	-.0024651 -.0022576
_cons	.6676332	.0677535	9.85	0.000	.5348388 .8004275
<b>sigma2</b>					
_cons	.8841916	.0065415	135.17	0.000	.8713705 .8970127

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.26669	.1628171	7.78	0.000	.9475746 1.585806
ereri_cde	1.26812	.1654459	7.66	0.000	.943852 1.592388
ereri_intref	.0005825	.0036027	0.16	0.872	-.0064786 .0076436
ereri_intmed	-.0072497	.022086	-0.33	0.743	-.0505374 .0360381
ereri_pie	.0052374	.0066577	0.79	0.431	-.0078114 .0182862

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zfgfr
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04688 2.215 -.07424 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8819.5642**  
 Iteration 1: Log likelihood = **-8738.8748**  
 Iteration 2: Log likelihood = **-8726.7297**  
 Iteration 3: Log likelihood = **-8726.3454**  
 Iteration 4: Log likelihood = **-8726.3429**  
 Iteration 5: Log likelihood = **-8726.3429**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8726.3429**

Cox regression with Breslow method for ties

No. of subjects =	<b>35,601</b>	Number of obs =	<b>35,601</b>
No. of failures =	<b>943</b>		
Time at risk =	<b>432,443.367</b>	LR chi2(9) =	<b>186.44</b>
Log likelihood =	<b>-8726.3429</b>	Prob > chi2 =	<b>0.0000</b>

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.191452</b>	.1608505	<b>10.69</b>	<b>0.000</b>	<b>1.897818</b> <b>2.530517</b>
zfgr		<b>.9901125</b>	.0382753	<b>-0.26</b>	<b>0.797</b>	<b>.9178658</b> <b>1.068046</b>
_infectionburXzfgr_000		<b>1.093655</b>	.0720382	<b>1.36</b>	<b>0.174</b>	<b>.9611969</b> <b>1.244366</b>
AGE		<b>1.037085</b>	.0132182	<b>2.86</b>	<b>0.004</b>	<b>1.011499</b> <b>1.063318</b>
SEX		<b>.7495209</b>	.0495537	<b>-4.36</b>	<b>0.000</b>	<b>.658427</b> <b>.8532179</b>
NonWhite		<b>1.088341</b>	.1875654	<b>0.49</b>	<b>0.623</b>	<b>.7763695</b> <b>1.525674</b>
householdszie		<b>.9304415</b>	.04012	<b>-1.67</b>	<b>0.095</b>	<b>.8550389</b> <b>1.012494</b>
SES		<b>.8166296</b>	.040779	<b>-4.06</b>	<b>0.000</b>	<b>.7404909</b> <b>.900597</b>
LE8_TOTALSCORE		<b>.9992167</b>	.0003624	<b>-2.16</b>	<b>0.031</b>	<b>.9985067</b> <b>.9999271</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50131.123**  
 Iteration 1: Log likelihood = **-50131.123**

Linear regression (Maximum Likelihood)	Number of obs =	<b>35,601</b>
	Wald chi2(7) =	<b>776.36</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	zfgr	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.0384061</b>	.0152998	<b>2.51</b>	<b>0.012</b>	<b>.008419</b> <b>.0683931</b>
AGE		<b>.0027804</b>	.0010017	<b>2.78</b>	<b>0.006</b>	<b>.0008171</b> <b>.0047438</b>
SEX		<b>-.1154769</b>	.0105991	<b>-10.89</b>	<b>0.000</b>	<b>-.1362508</b> <b>-.094703</b>
NonWhite		<b>.0715986</b>	.0252905	<b>2.83</b>	<b>0.005</b>	<b>.0220301</b> <b>.1211671</b>
householdszie		<b>.0075306</b>	.0050283	<b>1.50</b>	<b>0.134</b>	<b>-.0023246</b> <b>.0173858</b>
SES		<b>-.0347065</b>	.0079622	<b>-4.36</b>	<b>0.000</b>	<b>-.0503121</b> <b>-.0191008</b>
LE8_TOTALSCORE		<b>-.0012312</b>	.0000565	<b>-21.79</b>	<b>0.000</b>	<b>-.0013419</b> <b>-.0011205</b>
_cons		<b>.5976704</b>	.0726223	<b>8.23</b>	<b>0.000</b>	<b>.4553334</b> <b>.7400074</b>
<b>sigma2</b>						
_cons		<b>.9786307</b>	.007335	<b>133.42</b>	<b>0.000</b>	<b>.9642542</b> <b>.9930071</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.203825</b>	.1606992	<b>7.49</b>	<b>0.000</b>	.8888605 1.51879
ereri_cde	<b>1.191331</b>	.1608405	<b>7.41</b>	<b>0.000</b>	.8760893 1.506573
ereri_intref	<b>.0057681</b>	.0085942	<b>0.67</b>	<b>0.502</b>	-.0110762 .0226124
ereri_intmed	<b>.0071077</b>	.005535	<b>1.28</b>	<b>0.199</b>	-.0037408 .0179561
ereri_pie	<b>-.0003816</b>	.0014919	<b>-0.26</b>	<b>0.798</b>	-.0033056 .0025425

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zfhit
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): **cox**

Model for the mediator (mreg): **linear**

Referent exposure level (a0): **0**

Actual exposure level (a1): **1**

Mediator level for the decomposition (m): **0**

Fixed values of the covariates (c): **60.18 1.531 .04688 2.215 -.07424 500.5**

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8819.5642**

Iteration 1: Log likelihood = **-8733.3759**

Iteration 2: Log likelihood = **-8725.7763**

Iteration 3: Log likelihood = **-8725.7581**

Iteration 4: Log likelihood = **-8725.7581**

Refining estimates:

Iteration 0: Log likelihood = **-8725.7581**

Cox regression with Breslow method for ties

No. of subjects = **35,601** Number of obs = **35,601**

No. of failures = **943**

Time at risk = **432,443.367**

LR chi2(9) = **187.61**

Log likelihood = **-8725.7581**

Prob > chi2 = **0.0000**

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.222978</b>	.1621597	<b>10.95</b>	<b>0.000</b>	<b>1.926826</b> <b>2.564648</b>
zfhit	<b>.9321641</b>	.0364087	<b>-1.80</b>	<b>0.072</b>	<b>.8634675</b> <b>1.006326</b>
_infectionburXzfhit_000	<b>1.087341</b>	.0782623	<b>1.16</b>	<b>0.245</b>	<b>.9442781</b> <b>1.252079</b>
AGE	<b>1.037529</b>	.0132071	<b>2.89</b>	<b>0.004</b>	<b>1.011964</b> <b>1.06374</b>
SEX	<b>.7497152</b>	.0495162	<b>-4.36</b>	<b>0.000</b>	<b>.6586843</b> <b>.8533267</b>
NonWhite	<b>1.08811</b>	.1875009	<b>0.49</b>	<b>0.624</b>	<b>.7762392</b> <b>1.525282</b>
householdsize	<b>.9301672</b>	.0401655	<b>-1.68</b>	<b>0.094</b>	<b>.8546834</b> <b>1.012317</b>
SES	<b>.8158425</b>	.0407245	<b>-4.08</b>	<b>0.000</b>	<b>.7398043</b> <b>.899696</b>
LE8_TOTALSCORE	<b>.9991596</b>	.0003614	<b>-2.32</b>	<b>0.020</b>	<b>.9984516</b> <b>.9998682</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50376.936**  
 Iteration 1: Log likelihood = **-50376.936**

Linear regression (Maximum Likelihood)                          Number of obs = 35,601  
 Wald chi2(7) = 277.47  
 Log likelihood = **-50376.936**                          Prob > chi2 = 0.0000

zfhit	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>-.0478719</b>	.0154058	<b>-3.11</b>	<b>0.002</b>	<b>-.0780668</b> <b>-.0176771</b>
AGE	<b>-.0047187</b>	.0010087	<b>-4.68</b>	<b>0.000</b>	<b>-.0066957</b> <b>-.0027418</b>
SEX	<b>-.0076717</b>	.0106725	<b>-0.72</b>	<b>0.472</b>	<b>-.0285895</b> <b>.0132461</b>
NonWhite	<b>-.0131857</b>	.0254657	<b>-0.52</b>	<b>0.605</b>	<b>-.0630977</b> <b>.0367262</b>
householdsize	<b>-.002259</b>	.0050631	<b>-0.45</b>	<b>0.655</b>	<b>-.0121825</b> <b>.0076645</b>
SES	<b>-.0109102</b>	.0080174	<b>-1.36</b>	<b>0.174</b>	<b>-.026624</b> <b>.0048036</b>
LE8_TOTALSCORE	<b>-.000867</b>	.0000569	<b>-15.24</b>	<b>0.000</b>	<b>-.0009785</b> <b>-.0007555</b>
_cons	<b>.7411047</b>	.0731254	<b>10.13</b>	<b>0.000</b>	<b>.5977815</b> <b>.8844279</b>
<b>sigma2</b>					
_cons	<b>.9922386</b>	<b>.007437</b>	<b>133.42</b>	<b>0.000</b>	<b>.9776623</b> <b>1.006815</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.217545</b>	.1614905	<b>7.54</b>	<b>0.000</b>	<b>.9010297</b> <b>1.534061</b>
ereri_cde	<b>1.220558</b>	.1617322	<b>7.55</b>	<b>0.000</b>	<b>.9035684</b> <b>1.537547</b>
ereri_intref	<b>-.0015799</b>	.0036982	<b>-0.43</b>	<b>0.669</b>	<b>-.0088283</b> <b>.0056685</b>
ereri_intmed	<b>-.0048009</b>	.006878	<b>-0.70</b>	<b>0.485</b>	<b>-.0182815</b> <b>.0086796</b>
ereri_pie	<b>.0033685</b>	.0021677	<b>1.55</b>	<b>0.120</b>	<b>-.0008801</b> <b>.007617</b>

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zfis1  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.19 1.532 .04631 2.216 -.0754 500.4

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9073.3329  
 Iteration 1: Log likelihood = -8983.292  
 Iteration 2: Log likelihood = -8973.9099  
 Iteration 3: Log likelihood = -8973.8684  
 Iteration 4: Log likelihood = -8973.8684  
 Refining estimates:  
 Iteration 0: Log likelihood = -8973.8684

Cox regression with Breslow method for ties

No. of subjects =	<b>36,429</b>	Number of obs =	<b>36,429</b>
No. of failures =	<b>969</b>		
Time at risk =	<b>442,532.813</b>	LR chi2(9) =	<b>198.93</b>
Log likelihood =	<b>-8973.8684</b>	Prob > chi2 =	<b>0.0000</b>

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.237068</b>	.160599	11.22	<b>0.000</b>	<b>1.943442</b> 2.575058
zfis1	<b>.9272548</b>	.0367572	-1.91	<b>0.057</b>	.8579395 1.00217
_infectionburXzfis1_000	<b>.9826044</b>	.0720155	-0.24	<b>0.811</b>	.8511259 1.134393
AGE	<b>1.036708</b>	.0130569	2.86	<b>0.004</b>	<b>1.011431</b> 1.062618
SEX	<b>.7580522</b>	.0493709	-4.25	<b>0.000</b>	.6672085 .8612648
NonWhite	<b>1.06978</b>	.1844032	0.39	<b>0.696</b>	.7630775 1.499755
householdsize	<b>.9376668</b>	.0393723	-1.53	<b>0.125</b>	.8635886 1.018099
SES	<b>.8225331</b>	.0405669	-3.96	<b>0.000</b>	<b>.7467454</b> .9060126
LE8_TOTALSCORE	<b>.9989324</b>	.0003556	-3.00	<b>0.003</b>	.9982357 .9996297

-> Model for the mediator

Iteration 0: Log likelihood = -51531.215  
 Iteration 1: Log likelihood = -51531.215

Linear regression (Maximum Likelihood)  
 Number of obs = 36,429  
 Wald chi2(7) = 318.98  
 Log likelihood = -51531.215 Prob > chi2 = 0.0000

	zfisi1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>-.0024413</b>	.0152126	-0.16	0.873	<b>-.0322575</b> .0273748
AGE		<b>-.0007214</b>	.0009933	-0.73	0.468	<b>-.0026683</b> .0012255
SEX		<b>.0327695</b>	.0105468	3.11	0.002	<b>.0120982</b> .0534408
NonWhite		<b>.0317939</b>	.0252952	1.26	0.209	<b>-.0177838</b> .0813717
householdsize		<b>-.0086506</b>	.0047982	-1.80	0.071	<b>-.0180549</b> .0007537
SES		<b>-.0099512</b>	.0079167	-1.26	0.209	<b>-.0254677</b> .0055653
LE8_TOTALSCORE		<b>-.0009401</b>	.0000562	-16.73	0.000	<b>-.0010502</b> -.00083
_cons		<b>.4809564</b>	.0717457	6.70	0.000	<b>.3403375</b> .6215753
<b>sigma2</b>						
_cons		<b>.9912925</b>	.007345	134.96	0.000	<b>.9768965</b> 1.005689

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.240847</b>	.1603097	7.74	0.000	<b>.9266459</b> 1.555048
ereri_cde	<b>1.233607</b>	.1600427	7.71	0.000	<b>.9199294</b> 1.547285
ereri_intref	<b>.0067307</b>	.0130413	0.52	0.606	<b>-.0188299</b> .0322912
ereri_intmed	<b>.0003247</b>	.0020543	0.16	0.874	<b>-.0037016</b> .004351
ereri_pie	<b>.0001844</b>	.0011532	0.16	0.873	<b>-.0020759</b> .0024447

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zfkb1b
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04665 2.217 -.07622 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9101.9851**  
 Iteration 1: Log likelihood = **-9009.1442**  
 Iteration 2: Log likelihood = **-8999.504**  
 Iteration 3: Log likelihood = **-8999.4659**  
 Iteration 4: Log likelihood = **-8999.4659**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8999.4659**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,524</b>	Number of obs =	<b>36,524</b>
No. of failures =	<b>972</b>		
Time at risk =	<b>443,659.526</b>	LR chi2(9) =	<b>205.04</b>
Log likelihood =	<b>-8999.4659</b>	Prob > chi2 =	<b>0.0000</b>

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.272436</b>	.1627195	<b>11.46</b>	<b>0.000</b>	<b>1.97488</b> <b>2.614825</b>
zfkbp1b		<b>.9027082</b>	.0353383	<b>-2.61</b>	<b>0.009</b>	<b>.8360369</b> <b>.9746964</b>
_infectionburXzfkbp1b_000		<b>1.029849</b>	.0752214	<b>0.40</b>	<b>0.687</b>	<b>.8924846</b> <b>1.188355</b>
AGE		<b>1.034772</b>	.0130008	<b>2.72</b>	<b>0.007</b>	<b>1.009602</b> <b>1.060569</b>
SEX		<b>.7564973</b>	.0491755	<b>-4.29</b>	<b>0.000</b>	<b>.6660022</b> <b>.8592887</b>
NonWhite		<b>1.057438</b>	.1821512	<b>0.32</b>	<b>0.746</b>	<b>.7544478</b> <b>1.48211</b>
householdszie		<b>.9372132</b>	.0393291	<b>-1.55</b>	<b>0.122</b>	<b>.8632144</b> <b>1.017555</b>
SES		<b>.8164918</b>	.0401748	<b>-4.12</b>	<b>0.000</b>	<b>.7414284</b> <b>.8991548</b>
LE8_TOTALSCORE		<b>.9990592</b>	.0003546	<b>-2.65</b>	<b>0.008</b>	<b>.9983644</b> <b>.9997545</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-51789.261**  
 Iteration 1: Log likelihood = **-51789.261**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,524</b>
	Wald chi2(7) =	<b>71.17</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	zfkbp1b	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>-.0340629</b>	.0152618	<b>-2.23</b>	<b>0.026</b>	<b>-.0639755</b> <b>-.0041503</b>
AGE		<b>-.0003673</b>	.0009953	<b>-0.37</b>	<b>0.712</b>	<b>-.002318</b> <b>.0015834</b>
SEX		<b>-.0161909</b>	.0105674	<b>-1.53</b>	<b>0.125</b>	<b>-.0369025</b> <b>.0045208</b>
NonWhite		<b>.0079785</b>	.0252673	<b>0.32</b>	<b>0.752</b>	<b>-.0415445</b> <b>.0575016</b>
householdszie		<b>-.0070855</b>	.0048112	<b>-1.47</b>	<b>0.141</b>	<b>-.0165152</b> <b>.0023443</b>
SES		<b>-.0021389</b>	.0079239	<b>-0.27</b>	<b>0.787</b>	<b>-.0176696</b> <b>.0133917</b>
LE8_TOTALSCORE		<b>-.0004275</b>	.0000563	<b>-7.60</b>	<b>0.000</b>	<b>-.0005378</b> <b>-.0003172</b>
_cons		<b>.2807596</b>	.0719216	<b>3.90</b>	<b>0.000</b>	<b>.139796</b> <b>.4217233</b>
<b>sigma2</b>						
_cons		<b>.9980279</b>	.0073853	<b>135.14</b>	<b>0.000</b>	<b>.983553</b> <b>1.012503</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.272552</b>	.1620334	7.85	<b>0.000</b>	.9549722 1.590131
ereri_cde	<b>1.266414</b>	.1617803	7.83	<b>0.000</b>	.9493303 1.583497
ereri_intref	<b>.0004983</b>	.0102314	0.05	0.961	-.0195548 .0205515
ereri_intmed	<b>.0021469</b>	.005059	0.42	0.671	-.0077685 .0120623
ereri_pie	<b>.0034926</b>	.002061	1.69	0.090	-.0005469 .0075322

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zfkbp4
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.17 1.532 .0464 2.216 -.07458 500.7

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8985.4467**

Iteration 1: Log likelihood = **-8893.1723**

Iteration 2: Log likelihood = **-8885.6208**

Iteration 3: Log likelihood = **-8885.6052**

Refining estimates:

Iteration 0: Log likelihood = **-8885.6052**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,164</b>	Number of obs = <b>36,164</b>
No. of failures =	<b>960</b>	
Time at risk =	<b>439,440.668</b>	LR chi2(9) = <b>199.68</b>
Log likelihood =	<b>-8885.6052</b>	Prob > chi2 = <b>0.0000</b>

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.215626	.159976	11.02	0.000	1.923254 2.552444
zfkbp4	.9009705	.0350972	-2.68	0.007	.8347417 .9724539
_infectionburXzfkbp4_000	1.088117	.078825	1.17	0.244	.944089 1.254117
AGE	1.037954	.0131212	2.95	0.003	1.012553 1.063993
SEX	.7368767	.0482426	-4.66	0.000	.648138 .8377649
NonWhite	1.009003	.176198	0.05	0.959	.7165572 1.420804
householdsize	.9433304	.0394061	-1.40	0.163	.869173 1.023815
SES	.8084019	.040035	-4.29	0.000	.7336227 .8908035
LE8_TOTALSCORE	.9989361	.0003583	-2.97	0.003	.9982341 .9996386

-> Model for the mediator

Iteration 0: Log likelihood = **-50991.451**  
 Iteration 1: Log likelihood = **-50991.451**

Linear regression (Maximum Likelihood) Number of obs = 36,164  
 Wald chi2(7) = 650.87  
 Prob > chi2 = 0.0000  
 Log likelihood = **-50991.451**

zfkbp4	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	.049736	.0152227	3.27	0.001	.0199001 .0795719
AGE	-.0023398	.000996	-2.35	0.019	-.004292 -.0003877
SEX	-.0671125	.0105372	-6.37	0.000	-.087765 -.04646
NonWhite	-.0694382	.0252666	-2.75	0.006	-.1189598 -.0199167
householdsize	-.0024029	.0049972	-0.48	0.631	-.0121972 .0073914
SES	-.0352678	.0079209	-4.45	0.000	-.0507926 -.0197431
LE8_TOTALSCORE	-.0012199	.0000561	-21.75	0.000	-.0013298 -.00111
_cons	.8533546	.072186	11.82	0.000	.7118727 .9948365
<b>sigma2</b>					
_cons	.9822932	.007305	134.47	0.000	.9679758 .9966107

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.200794	.1587052	7.57	0.000	.8897375 1.51185
ereri_cde	1.208281	.1588325	7.61	0.000	.8969753 1.519587
ereri_intref	-.0053152	.005526	-0.96	0.336	-.016146 .0055156
ereri_intmed	.0030011	.0070421	0.43	0.670	-.0108012 .0168033
ereri_pie	-.0051732	.0024918	-2.08	0.038	-.010057 -.0002894

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zfkb5  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.17 1.532 .0464 2.216 -.07458 500.7

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -8985.4467  
 Iteration 1: Log likelihood = -8895.2834  
 Iteration 2: Log likelihood = -8887.6308  
 Iteration 3: Log likelihood = -8887.6136  
 Iteration 4: Log likelihood = -8887.6136  
 Refining estimates:  
 Iteration 0: Log likelihood = -8887.6136

Cox regression with Breslow method for ties

No. of subjects = 36,164	Number of obs = 36,164
No. of failures = 960	
Time at risk = 439,440.668	
Log likelihood = -8887.6136	LR chi2(9) = 195.67 Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.209404	.1595458	10.98	0.000	1.917821 2.545319
zfkb5	.9380458	.0361117	-1.66	0.097	.8698725 1.011562
_infectionburXzfkb5_000	1.022042	.0739478	0.30	0.763	.8869142 1.177757
AGE	1.037527	.0131098	2.92	0.004	1.012148 1.063542
SEX	.7385125	.0483423	-4.63	0.000	.6495895 .8396083
NonWhite	1.019325	.1779613	0.11	0.913	.7239412 1.43523
householdsize	.9431031	.0394153	-1.40	0.161	.8689299 1.023608
SES	.8088964	.0400616	-4.28	0.000	.7340677 .891353
LE8_TOTALSCORE	.9989886	.0003566	-2.83	0.005	.9982899 .9996877

-> Model for the mediator

Iteration 0: Log likelihood = -51195.785  
 Iteration 1: Log likelihood = -51195.785

Linear regression (Maximum Likelihood)

Log likelihood = -51195.785	Number of obs = 36,164
	Wald chi2(7) = 237.19
	Prob > chi2 = 0.0000

	zfkbp5	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.0204956	.0153089	1.34	0.181	-.0095094 .0505005
AGE		-.0056626	.0010017	-5.65	0.000	-.0076258 -.0036994
SEX		-.051447	.0105969	-4.85	0.000	-.0722165 -.0306775
NonWhite		.0118618	.0254097	0.47	0.641	-.0379403 .061664
householdsize		-.0001912	.0050255	-0.04	0.970	-.010041 .0096586
SES		-.0261079	.0079658	-3.28	0.001	-.0417206 -.0104952
LE8_TOTALSCORE		-.0006678	.0000564	-11.84	0.000	-.0007783 -.0005572
_cons		.7489456	.072595	10.32	0.000	.606662 .8912291
<b>sigma2</b>						
_cons		.9934565	.007388	134.47	0.000	.9789763 1.007937

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.204824	.1589615	7.58	0.000	.8932654 1.516383
ereri_cde	1.20673	.1590818	7.59	0.000	.8949354 1.518525
ereri_intref	-6.72e-08	.0066753	-0.00	1.000	-.0130835 .0130833
ereri_intmed	-.0005958	.002918	-0.20	0.838	-.0063148 .0051233
ereri_pie	-.00131	.0012558	-1.04	0.297	-.0037713 .0011514

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zfkbp7
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.53 .04684 2.216 -.07414 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8798.6991**  
 Iteration 1: Log likelihood = **-8712.8389**  
 Iteration 2: Log likelihood = **-8705.2499**  
 Iteration 3: Log likelihood = **-8705.2335**  
 Iteration 4: Log likelihood = **-8705.2335**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8705.2335**

Cox regression with Breslow method for ties

No. of subjects =	<b>35,544</b>	Number of obs =	<b>35,544</b>
No. of failures =	<b>941</b>		
Time at risk =	<b>431,747.414</b>	LR chi2(9) =	<b>186.93</b>
Log likelihood =	<b>-8705.2335</b>	Prob > chi2 =	<b>0.0000</b>

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.219889</b>	.1616962	<b>10.95</b>	<b>0.000</b>	<b>1.924554</b> <b>2.560546</b>
_zfkbp7	<b>.9552392</b>	.0387849	<b>-1.13</b>	<b>0.259</b>	<b>.8821682</b> <b>1.034363</b>
_infectionburXzfkbp7_000	<b>1.050325</b>	.0754168	<b>0.68</b>	<b>0.494</b>	<b>.9124402</b> <b>1.209045</b>
AGE	<b>1.03863</b>	.0132444	<b>2.97</b>	<b>0.003</b>	<b>1.012993</b> <b>1.064916</b>
SEX	<b>.7468887</b>	.049394	<b>-4.41</b>	<b>0.000</b>	<b>.65609</b> <b>.8502534</b>
NonWhite	<b>1.097132</b>	.1890871	<b>0.54</b>	<b>0.591</b>	<b>.7826307</b> <b>1.538015</b>
householdszie	<b>.930637</b>	.0401547	<b>-1.67</b>	<b>0.096</b>	<b>.8551712</b> <b>1.012762</b>
SES	<b>.8166848</b>	.0408028	<b>-4.05</b>	<b>0.000</b>	<b>.7405035</b> <b>.9007034</b>
LE8_TOTALSCORE	<b>.9991752</b>	.000361	<b>-2.28</b>	<b>0.022</b>	<b>.9984678</b> <b>.999883</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50379.137**  
 Iteration 1: Log likelihood = **-50379.137**

Linear regression (Maximum Likelihood)	Number of obs =	<b>35,544</b>	
	Wald chi2(7) =	<b>110.40</b>	
Log likelihood =	<b>-50379.137</b>	Prob > chi2 =	<b>0.0000</b>

zfkbp7	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.0237887</b>	.015449	<b>1.54</b>	<b>0.124</b>	<b>-.0064907</b> <b>.0540681</b>
AGE	<b>-.00099</b>	.0010118	<b>-0.98</b>	<b>0.328</b>	<b>-.0029731</b> <b>.0009932</b>
SEX	<b>.0258003</b>	.0107056	<b>2.41</b>	<b>0.016</b>	<b>.0048178</b> <b>.0467828</b>
NonWhite	<b>.0925779</b>	.0255561	<b>3.62</b>	<b>0.000</b>	<b>.0424889</b> <b>.1426669</b>
householdszie	<b>-.0039415</b>	.0050781	<b>-0.78</b>	<b>0.438</b>	<b>-.0138943</b> <b>.0060114</b>
SES	<b>-.019692</b>	.0080438	<b>-2.45</b>	<b>0.014</b>	<b>-.0354575</b> <b>-.0039266</b>
LE8_TOTALSCORE	<b>-.0004524</b>	.0000571	<b>-7.93</b>	<b>0.000</b>	<b>-.0005642</b> <b>-.0003405</b>
_cons	<b>.2461368</b>	.073354	<b>3.36</b>	<b>0.001</b>	<b>.1023657</b> <b>.3899079</b>
<b>sigma2</b>					
_cons	<b>.9968755</b>	.0074778	<b>133.31</b>	<b>0.000</b>	<b>.9822194</b> <b>1.011532</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.217397</b>	.1614824	7.54	<b>0.000</b>	.9008971 1.533896
ereri_cde	<b>1.218431</b>	.1614625	7.55	<b>0.000</b>	.9019699 1.534891
ereri_intref	<b>-.0012081</b>	.0020084	-0.60	0.547	-.0051445 .0027283
ereri_intmed	<b>.0012631</b>	.0033717	0.37	0.708	-.0053452 .0078715
ereri_pie	<b>-.0010888</b>	.001196	-0.91	0.363	-.0034328 .0012552

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zfli1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04669 2.217 -.07551 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -8882.1967

Iteration 1: Log likelihood = -8793.8654

Iteration 2: Log likelihood = -8784.5016

Iteration 3: Log likelihood = -8784.4577

Iteration 4: Log likelihood = -8784.4577

Refining estimates:

Iteration 0: Log likelihood = -8784.4577

Cox regression with Breslow method for ties

No. of subjects = 35,573 Number of obs = 35,573

No. of failures = 951

Time at risk = 432,088.637

LR chi2(9) = 195.48

Log likelihood = -8784.4577

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.248607</b>	.1631719	<b>11.17</b>	<b>0.000</b>	<b>1.950498</b> 2.592279
zfl1	<b>.9059722</b>	.0359931	-2.49	0.013	.8381037    .9793367
_infectionburXzfl1_000	<b>.9959359</b>	.0727504	-0.06	0.956	.8630849    1.149236
AGE	<b>1.037362</b>	.0131853	2.89	0.004	<b>1.011839</b> 1.063529
SEX	<b>.7447915</b>	.0489965	-4.48	0.000	.6546934    .8472888
NonWhite	<b>1.111262</b>	.1890442	0.62	0.535	.7961835    1.55103
householdsize	<b>.939965</b>	.0396223	-1.47	0.142	.8654281    1.020922
SES	<b>.8264243</b>	.0412295	-3.82	0.000	.7494411    .9113154
LE8_TOTALSCORE	<b>.9991165</b>	.0003603	-2.45	0.014	.9984106    .9998228

-> Model for the mediator

Iteration 0: Log likelihood = **-50227.657**  
 Iteration 1: Log likelihood = **-50227.657**

Linear regression (Maximum Likelihood)                          Number of obs = 35,573  
 Wald chi2(7) = 498.95  
 Log likelihood = **-50227.657**                          Prob > chi2 = 0.0000

zfl1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>-.0129114</b>	.0153829	-0.84	0.401	-.0430613    .0172385
AGE	<b>-.0038951</b>	.0010031	-3.88	0.000	-.0058611    -.0019291
SEX	<b>-.0373045</b>	.0106441	-3.50	0.000	-.0581666    -.0164424
NonWhite	<b>.0016146</b>	.0254385	0.06	0.949	-.0482439    .0514732
householdsize	<b>.0027176</b>	.0048445	0.56	0.575	-.0067774    .0122127
SES	<b>-.0194488</b>	.0079834	-2.44	0.015	-.035096    -.0038016
LE8_TOTALSCORE	<b>-.0011581</b>	.0000567	-20.43	0.000	-.0012692    -.001047
_cons	<b>.8655234</b>	.0724944	11.94	0.000	.7234369    1.00761
<b>sigma2</b>					
_cons	<b>.9861401</b>	.0073942	133.37	0.000	.9716477    1.000633

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.25249</b>	.1626499	<b>7.70</b>	<b>0.000</b>	<b>.9337015</b> 1.571278
ereri_cde	<b>1.242838</b>	.1622447	<b>7.66</b>	<b>0.000</b>	<b>.9248446</b> 1.560832
ereri_intref	<b>.0066629</b>	.0142487	<b>0.47</b>	<b>0.640</b>	-.0212639    .0345898
ereri_intmed	<b>.0017125</b>	.0027692	<b>0.62</b>	<b>0.536</b>	-.0037149    .00714
ereri_pie	<b>.0012758</b>	.0016053	<b>0.79</b>	<b>0.427</b>	-.0018706    .0044222

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zflrt2  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.17 1.532 .0464 2.216 -.07458 500.7

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -8985.4467  
 Iteration 1: Log likelihood = -8898.5539  
 Iteration 2: Log likelihood = -8887.2506  
 Iteration 3: Log likelihood = -8887.127  
 Iteration 4: Log likelihood = -8887.127  
 Refining estimates:  
 Iteration 0: Log likelihood = -8887.127

Cox regression with Breslow method for ties

No. of subjects = 36,164	Number of obs = 36,164
No. of failures = 960	
Time at risk = 439,440.668	
Log likelihood = -8887.127	LR chi2(9) = 196.64 Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.150392	.1592173	10.34	0.000	1.859918 2.486231
zflrt2	1.021693	.0397874	0.55	0.582	.946613 1.102728
_infectionburXzflrt2_000	1.09839	.0765884	1.35	0.178	.9580852 1.259242
AGE	1.036247	.0131199	2.81	0.005	1.010849 1.062283
SEX	.7339581	.0482036	-4.71	0.000	.6453088 .8347856
NonWhite	1.015044	.1772672	0.09	0.932	.7208272 1.42935
householdsize	.9439557	.0393762	-1.38	0.167	.8698504 1.024374
SES	.8094401	.0401025	-4.27	0.000	.7345361 .8919823
LE8_TOTALSCORE	.9990634	.000356	-2.63	0.009	.9983659 .9997615

-> Model for the mediator

Iteration 0: Log likelihood = -50967.76  
 Iteration 1: Log likelihood = -50967.76

Linear regression (Maximum Likelihood)

Log likelihood = -50967.76	Number of obs = 36,164
	Wald chi2(7) = 699.14
	Prob > chi2 = 0.0000

zflrt2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	.1303619	.0152127	8.57	0.000	.1005456 .1601782
AGE	.0144936	.0009954	14.56	0.000	.0125427 .0164444
SEX	.1856326	.0105303	17.63	0.000	.1649936 .2062715
NonWhite	-.0051319	.02525	-0.20	0.839	-.054621 .0443572
householdsize	.0038569	.0049939	0.77	0.440	-.005931 .0136448
SES	-.0408695	.0079157	-5.16	0.000	-.0563841 -.0253549
LE8_TOTALSCORE	-.0002283	.000056	-4.07	0.000	-.0003381 -.0001184
_cons	-1.071602	.0721387	-14.85	0.000	-1.212991 -.9302128
<b>sigma2</b>					
_cons	.9810071	.0072954	134.47	0.000	.9667084 .9953058

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.193023	.1584637	7.53	0.000	.8824401 1.503606
ereri_cde	1.150579	.1592387	7.23	0.000	.8384767 1.462681
ereri_intref	.0097263	.0118541	0.82	0.412	-.0135074 .0329599
ereri_intmed	.0299165	.017486	1.71	0.087	-.0043555 .0641885
ereri_pie	.0028016	.0051014	0.55	0.583	-.0071969 .0128001

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zflt1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.532 .04654 2.216 -.07523 500.8

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9046.8125**  
 Iteration 1: Log likelihood = **-8964.3651**  
 Iteration 2: Log likelihood = **-8949.2529**  
 Iteration 3: Log likelihood = **-8948.5558**  
 Iteration 4: Log likelihood = **-8948.5508**  
 Iteration 5: Log likelihood = **-8948.5508**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8948.5508**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,203</b>	Number of obs =	<b>36,203</b>
No. of failures =	<b>967</b>		
Time at risk =	<b>439,816.377</b>	LR chi2(9) =	<b>196.52</b>
Log likelihood =	<b>-8948.5508</b>	Prob > chi2 =	<b>0.0000</b>

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.193852</b>	<b>.1611005</b>	<b>10.70</b>	<b>0.000</b>	<b>1.899772</b> <b>2.533456</b>
zflt1	<b>1.021551</b>	<b>.0386934</b>	<b>0.56</b>	<b>0.573</b>	<b>.9484601</b> <b>1.100275</b>
_infectionburXzflt1_000	<b>1.086325</b>	<b>.069666</b>	<b>1.29</b>	<b>0.197</b>	<b>.9580146</b> <b>1.23182</b>
AGE	<b>1.030613</b>	<b>.0129916</b>	<b>2.39</b>	<b>0.017</b>	<b>1.005462</b> <b>1.056393</b>
SEX	<b>.7530721</b>	<b>.0491667</b>	<b>-4.34</b>	<b>0.000</b>	<b>.6626179</b> <b>.8558741</b>
NonWhite	<b>1.086909</b>	<b>.1849537</b>	<b>0.49</b>	<b>0.624</b>	<b>.7786614</b> <b>1.517182</b>
householdsize	<b>.9378162</b>	<b>.0393835</b>	<b>-1.53</b>	<b>0.126</b>	<b>.8637173</b> <b>1.018272</b>
SES	<b>.8195029</b>	<b>.0404558</b>	<b>-4.03</b>	<b>0.000</b>	<b>.7439262</b> <b>.9027577</b>
LE8_TOTALSCORE	<b>.9990686</b>	<b>.0003552</b>	<b>-2.62</b>	<b>0.009</b>	<b>.9983727</b> <b>.9997649</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-51025.88**  
 Iteration 1: Log likelihood = **-51025.88**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,203</b>
	Wald chi2(7) =	<b>693.46</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

<u>zflt1</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.1002127</b>	<b>.0151892</b>	<b>6.60</b>	<b>0.000</b>	<b>.0704425</b> <b>.1299829</b>
AGE	<b>.0115613</b>	<b>.0009919</b>	<b>11.66</b>	<b>0.000</b>	<b>.0096173</b> <b>.0135053</b>
SEX	<b>-.1750808</b>	<b>.0105241</b>	<b>-16.64</b>	<b>0.000</b>	<b>-.1957076</b> <b>-.154454</b>
NonWhite	<b>.0754935</b>	<b>.0251917</b>	<b>3.00</b>	<b>0.003</b>	<b>.0261186</b> <b>.1248684</b>
householdsize	<b>-.0108077</b>	<b>.0047844</b>	<b>-2.26</b>	<b>0.024</b>	<b>-.020185</b> <b>-.0014304</b>
SES	<b>-.0615476</b>	<b>.0078926</b>	<b>-7.80</b>	<b>0.000</b>	<b>-.0770168</b> <b>-.0460783</b>
LE8_TOTALSCORE	<b>-.0002034</b>	<b>.000056</b>	<b>-3.63</b>	<b>0.000</b>	<b>-.0003133</b> <b>-.0000936</b>
_cons	<b>-.3238672</b>	<b>.0716747</b>	<b>-4.52</b>	<b>0.000</b>	<b>-.464347</b> <b>-.1833874</b>
<b>sigma2</b>					
_cons	<b>.9811781</b>	<b>.0072927</b>	<b>134.54</b>	<b>0.000</b>	<b>.9668846</b> <b>.9954716</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.225621</b>	.1602506	7.65	<b>0.000</b>	.9115352 1.539706
ereri_cde	<b>1.193941</b>	.1610988	7.41	<b>0.000</b>	.8781929 1.509688
ereri_intref	<b>.0085777</b>	.0100536	0.85	0.394	-.011127 .0282824
ereri_intmed	<b>.0209632</b>	.012445	1.68	0.092	-.0034286 .045355
ereri_pie	<b>.0021391</b>	.0038177	0.56	0.575	-.0053435 .0096216

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zflt3
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04669 2.217 -.07551 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -8882.1967

Iteration 1: Log likelihood = -8796.828

Iteration 2: Log likelihood = -8788.4804

Iteration 3: Log likelihood = -8788.4575

Iteration 4: Log likelihood = -8788.4575

Refining estimates:

Iteration 0: Log likelihood = -8788.4575

Cox regression with Breslow method for ties

No. of subjects = 35,573 Number of obs = 35,573

No. of failures = 951

Time at risk = 432,088.637

LR chi2(9) = 187.48

Log likelihood = -8788.4575

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.253405	.163998	11.16	0.000	1.953848
zflt3		.9623477	.0384142	-0.96	0.336	.8899271
_infectionburXzflt3_000		1.019027	.072938	0.26	0.792	.8856457
AGE		1.037188	.0131967	2.87	0.004	1.011643
SEX		.7504449	.0495729	-4.35	0.000	.6593106
NonWhite		1.111151	.1890647	0.62	0.536	.7960485
householdsize		.9396329	.0396033	-1.48	0.140	.8651315
SES		.8290607	.0413397	-3.76	0.000	.7518698
LE8_TOTALSCORE		.9992399	.0003592	-2.12	0.034	.9985363

-> Model for the mediator

```
Iteration 0: Log likelihood = -50170.159
Iteration 1: Log likelihood = -50170.159
```

Linear regression (Maximum Likelihood) Number of obs = 35,573  
Log likelihood = -50170.159 Wald chi2(7) = 615.75  
Prob > chi2 = 0.0000

	zflt3	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.04347	.015358	-2.83	0.005	-.0735712
AGE		-.0127301	.0010015	-12.71	0.000	-.0146929
SEX		.1527226	.0106269	14.37	0.000	.1318942
NonWhite		.0130186	.0253974	0.51	0.608	-.0367594
householdszie		.0109538	.0048367	2.26	0.024	.0014741
SES		.0012383	.0079705	0.16	0.877	-.0143836
LE8_TOTALSCORE		.0006173	.0000566	10.91	0.000	.0005064
_cons		.2046091	.0723773	2.83	0.005	.0627521
sigma2						
_cons		.9829574	.0073704	133.37	0.000	.9685117
						.997403

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]	
tereri	<b>1.254366</b>	.1632604	<b>7.68</b>	<b>0.000</b>	.9343814	1.57435
ereri_cde	<b>1.252788</b>	.1638248	<b>7.65</b>	<b>0.000</b>	.9316972	1.573879
ereri_intref	<b>-.0003354</b>	.002168	<b>-0.15</b>	<b>0.877</b>	<b>-.0045845</b>	.0039138
ereri_intmed	<b>.0002434</b>	.0060763	<b>0.04</b>	<b>0.968</b>	<b>-.0116659</b>	.0121528
ereri_pie	<b>.0016698</b>	.0018356	<b>0.91</b>	<b>0.363</b>	<b>-.001928</b>	.0052675

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intre to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
Warning: this analysis assumes a rare outcome.  
Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zflt3lg  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.18 1.531 .0466 2.218 -.07544 500.5

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9166.3755  
 Iteration 1: Log likelihood = -9072.6812  
 Iteration 2: Log likelihood = -9063.5326  
 Iteration 3: Log likelihood = -9063.5075  
 Iteration 4: Log likelihood = -9063.5075  
 Refining estimates:  
 Iteration 0: Log likelihood = -9063.5075

Cox regression with Breslow method for ties

No. of subjects =	<b>36,824</b>	Number of obs =	<b>36,824</b>
No. of failures =	<b>978</b>		
Time at risk =	<b>447,356.911</b>	LR chi2(9) =	<b>205.74</b>
Log likelihood =	<b>-9063.5075</b>	Prob > chi2 =	<b>0.0000</b>

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.268682</b>	<b>.1621607</b>	<b>11.46</b>	<b>0.000</b>	<b>1.972112</b> <b>2.609852</b>
zflt3lg	<b>.9110695</b>	<b>.0350683</b>	<b>-2.42</b>	<b>0.016</b>	<b>.8448656</b> <b>.9824612</b>
_infectionburXzflt3lg_000	<b>1.06098</b>	<b>.072882</b>	<b>0.86</b>	<b>0.389</b>	<b>.9273331</b> <b>1.213889</b>
AGE	<b>1.037893</b>	<b>.0130503</b>	<b>2.96</b>	<b>0.003</b>	<b>1.012628</b> <b>1.063789</b>
SEX	<b>.7644113</b>	<b>.0497643</b>	<b>-4.13</b>	<b>0.000</b>	<b>.6728413</b> <b>.8684435</b>
NonWhite	<b>1.055019</b>	<b>.1817628</b>	<b>0.31</b>	<b>0.756</b>	<b>.7526829</b> <b>1.478797</b>
householdsize	<b>.9335253</b>	<b>.039294</b>	<b>-1.63</b>	<b>0.102</b>	<b>.8596017</b> <b>1.013806</b>
SES	<b>.819384</b>	<b>.0402171</b>	<b>-4.06</b>	<b>0.000</b>	<b>.7442326</b> <b>.902124</b>
LE8_TOTALSCORE	<b>.9990259</b>	<b>.0003545</b>	<b>-2.75</b>	<b>0.006</b>	<b>.9983313</b> <b>.9997211</b>

-> Model for the mediator

Iteration 0: Log likelihood = -51301.401  
 Iteration 1: Log likelihood = -51301.401

Linear regression (Maximum Likelihood)                  Number of obs = 36,824  
 Log likelihood = -51301.401                  Wald chi2(7) = 1947.96  
 Prob > chi2 = 0.0000

	zflt3lg	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.0669223	.0148282	4.51	0.000	.0378596 .095985
AGE		.0294641	.0009672	30.46	0.000	.0275686 .0313597
SEX		.2382833	.0102673	23.21	0.000	.2181598 .2584068
NonWhite		.0587245	.0245608	2.39	0.017	.0105862 .1068628
householdsize		-.0340469	.0046809	-7.27	0.000	-.0432212 -.0248726
SES		.0029008	.0076992	0.38	0.706	-.0121892 .0179909
LE8_TOTALSCORE		-.0008098	.0000547	-14.82	0.000	-.0009169 -.0007027
_cons		-1.668852	.0699108	-23.87	0.000	-1.805875 -1.53183
<b>sigma2</b>						
_cons		.9497328	.0069992	135.69	0.000	.9360145 .9634511

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.254225	.1613046	7.78	0.000	.9380733 1.570376
ereri_cde	1.262375	.1615657	7.81	0.000	.9457122 1.579038
ereri_intref	-.0030242	.0065388	-0.46	0.644	-.0158401 .0097917
ereri_intmed	.0010872	.009051	0.12	0.904	-.0166525 .0188268
ereri_pie	-.0062135	.0029046	-2.14	0.032	-.0119065 -.0005205

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zflt4
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04641 2.217 -.0748 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9132.2436  
 Iteration 1: Log likelihood = -9041.4637  
 Iteration 2: Log likelihood = -9032.6947  
 Iteration 3: Log likelihood = -9032.6705  
 Iteration 4: Log likelihood = -9032.6705  
 Refining estimates:  
 Iteration 0: Log likelihood = -9032.6705

Cox regression with Breslow method for ties

No. of subjects =	<b>36,540</b>	Number of obs =	<b>36,540</b>
No. of failures =	<b>975</b>		
Time at risk =	<b>443,893.259</b>	LR chi2(9) =	<b>199.15</b>
Log likelihood =	<b>-9032.6705</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.257135</b>	.1610716	<b>11.41</b>	<b>0.000</b>	<b>1.962524</b> 2.595974
zflt4		<b>.9098443</b>	.034924	<b>-2.46</b>	<b>0.014</b>	<b>.843906</b> .9809348
_infectionburXzflt4_000		<b>1.046405</b>	.0729439	<b>0.65</b>	<b>0.515</b>	<b>.9127741</b> 1.199599
AGE		<b>1.033888</b>	.0129877	<b>2.65</b>	<b>0.008</b>	<b>1.008744</b> 1.059659
SEX		<b>.7707623</b>	.0500192	<b>-4.01</b>	<b>0.000</b>	<b>.6787052</b> .8753058
NonWhite		<b>1.103218</b>	.1906697	<b>0.57</b>	<b>0.570</b>	<b>.7862263</b> 1.548014
householdszie		<b>.930774</b>	.0394627	<b>-1.69</b>	<b>0.091</b>	<b>.856555</b> 1.011424
SES		<b>.8184644</b>	.0403484	<b>-4.06</b>	<b>0.000</b>	<b>.7430833</b> .9014924
LE8_TOTALSCORE		<b>.9989531</b>	.0003557	<b>-2.94</b>	<b>0.003</b>	<b>.9982561</b> .9996506

-> Model for the mediator

Iteration 0: Log likelihood = -51197.061  
 Iteration 1: Log likelihood = -51197.061

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,540</b>	
	Wald chi2(7) =	<b>1324.34</b>	
Log likelihood =	<b>-51197.061</b>	Prob > chi2 =	<b>0.0000</b>

	zflt4	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.0345363</b>	.0150098	<b>2.30</b>	<b>0.021</b>	<b>.0051175</b> .063955
AGE		<b>.0040647</b>	.0009789	<b>4.15</b>	<b>0.000</b>	<b>.0021462</b> .0059833
SEX		<b>.0633911</b>	.0103891	<b>6.10</b>	<b>0.000</b>	<b>.0430289</b> .0837532
NonWhite		<b>.4830711</b>	.0248993	<b>19.40</b>	<b>0.000</b>	<b>.4342694</b> .5318728
householdszie		<b>-.0076499</b>	.0047305	<b>-1.62</b>	<b>0.106</b>	<b>-.0169216</b> .0016218
SES		<b>-.0397211</b>	.0077986	<b>-5.09</b>	<b>0.000</b>	<b>-.0550062</b> -.0244361
LE8_TOTALSCORE		<b>-.0014368</b>	.0000553	<b>-25.97</b>	<b>0.000</b>	<b>-.0015452</b> -.0013283
_cons		<b>.3643655</b>	.0707818	<b>5.15</b>	<b>0.000</b>	<b>.2256358</b> .5030952
<b>sigma2</b>						
_cons		<b>.9649977</b>	.0071393	<b>135.17</b>	<b>0.000</b>	<b>.9510049</b> .9789905

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.245751</b>	.1602877	7.77	<b>0.000</b>	.9315927 1.559909
ereri_cde	<b>1.251166</b>	.1602566	7.81	<b>0.000</b>	.9370689 1.565263
ereri_intref	<b>-.0016023</b>	.0077675	-0.21	0.837	-.0168264 .0136217
ereri_intmed	<b>-.0005554</b>	.0047463	-0.12	0.907	-.009858 .0087473
ereri_pie	<b>-.0032577</b>	.0019349	-1.68	0.092	-.0070502 .0005347

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zfmnl1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04688 2.215 -.07424 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -8819.5642

Iteration 1: Log likelihood = -8737.9995

Iteration 2: Log likelihood = -8726.7534

Iteration 3: Log likelihood = -8726.4318

Iteration 4: Log likelihood = -8726.4295

Iteration 5: Log likelihood = -8726.4295

Refining estimates:

Iteration 0: Log likelihood = -8726.4295

Cox regression with Breslow method for ties

No. of subjects = 35,601 Number of obs = 35,601

No. of failures = 943

Time at risk = 432,443.367

LR chi2(9) = 186.27

Log likelihood = -8726.4295 Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.195459	.1608176	10.74	0.000	1.901844 2.534405
zfmnl1	.980858	.0386041	-0.49	0.623	.9080399 1.059515
_infectionburXzfmnl1_000	1.096377	.0727417	1.39	0.165	.962687 1.248634
AGE	1.037391	.0132133	2.88	0.004	1.011814 1.063614
SEX	.748453	.0495136	-4.38	0.000	.6574363 .8520703
NonWhite	1.088215	.1875379	0.49	0.624	.7762875 1.525481
householdsize	.9304852	.0401207	-1.67	0.095	.8550811 1.012539
SES	.8166857	.0407755	-4.06	0.000	.7405531 .9006452
LE8_TOTALSCORE	.9992029	.0003624	-2.20	0.028	.9984929 .9999135

-> Model for the mediator

Iteration 0: Log likelihood = -50052.822  
 Iteration 1: Log likelihood = -50052.822

Linear regression (Maximum Likelihood)  
 Number of obs = 35,601  
 Wald chi2(7) = 936.73  
 Log likelihood = -50052.822 Prob > chi2 = 0.0000

zfmnl1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	.0107822	.0152662	0.71	0.480	-.019139 .0407034
AGE	.0021039	.0009995	2.10	0.035	.0001449 .0040629
SEX	-.133765	.0105758	-12.65	0.000	-.1544932 -.1130368
NonWhite	.0498925	.025235	1.98	0.048	.0004329 .0993521
householdsize	.0053022	.0050172	1.06	0.291	-.0045313 .0151358
SES	-.0343951	.0079447	-4.33	0.000	-.0499665 -.0188238
LE8_TOTALSCORE	-.0013763	.0000564	-24.41	0.000	-.0014868 -.0012658
_cons	.7488008	.0724627	10.33	0.000	.6067765 .8908251
<b>sigma2</b>					
_cons	.9743353	.0073028	133.42	0.000	.960022 .9886487

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.202139	.1606264	7.48	0.000	.8873165 1.516961
ereri_cde	1.195207	.1607991	7.43	0.000	.8800469 1.510368
ereri_intref	.0052061	.0082652	0.63	0.529	-.0109934 .0214056
ereri_intmed	.0019335	.003048	0.63	0.526	-.0040405 .0079075
ereri_pie	-.0002084	.0005167	-0.40	0.687	-.0012212 .0008044

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zfmr1  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.19 1.531 .04669 2.217 -.07551 500.6

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -8882.1967  
 Iteration 1: Log likelihood = -8796.5716  
 Iteration 2: Log likelihood = -8788.5374  
 Iteration 3: Log likelihood = -8788.5202  
 Iteration 4: Log likelihood = -8788.5202  
 Refining estimates:  
 Iteration 0: Log likelihood = -8788.5202

Cox regression with Breslow method for ties

No. of subjects =	35,573	Number of obs =	35,573
No. of failures =	951		
Time at risk =	432,088.637	LR chi2(9) =	187.35
Log likelihood =	-8788.5202	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.252978	.1627515	11.24	0.000	1.955544 2.595651
zfmr1	.9633841	.0376318	-0.95	0.340	.8923799 1.040038
_infectionburXzfmr1_000	1.043315	.074022	0.60	0.550	.9078696 1.198967
AGE	1.037544	.0131924	2.90	0.004	1.012007 1.063726
SEX	.7456429	.0490468	-4.46	0.000	.6554516 .8482445
NonWhite	1.109421	.1887695	0.61	0.542	.79481 1.548565
householdsize	.9395616	.0396105	-1.48	0.139	.8650474 1.020494
SES	.8287976	.0413345	-3.77	0.000	.7516172 .9139034
LE8_TOTALSCORE	.9992208	.0003588	-2.17	0.030	.9985178 .9999243

-> Model for the mediator

Iteration 0: Log likelihood = -50467.786  
 Iteration 1: Log likelihood = -50467.786

Linear regression (Maximum Likelihood)

Number of obs =	35,573
Wald chi2(7) =	15.23
Prob > chi2 =	0.0331

Log likelihood = -50467.786

	zfmrl	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.008257	.0154871	0.53	0.594	-.0220971 .0386111
AGE		-.001088	.0010099	-1.08	0.281	-.0030673 .0008913
SEX		-.0228545	.0107162	-2.13	0.033	-.043858 -.0018511
NonWhite		.0310579	.0256108	1.21	0.225	-.0191384 .0812541
householdsize		.0012297	.0048773	0.25	0.801	-.0083297 .0107891
SES		-.009284	.0080375	-1.16	0.248	-.0250371 .0064691
LE8_TOTALSCORE		-.0001119	.0000571	-1.96	0.050	-.0002237 -4.13e-08
_cons		.1504619	.0729854	2.06	0.039	.0074131 .2935107
<b>sigma2</b>						
_cons		.9995439	.0074947	133.37	0.000	.9848545 1.014233

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.251426	.1625648	7.70	0.000	.9328053 1.570047
ereri_cde	1.252053	.1625897	7.70	0.000	.9333833 1.570723
ereri_intref	-.0007218	.0016145	-0.45	0.655	-.0038861 .0024426
ereri_intmed	.0004028	.0013737	0.29	0.769	-.0022897 .0030952
ereri_pie	-.000308	.0006614	-0.47	0.642	-.0016044 .0009885

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zfolr1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04657 2.217 -.07491 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9050.0062**  
 Iteration 1: Log likelihood = **-8960.6637**  
 Iteration 2: Log likelihood = **-8952.612**  
 Iteration 3: Log likelihood = **-8952.5946**  
 Iteration 4: Log likelihood = **-8952.5946**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8952.5946**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,375</b>	Number of obs =	<b>36,375</b>
No. of failures =	<b>967</b>		
Time at risk =	<b>441,834.57</b>	LR chi2(9) =	<b>194.82</b>
Log likelihood =	<b>-8952.5946</b>	Prob > chi2 =	<b>0.0000</b>

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.269756</b>	.1669645	<b>11.14</b>	<b>0.000</b>	<b>1.965008</b> <b>2.621767</b>
zfolr1	<b>1.112268</b>	.0421646	<b>2.81</b>	<b>0.005</b>	<b>1.032623</b> <b>1.198057</b>
_infectionburXzfolr1_000	<b>.9111783</b>	.0608548	<b>-1.39</b>	<b>0.164</b>	<b>.7993818</b> <b>1.03861</b>
AGE	<b>1.029209</b>	.0130622	<b>2.27</b>	<b>0.023</b>	<b>1.003923</b> <b>1.055131</b>
SEX	<b>.7432954</b>	.0489803	<b>-4.50</b>	<b>0.000</b>	<b>.6532367</b> <b>.84577</b>
NonWhite	<b>1.082639</b>	.186543	<b>0.46</b>	<b>0.645</b>	<b>.7723573</b> <b>1.517571</b>
householdszie	<b>.9348303</b>	.0395708	<b>-1.59</b>	<b>0.111</b>	<b>.860403</b> <b>1.015696</b>
SES	<b>.8264484</b>	.0409109	<b>-3.85</b>	<b>0.000</b>	<b>.7500315</b> <b>.9106511</b>
LE8_TOTALSCORE	<b>.9990436</b>	.0003553	<b>-2.69</b>	<b>0.007</b>	<b>.9983473</b> <b>.9997402</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-49985.492**  
 Iteration 1: Log likelihood = **-49985.492**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,375</b>
	Wald chi2(7) =	<b>3405.95</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

<u>zfolr1</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.1671608</b>	.0146472	<b>11.41</b>	<b>0.000</b>	<b>.1384528</b> <b>.1958689</b>
AGE	<b>.032597</b>	.0009547	<b>34.14</b>	<b>0.000</b>	<b>.0307259</b> <b>.0344681</b>
SEX	<b>.3852491</b>	.0101354	<b>38.01</b>	<b>0.000</b>	<b>.3653841</b> <b>.4051141</b>
NonWhite	<b>-.1476138</b>	.0242554	<b>-6.09</b>	<b>0.000</b>	<b>-.1951534</b> <b>-.1000741</b>
householdszie	<b>-.0143307</b>	.0046102	<b>-3.11</b>	<b>0.002</b>	<b>-.0233665</b> <b>-.005295</b>
SES	<b>-.0826965</b>	.0076067	<b>-10.87</b>	<b>0.000</b>	<b>-.0976053</b> <b>-.0677876</b>
LE8_TOTALSCORE	<b>.000705</b>	.000054	<b>13.07</b>	<b>0.000</b>	<b>.0005993</b> <b>.0008108</b>
_cons	<b>-2.895496</b>	.0690351	<b>-41.94</b>	<b>0.000</b>	<b>-3.030802</b> <b>-2.76019</b>
<b>sigma2</b>					
_cons	<b>.9143573</b>	.00678	<b>134.86</b>	<b>0.000</b>	<b>.9010688</b> <b>.9276459</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.268163</b>	.1635889	7.75	<b>0.000</b>	.9475347 1.588791
ereri_cde	<b>1.266318</b>	.1661801	7.62	<b>0.000</b>	.940611 1.592025
ereri_intref	<b>-.0032241</b>	.0031738	-1.02	<b>0.310</b>	-.0094445 .0029964
ereri_intmed	<b>-.0128761</b>	.0219289	-0.59	<b>0.557</b>	-.055856 .0301037
ereri_pie	<b>.0179453</b>	.0066428	2.70	<b>0.007</b>	.0049256 .0309649

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zfolr2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04637 2.216 -.07448 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9160.406

Iteration 1: Log likelihood = -9072.1747

Iteration 2: Log likelihood = -9063.2245

Iteration 3: Log likelihood = -9063.1863

Iteration 4: Log likelihood = -9063.1863

Refining estimates:

Iteration 0: Log likelihood = -9063.1863

Cox regression with Breslow method for ties

No. of subjects = 36,751 Number of obs = 36,751

No. of failures = 977

Time at risk = 446,451.479

Log likelihood = -9063.1863

LR chi2(9) = 194.44

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.209838	.1611304	10.87	0.000	1.915557 2.549329
zfolr2	1.023997	.0402995	0.60	0.547	.9479807 1.106109
_infectionburXzfolr2_000	1.024124	.0702179	0.35	0.728	.8953456 1.171424
AGE	1.033365	.0129841	2.61	0.009	1.008227 1.059129
SEX	.7461862	.049268	-4.43	0.000	.6556097 .8492764
NonWhite	1.075913	.1831256	0.43	0.667	.7707231 1.501951
householdsize	.9333054	.0393934	-1.64	0.102	.8592032 1.013799
SES	.8204266	.0404507	-4.01	0.000	.744855 .9036656
LE8_TOTALSCORE	.9990563	.0003541	-2.66	0.008	.9983625 .9997505

-> Model for the mediator

Iteration 0: Log likelihood = **-50653.471**  
 Iteration 1: Log likelihood = **-50653.471**

Linear regression (Maximum Likelihood) Number of obs = 36,751  
 Wald chi2(7) = 3111.61  
 Log likelihood = **-50653.471** Prob > chi2 = 0.0000

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	.1409787	.0146193	9.64	0.000	.1123254 .1696319
AGE	.0200147	.0009566	20.92	0.000	.0181397 .0218896
SEX	.4141389	.0101268	40.90	0.000	.3942906 .4339871
NonWhite	.2162798	.0242944	8.90	0.000	.1686636 .2638961
householdsize	.0047394	.0048103	0.99	0.324	-.0046886 .0141675
SES	-.1335759	.0076052	-17.56	0.000	-.1484818 -.11867
LE8_TOTALSCORE	-.0007706	.0000539	-14.29	0.000	-.0008763 -.0006649
_cons	-1.50286	.0693643	-21.67	0.000	-1.638811 -1.366908
<b>sigma2</b>					
_cons	.9219165	.006801	135.56	0.000	.9085868 .9352462

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.225406	.1594784	7.68	0.000	.9128341 1.537978
ereri_cde	1.210086	.1611576	7.51	0.000	.8942228 1.525949
ereri_intref	.0004516	.0030949	0.15	0.884	-.0056143 .0065176
ereri_intmed	.0115197	.0185139	0.62	0.534	-.0247668 .0478063
ereri_pie	.0033487	.0055777	0.60	0.548	-.0075833 .0142807

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zfolr3  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.19 1.531 .04643 2.216 -.07465 500.6

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9070.6964  
 Iteration 1: Log likelihood = -8983.7213  
 Iteration 2: Log likelihood = -8973.2896  
 Iteration 3: Log likelihood = -8973.2038  
 Iteration 4: Log likelihood = -8973.2037  
 Refining estimates:  
 Iteration 0: Log likelihood = -8973.2037

Cox regression with Breslow method for ties

No. of subjects =	<b>36,418</b>	Number of obs =	<b>36,418</b>
No. of failures =	<b>969</b>		
Time at risk =	<b>442,455.578</b>	LR chi2(9) =	<b>194.99</b>
Log likelihood =	<b>-8973.2037</b>	Prob > chi2 =	<b>0.0000</b>

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.254074</b>	.1615083	11.34	<b>0.000</b>	<b>1.958746</b> <b>2.59393</b>
zfolr3	<b>.9802569</b>	.0382453	-0.51	<b>0.609</b>	<b>.9080919</b> <b>1.058157</b>
_infectionburXzfollr3_000	<b>1.087304</b>	.0755015	1.21	<b>0.228</b>	<b>.948952</b> <b>1.245827</b>
AGE	<b>1.033186</b>	.0130339	2.59	<b>0.010</b>	<b>1.007953</b> <b>1.05905</b>
SEX	<b>.7665405</b>	.0498994	-4.08	<b>0.000</b>	<b>.6747215</b> <b>.8708546</b>
NonWhite	<b>1.069944</b>	.1844768	0.39	<b>0.695</b>	<b>.7631307</b> <b>1.500109</b>
householdsize	<b>.9305067</b>	.0396589	-1.69	<b>0.091</b>	<b>.8559347</b> <b>1.011576</b>
SES	<b>.8232177</b>	.0407216	-3.93	<b>0.000</b>	<b>.7471518</b> <b>.9070278</b>
LE8_TOTALSCORE	<b>.9990137</b>	.0003548	-2.78	<b>0.005</b>	<b>.9983185</b> <b>.9997094</b>

-> Model for the mediator

Iteration 0: Log likelihood = -51582.251  
 Iteration 1: Log likelihood = -51582.251

Linear regression (Maximum Likelihood)                          Number of obs = 36,418  
 Log likelihood = -51582.251                                  Wald chi2(7) = 184.77  
 Prob > chi2 = 0.0000

zfolr3	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	.0154647	.0152652	1.01	0.311	-.0144546 .045384
AGE	.0023052	.0009955	2.32	0.021	.0003541 .0042564
SEX	.0607678	.0105668	5.75	0.000	.0400573 .0814783
NonWhite	.2674312	.0253197	10.56	0.000	.2178056 .3170569
householdsize	-.0038677	.0048123	-0.80	0.422	-.0132996 .0055642
SES	-.0135105	.0079344	-1.70	0.089	-.0290615 .0020406
LE8_TOTALSCORE	-.000229	.0000562	-4.07	0.000	-.0003392 -.0001187
_cons	-.1241648	.0719861	-1.72	0.085	-.265255 .0169255
<b>sigma2</b>					
_cons	.9949247	.007373	134.94	0.000	.9804738 1.009376

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.260013	.1616038	7.80	0.000	.9432749 1.57675
ereri_cde	1.253772	.1614714	7.76	0.000	.9372944 1.57025
ereri_intref	.0040128	.0080443	0.50	0.618	-.0117538 .0197794
ereri_intmed	.0025357	.003268	0.78	0.438	-.0038695 .0089409
ereri_pie	-.0003083	.0006756	-0.46	0.648	-.0016325 .0010158

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zfosb
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04688 2.215 -.07424 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8819.5642**  
 Iteration 1: Log likelihood = **-8734.7961**  
 Iteration 2: Log likelihood = **-8727.2892**  
 Iteration 3: Log likelihood = **-8727.2734**  
 Iteration 4: Log likelihood = **-8727.2734**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8727.2734**

Cox regression with Breslow method for ties

No. of subjects =	<b>35,601</b>	Number of obs =	<b>35,601</b>
No. of failures =	<b>943</b>		
Time at risk =	<b>432,443.367</b>	LR chi2(9) =	<b>184.58</b>
Log likelihood =	<b>-8727.2734</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.214035</b>	.1611721	<b>10.92</b>	<b>0.000</b>	<b>1.919644</b> 2.553573
zfosb		<b>1.019191</b>	.0384142	<b>0.50</b>	<b>0.614</b>	<b>.9466142</b> 1.097332
_infectionburXzfosb_000		<b>.9817662</b>	.072748	<b>-0.25</b>	<b>0.804</b>	<b>.849053</b> 1.135223
AGE		<b>1.037435</b>	.0132093	<b>2.89</b>	<b>0.004</b>	<b>1.011866</b> 1.063651
SEX		<b>.748712</b>	.0494439	<b>-4.38</b>	<b>0.000</b>	<b>.6578133</b> .8521715
NonWhite		<b>1.091925</b>	.188186	<b>0.51</b>	<b>0.610</b>	<b>.7789221</b> 1.530706
householdsize		<b>.930123</b>	.0401621	<b>-1.68</b>	<b>0.093</b>	<b>.8546456</b> 1.012266
SES		<b>.8165597</b>	.0407784	<b>-4.06</b>	<b>0.000</b>	<b>.7404224</b> .9005261
LE8_TOTALSCORE		<b>.9991964</b>	.0003605	<b>-2.23</b>	<b>0.026</b>	<b>.9984901</b> .9999032

-> Model for the mediator

Iteration 0: Log likelihood = **-50498.797**  
 Iteration 1: Log likelihood = **-50498.797**

Linear regression (Maximum Likelihood)	Number of obs =	<b>35,601</b>
	Wald chi2(7) =	<b>32.68</b>
Log likelihood =	<b>-50498.797</b>	Prob > chi2 = <b>0.0000</b>

	zfosb	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.0206776</b>	.0154586	<b>1.34</b>	<b>0.181</b>	<b>-.0096208</b> .0509759
AGE		<b>-.0007031</b>	.0010121	<b>-0.69</b>	<b>0.487</b>	<b>-.0026868</b> .0012806
SEX		<b>-.0151861</b>	.0107091	<b>-1.42</b>	<b>0.156</b>	<b>-.0361756</b> .0058034
NonWhite		<b>.0027402</b>	.0255531	<b>0.11</b>	<b>0.915</b>	<b>-.0473429</b> .0528233
householdsize		<b>-.0014526</b>	.0050805	<b>-0.29</b>	<b>0.775</b>	<b>-.0114101</b> .0085049
SES		<b>-.0113795</b>	.0080449	<b>-1.41</b>	<b>0.157</b>	<b>-.0271471</b> .0043882
LE8_TOTALSCORE		<b>-.0002562</b>	.0000571	<b>-4.49</b>	<b>0.000</b>	<b>-.0003681</b> -.0001443
_cons		<b>.1931604</b>	.0733762	<b>2.63</b>	<b>0.008</b>	<b>.0493458</b> .3369751
<b>sigma2</b>						
_cons		<b>.9990548</b>	.0074881	<b>133.42</b>	<b>0.000</b>	<b>.9843783</b> 1.013731

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.21378</b>	.1611238	7.53	<b>0.000</b>	.8979835 1.529577
ereri_cde	<b>1.213882</b>	.1611429	7.53	<b>0.000</b>	.8980476 1.529716
ereri_intref	<b>-.0001294</b>	.0006941	-0.19	0.852	-.0014898 .0012311
ereri_intmed	<b>-.0003654</b>	.0030353	-0.12	0.904	-.0063145 .0055838
ereri_pie	<b>.0003931</b>	.0008332	0.47	0.637	-.00124 .0020263

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zfoxo1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04646 2.216 -.07503 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9036.4379

Iteration 1: Log likelihood = -8946.7861

Iteration 2: Log likelihood = -8937.0219

Iteration 3: Log likelihood = -8936.9744

Iteration 4: Log likelihood = -8936.9744

Refining estimates:

Iteration 0: Log likelihood = -8936.9744

Cox regression with Breslow method for ties

No. of subjects = 36,352

Number of obs = 36,352

No. of failures = 965

Time at risk = 441,650.762

LR chi2(9) = 198.93

Log likelihood = -8936.9744 Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.255238	.1623407	11.30	0.000	1.958482 2.596959
zfoxo1	.9300834	.0363239	-1.86	0.063	.8615465 1.004073
_infectionburXzfoxo1_000	.977296	.0700063	-0.32	0.749	.8492827 1.124605
AGE	1.032331	.0130036	2.53	0.012	1.007157 1.058135
SEX	.7569161	.0493717	-4.27	0.000	.6660795 .8601407
NonWhite	1.057305	.1822238	0.32	0.746	.7542197 1.482186
householdszie	.9329443	.0397325	-1.63	0.103	.8582316 1.014161
SES	.8182584	.0404224	-4.06	0.000	.7427466 .9014473
LE8_TOTALSCORE	.9989493	.0003563	-2.95	0.003	.9982512 .9996479

-> Model for the mediator

Iteration 0: Log likelihood = **-51417.798**  
 Iteration 1: Log likelihood = **-51417.798**

Linear regression (Maximum Likelihood)  
 Number of obs = 36,352  
 Wald chi2(7) = 327.38  
 Log likelihood = **-51417.798** Prob > chi2 = 0.0000

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	.0044773	.0152504	0.29	0.769	-.025413 .0343676
AGE	-.007814	.0009955	-7.85	0.000	-.0097652 -.0058629
SEX	-.0324187	.0105552	-3.07	0.002	-.0531065 -.0117309
NonWhite	.0192709	.0252938	0.76	0.446	-.030304 .0688458
householdszie	-.0029618	.0048853	-0.61	0.544	-.0125367 .0066131
SES	-.0237609	.0079169	-3.00	0.003	-.0392778 -.008244
LE8_TOTALSCORE	-.0008279	.0000562	-14.73	0.000	-.0009381 -.0007178
_cons	.9376907	.0720163	13.02	0.000	.7965413 1.07884
<b>sigma2</b>					
_cons	.9910474	.007351	134.82	0.000	.9766397 1.005455

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.258619	.1617456	7.78	0.000	.9416032 1.575634
ereri_cde	1.251918	.1617566	7.74	0.000	.9348811 1.568956
ereri_intref	.0076659	.0132242	0.58	0.562	-.0182531 .0335849
ereri_intmed	-.0006409	.0022733	-0.28	0.778	-.0050966 .0038147
ereri_pie	-.0003245	.0011188	-0.29	0.772	-.0025172 .0018682

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdszie SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zfoxo3  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.19 1.531 .04669 2.217 -.07551 500.6

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -8882.1967  
 Iteration 1: Log likelihood = -8795.1707  
 Iteration 2: Log likelihood = -8787.1288  
 Iteration 3: Log likelihood = -8787.1118  
 Iteration 4: Log likelihood = -8787.1118  
 Refining estimates:  
 Iteration 0: Log likelihood = -8787.1118

Cox regression with Breslow method for ties

No. of subjects =	35,573	Number of obs =	35,573
No. of failures =	951		
Time at risk =	432,088.637	LR chi2(9) =	190.17
Log likelihood =	-8787.1118	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.258727	.1635694	11.25	0.000	1.959849 2.603184
zfoxo3	.9262707	.0376355	-1.88	0.059	.8553671 1.003052
_infectionburXzfoxo3_000	1.056888	.0780669	0.75	0.454	.9144396 1.221526
AGE	1.037552	.0131914	2.90	0.004	1.012016 1.063731
SEX	.741892	.0488461	-4.53	0.000	.6520752 .8440803
NonWhite	1.109752	.1888134	0.61	0.540	.7950647 1.548994
householdsize	.9392765	.0396105	-1.49	0.137	.8647633 1.02021
SES	.8288435	.0413361	-3.76	0.000	.75166 .9139525
LE8_TOTALSCORE	.9991832	.0003597	-2.27	0.023	.9984784 .9998884

-> Model for the mediator

Iteration 0: Log likelihood = -50351.493  
 Iteration 1: Log likelihood = -50351.493

Linear regression (Maximum Likelihood)

Number of obs =	35,573
Wald chi2(7) =	248.68
Prob > chi2 =	0.0000

Log likelihood = -50351.493

	zfoxo3	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.0046672	.0154365	0.30	0.762	-.0255879 .0349222
AGE		-.0078308	.0010066	-7.78	0.000	-.0098036 -.0058579
SEX		-.0790288	.0106812	-7.40	0.000	-.0999637 -.058094
NonWhite		.0018289	.0255272	0.07	0.943	-.0482035 .0518613
householdsize		-.0023317	.0048614	-0.48	0.631	-.0118599 .0071964
SES		-.0143144	.0080112	-1.79	0.074	-.0300162 .0013873
LE8_TOTALSCORE		-.000608	.0000569	-10.69	0.000	-.0007195 -.0004965
_cons		.9000392	.0727472	12.37	0.000	.7574573 1.042621
<b>sigma2</b>						
_cons		.9930299	.0074459	133.37	0.000	.9784362 1.007624

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.25236	.1627745	7.69	0.000	.9333275 1.571392
ereri_cde	1.255004	.16292	7.70	0.000	.9356868 1.574322
ereri_intref	-.0024212	.0043338	-0.56	0.576	-.0109153 .0060729
ereri_intmed	.0001339	.0008082	0.17	0.868	-.0014501 .0017179
ereri_pie	-.0003574	.0011969	-0.30	0.765	-.0027034 .0019886

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zfrzb
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.17 1.532 .0464 2.216 -.07426 500.7

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8965.181**  
 Iteration 1: Log likelihood = **-8875.2986**  
 Iteration 2: Log likelihood = **-8867.6256**  
 Iteration 3: Log likelihood = **-8867.6086**  
 Iteration 4: Log likelihood = **-8867.6086**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8867.6086**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,056</b>	Number of obs =	<b>36,056</b>
No. of failures =	<b>958</b>		
Time at risk =	<b>438,146.68</b>	LR chi2(9) =	<b>195.14</b>
Log likelihood =	<b>-8867.6086</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.203992</b>	.1593994	<b>10.93</b>	<b>0.000</b>	<b>1.912707</b> 2.539636
zfrzb		<b>.9335686</b>	.0370376	<b>-1.73</b>	<b>0.083</b>	<b>.8637269</b> 1.009058
_infectionburXzfrzb_000		<b>1.031262</b>	.075496	<b>0.42</b>	<b>0.674</b>	<b>.8934187</b> 1.190374
AGE		<b>1.037719</b>	.0131286	<b>2.93</b>	<b>0.003</b>	<b>1.012304</b> 1.063772
SEX		<b>.7326525</b>	.0483011	<b>-4.72</b>	<b>0.000</b>	<b>.643845</b> .8337093
NonWhite		<b>.9770187</b>	.1724814	<b>-0.13</b>	<b>0.895</b>	<b>.6912466</b> 1.380933
householdszie		<b>.9454396</b>	.039245	<b>-1.35</b>	<b>0.176</b>	<b>.8715666</b> 1.025574
SES		<b>.8104819</b>	.040187	<b>-4.24</b>	<b>0.000</b>	<b>.7354231</b> .8932013
LE8_TOTALSCORE		<b>.9989575</b>	.0003567	<b>-2.92</b>	<b>0.003</b>	<b>.9982585</b> .9996569

-> Model for the mediator

Iteration 0: Log likelihood = **-50053.149**  
 Iteration 1: Log likelihood = **-50053.149**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,056</b>
	Wald chi2(7) =	<b>2284.66</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	zfrzb	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.0209212</b>	.0149141	<b>1.40</b>	<b>0.161</b>	<b>-.00831</b> .0501524
AGE		<b>.0120508</b>	.000976	<b>12.35</b>	<b>0.000</b>	<b>.0101379</b> .0139638
SEX		<b>-.2894893</b>	.0103251	<b>-28.04</b>	<b>0.000</b>	<b>-.3097261</b> -.2692525
NonWhite		<b>-.7579316</b>	.0247601	<b>-30.61</b>	<b>0.000</b>	<b>-.8064605</b> -.7094026
householdszie		<b>.0101471</b>	.0048942	<b>2.07</b>	<b>0.038</b>	<b>.0005547</b> .0197395
SES		<b>-.0315725</b>	.0077613	<b>-4.07</b>	<b>0.000</b>	<b>-.0467845</b> -.0163606
LE8_TOTALSCORE		<b>-.0007182</b>	.000055	<b>-13.07</b>	<b>0.000</b>	<b>-.0008259</b> -.0006105
_cons		<b>.0852723</b>	.0707545	<b>1.21</b>	<b>0.228</b>	<b>-.053404</b> .2239487
<b>sigma2</b>						
_cons		<b>.9403855</b>	.0070038	<b>134.27</b>	<b>0.000</b>	<b>.9266583</b> .9541126

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.198647</b>	.1594497	7.52	<b>0.000</b>	.8861315 1.511163
ereri_cde	<b>1.20108</b>	.159119	7.55	<b>0.000</b>	.8892124 1.512947
ereri_intref	<b>-.000686</b>	.0058926	-0.12	<b>0.907</b>	-.0122352 .0108632
ereri_intmed	<b>-.0003096</b>	.0029898	-0.10	<b>0.918</b>	-.0061694 .0055503
ereri_pie	<b>-.0014371</b>	.0013172	-1.09	<b>0.275</b>	-.0040187 .0011445

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zfst
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04634 2.216 -.07461 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9114.2295

Iteration 1: Log likelihood = -9024.286

Iteration 2: Log likelihood = -9015.7108

Iteration 3: Log likelihood = -9015.6825

Iteration 4: Log likelihood = -9015.6825

Refining estimates:

Iteration 0: Log likelihood = -9015.6825

Cox regression with Breslow method for ties

No. of subjects = 36,537 Number of obs = 36,537

No. of failures = 973

Time at risk = 443,808.024

LR chi2(9) = 197.09

Log likelihood = -9015.6825

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.237824</b>	.1605798	11.23	<b>0.000</b>	<b>1.944223</b> <b>2.575762</b>
zfst		<b>.9025739</b>	.0363608	-2.54	<b>0.011</b>	<b>.8340489</b> <b>.9767288</b>
_infectionburXzfst_000		<b>1.053818</b>	.0758635	0.73	<b>0.467</b>	<b>.9151416</b> <b>1.213509</b>
AGE		<b>1.037692</b>	.0130543	2.94	<b>0.003</b>	<b>1.012419</b> <b>1.063596</b>
SEX		<b>.7813432</b>	.0516823	-3.73	<b>0.000</b>	<b>.6863391</b> <b>.8894979</b>
NonWhite		<b>1.067775</b>	.1819328	0.38	<b>0.700</b>	<b>.7646234</b> <b>1.491117</b>
householdszie		<b>.9371659</b>	.0392867	-1.55	<b>0.122</b>	<b>.8632438</b> <b>1.017418</b>
SES		<b>.8248005</b>	.0406615	-3.91	<b>0.000</b>	<b>.7488347</b> <b>.9084728</b>
LE8_TOTALSCORE		<b>.9989353</b>	.0003558	-2.99	<b>0.003</b>	<b>.9982382</b> <b>.9996329</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50909.111**  
 Iteration 1: Log likelihood = **-50909.111**

Linear regression (Maximum Likelihood)                          Number of obs = **36,537**  
     Wald chi2(7) = **1916.88**  
 Log likelihood = **-50909.111**                                      Prob > chi2 = **0.0000**

	zfst	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.0840604</b>	.0148803	5.65	<b>0.000</b>	<b>.0548956</b> <b>.1132252</b>
AGE		<b>.0182683</b>	.0009711	18.81	<b>0.000</b>	<b>.0163649</b> <b>.0201717</b>
SEX		<b>.2847019</b>	.0103103	27.61	<b>0.000</b>	<b>.2644941</b> <b>.3049098</b>
NonWhite		<b>-.1549685</b>	.0247203	-6.27	<b>0.000</b>	<b>-.2034194</b> <b>-.1065177</b>
householdszie		<b>-.0133108</b>	.0046932	-2.84	<b>0.005</b>	<b>-.0225093</b> <b>-.0041122</b>
SES		<b>-.0385708</b>	.0077393	-4.98	<b>0.000</b>	<b>-.0537396</b> <b>-.023402</b>
LE8_TOTALSCORE		<b>-.001295</b>	.0000549	-23.58	<b>0.000</b>	<b>-.0014026</b> <b>-.0011873</b>
_cons		<b>-.8651537</b>	.0701605	-12.33	<b>0.000</b>	<b>-1.002666</b> <b>-.7276416</b>
<b>sigma2</b>						
_cons		<b>.9501251</b>	.0070296	135.16	<b>0.000</b>	<b>.9363474</b> <b>.9639028</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.218611</b>	.1592095	7.65	<b>0.000</b>	<b>.9065665</b> <b>1.530656</b>
ereri_cde	<b>1.230187</b>	.1596501	7.71	<b>0.000</b>	<b>.9172782</b> <b>1.543095</b>
ereri_intref	<b>-.0022148</b>	.0090641	-0.24	<b>0.807</b>	<b>-.01998</b> <b>.0155504</b>
ereri_intmed	<b>-.0007808</b>	.0118485	-0.07	<b>0.947</b>	<b>-.0240034</b> <b>.0224417</b>
ereri_pie	<b>-.0085796</b>	.0036822	-2.33	<b>0.020</b>	<b>-.0157966</b> <b>-.0013626</b>

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdszie SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zfstl3  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.19 1.532 .0464 2.216 -.07498 500.5

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9044.3964  
 Iteration 1: Log likelihood = -8958.6788  
 Iteration 2: Log likelihood = -8947.6291  
 Iteration 3: Log likelihood = -8947.497  
 Iteration 4: Log likelihood = -8947.497  
 Refining estimates:  
 Iteration 0: Log likelihood = -8947.497

Cox regression with Breslow method for ties

No. of subjects =	36,361	Number of obs =	36,361
No. of failures =	966		
Time at risk =	441,620.175	LR chi2(9) =	193.80
Log likelihood =	-8947.497	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.21793	.1707789	10.35	0.000	1.907243 2.579228
zfstl3	1.073032	.0439635	1.72	0.085	.9902342 1.162753
_infectionburXzfstl3_000	.9789062	.0638333	-0.33	0.744	.8614602 1.112364
AGE	1.034298	.0131615	2.65	0.008	1.008821 1.060418
SEX	.7573764	.0493649	-4.26	0.000	.666548 .8605817
NonWhite	1.118442	.1907356	0.66	0.512	.8006672 1.562337
householdsize	.9393171	.0392968	-1.50	0.135	.86537 1.019583
SES	.8328053	.0412579	-3.69	0.000	.7557431 .9177254
LE8_TOTALSCORE	.999181	.0003681	-2.22	0.026	.9984598 .9999026

-> Model for the mediator

Iteration 0: Log likelihood = -48453.271  
 Iteration 1: Log likelihood = -48453.271

Linear regression (Maximum Likelihood)

Number of obs =	36,361
Wald chi2(7) =	6855.54
Prob > chi2 =	0.0000

Log likelihood = -48453.271

zfstl3	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	.2622955	.0140398	18.68	0.000	.2347781 .289813
AGE	.0374953	.0009159	40.94	0.000	.0357002 .0392904
SEX	.0325017	.0097254	3.34	0.001	.0134403 .0515631
NonWhite	-.3410376	.0233063	-14.63	0.000	-.3867171 -.2953581
householdsize	-.0069874	.0044221	-1.58	0.114	-.0156546 .0016799
SES	-.107534	.0072978	-14.74	0.000	-.1218374 -.0932307
LE8_TOTALSCORE	-.0028056	.0000518	-54.16	0.000	-.0029072 -.0027041
_cons	-.9153921	.066181	-13.83	0.000	-1.045104 -.7856798
<b>sigma2</b>					
_cons	.8413446	.0062398	134.84	0.000	.8291148 .8535744

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.246054	.16483	7.56	0.000	.9229927 1.569114
ereri_cde	1.218512	.1707155	7.14	0.000	.8839159 1.553108
ereri_intref	-.0012394	.0011386	-1.09	0.276	-.0034709 .0009921
ereri_intmed	.0101201	.0317809	0.32	0.750	-.0521692 .0724094
ereri_pie	.0186607	.0109934	1.70	0.090	-.002886 .0402075

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zfucal1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

```
Model for the outcome (yreg): cox
Model for the mediator (mreg): linear
```

```
Referent exposure level (a0): 0
Actual exposure level (a1): 1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c): 60.19 1.531 .04658 2.216 -.0749 500.5
```

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9143.3187**  
 Iteration 1: Log likelihood = **-9055.6452**  
 Iteration 2: Log likelihood = **-9047.1918**  
 Iteration 3: Log likelihood = **-9047.1717**  
 Iteration 4: Log likelihood = **-9047.1717**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-9047.1717**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,666</b>	Number of obs =	<b>36,666</b>
No. of failures =	<b>976</b>		
Time at risk =	<b>445,364.44</b>	LR chi2(9) =	<b>192.29</b>
Log likelihood =	<b>-9047.1717</b>	Prob > chi2 =	<b>0.0000</b>

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.247329</b>	.1603061	<b>11.35</b>	<b>0.000</b>	<b>1.954109</b> <b>2.584547</b>
zfucal	<b>.984044</b>	.0370981	<b>-0.43</b>	<b>0.670</b>	<b>.9139545</b> <b>1.059509</b>
_infectionburXzfucal_000	<b>.9816534</b>	.0675045	<b>-0.27</b>	<b>0.788</b>	<b>.8578756</b> <b>1.12329</b>
AGE	<b>1.032383</b>	.0129659	<b>2.54</b>	<b>0.011</b>	<b>1.007281</b> <b>1.058111</b>
SEX	<b>.7502523</b>	.0487205	<b>-4.42</b>	<b>0.000</b>	<b>.660589</b> <b>.8520858</b>
NonWhite	<b>1.093274</b>	.1871378	<b>0.52</b>	<b>0.602</b>	<b>.7816766</b> <b>1.529082</b>
householdszie	<b>.9359064</b>	.0392963	<b>-1.58</b>	<b>0.115</b>	<b>.861971</b> <b>1.016183</b>
SES	<b>.8200075</b>	.0403699	<b>-4.03</b>	<b>0.000</b>	<b>.7445815</b> <b>.9030741</b>
LE8_TOTALSCORE	<b>.9991239</b>	.0003543	<b>-2.47</b>	<b>0.013</b>	<b>.9984298</b> <b>.9998186</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-51630.019**  
 Iteration 1: Log likelihood = **-51630.019**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,666</b>	
	Wald chi2(7) =	<b>801.19</b>	
Log likelihood =	<b>-51630.019</b>	Prob > chi2 =	<b>0.0000</b>

<u>zfucal</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.0003135</b>	.0150754	<b>0.02</b>	<b>0.983</b>	<b>-.0292338</b> <b>.0298608</b>
AGE	<b>.0025567</b>	.0009838	<b>2.60</b>	<b>0.009</b>	<b>.0006284</b> <b>.004485</b>
SEX	<b>-.0979161</b>	.0104448	<b>-9.37</b>	<b>0.000</b>	<b>-.1183875</b> <b>-.0774447</b>
NonWhite	<b>.569912</b>	.0249838	<b>22.81</b>	<b>0.000</b>	<b>.5209446</b> <b>.6188794</b>
householdszie	<b>-.0104401</b>	.0047578	<b>-2.19</b>	<b>0.028</b>	<b>-.0197652</b> <b>-.0011149</b>
SES	<b>-.0072845</b>	.0078389	<b>-0.93</b>	<b>0.353</b>	<b>-.0226484</b> <b>.0080794</b>
LE8_TOTALSCORE	<b>-.0006043</b>	.0000556	<b>-10.86</b>	<b>0.000</b>	<b>-.0007133</b> <b>-.0004952</b>
_cons	<b>.2944879</b>	.0711118	<b>4.14</b>	<b>0.000</b>	<b>.1551113</b> <b>.4338645</b>
<b>sigma2</b>					
_cons	<b>.9785895</b>	.0072274	<b>135.40</b>	<b>0.000</b>	<b>.964424</b> <b>.992755</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.248339	.1603653	7.78	0.000	.9340284 1.562649
ereri_cde	1.24717	.160291	7.78	0.000	.9330055 1.561335
ereri_intref	.0011929	.0044562	0.27	0.789	-.0075411 .0099268
ereri_intmed	-.0000193	.0009314	-0.02	0.983	-.0018448 .0018061
ereri_pie	-5.04e-06	.0002427	-0.02	0.983	-.0004808 .0004707

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zfurin
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04641 2.217 -.0748 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9132.2436

Iteration 1: Log likelihood = -9032.1441

Iteration 2: Log likelihood = -9015.4749

Iteration 3: Log likelihood = -9015.0722

Iteration 4: Log likelihood = -9015.0717

Iteration 5: Log likelihood = -9015.0717

Refining estimates:

Iteration 0: Log likelihood = -9015.0717

Cox regression with Breslow method for ties

No. of subjects = 36,540 Number of obs = 36,540

No. of failures = 975

Time at risk = 443,893.259

LR chi2(9) = 234.34

Log likelihood = -9015.0717 Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.275138	.1623788	11.52	0.000	1.978139 2.61673
zfurin	.7935286	.0333535	-5.50	0.000	.7307772 .8616684
_infectionburXzfurin_000	1.011683	.0716775	0.16	0.870	.880516 1.16239
AGE	1.036572	.0130357	2.86	0.004	1.011335 1.062439
SEX	.8098328	.0529605	-3.23	0.001	.712409 .9205795
NonWhite	1.076885	.1853945	0.43	0.667	.7684722 1.509074
householdsize	.9288106	.0395654	-1.73	0.083	.8544128 1.009687
SES	.8162018	.0401439	-4.13	0.000	.7411945 .8987996
LE8_TOTALSCORE	.9983289	.0003704	-4.51	0.000	.9976031 .9990552

-> Model for the mediator

Iteration 0: Log likelihood = **-49078.216**  
 Iteration 1: Log likelihood = **-49078.216**

Linear regression (Maximum Likelihood) Number of obs = 36,540  
 Wald chi2(7) = 5980.39  
 Prob > chi2 = 0.0000  
 Log likelihood = **-49078.216**

	zfurin	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr	.0596582	.0141642	4.21	0.000	.0318968	.0874195
AGE	.0158898	.0009237	17.20	0.000	.0140794	.0177003
SEX	.15364	.0098038	15.67	0.000	.134425	.172855
NonWhite	.0881911	.0234965	3.75	0.000	.0421388	.1342434
householdsize	-.0015178	.004464	-0.34	0.734	-.0102671	.0072316
SES	-.0535029	.0073593	-7.27	0.000	-.0679268	-.0390789
LE8_TOTALSCORE	-.0036119	.0000522	-69.20	0.000	-.0037143	-.0035096
_cons	.603654	.0667941	9.04	0.000	.47274	.734568
<b>sigma2</b>						
_cons	.8593288	.0063576	135.17	0.000	.8468683	.8717894

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.240256	.1613788	7.69	0.000	.9239598 1.556553
ereri_cde	1.243788	.1584477	7.85	0.000	.9332359 1.554339
ereri_intref	.0260181	.0276914	0.94	0.347	-.028256 .0802923
ereri_intmed	-.0158472	.0095376	-1.66	0.097	-.0345405 .0028461
ereri_pie	-.0137022	.0040688	-3.37	0.001	-.0216768 -.0057275

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zfus  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.19 1.531 .04663 2.216 -.07554 500.6

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -8843.0189  
 Iteration 1: Log likelihood = -8754.4872  
 Iteration 2: Log likelihood = -8745.2532  
 Iteration 3: Log likelihood = -8745.2028  
 Iteration 4: Log likelihood = -8745.2028  
 Refining estimates:  
 Iteration 0: Log likelihood = -8745.2028

Cox regression with Breslow method for ties

No. of subjects = 35,511	Number of obs = 35,511
No. of failures = 947	
Time at risk = 431,341.01	LR chi2(9) = 195.63
Log likelihood = -8745.2028	Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.254946	.1639704	11.18	0.000	1.955421 2.600352
zfus	.9017638	.0373704	-2.50	0.013	.8314149 .9780652
_infectionburXzfus_000	1.146064	.0819957	1.91	0.057	.9961148 1.318586
AGE	1.039401	.0132655	3.03	0.002	1.013724 1.065729
SEX	.7380414	.0487023	-4.60	0.000	.6485017 .8399438
NonWhite	1.109213	.1886422	0.61	0.542	.7947899 1.548023
householdsize	.9397875	.0398754	-1.46	0.143	.8647946 1.021284
SES	.8255406	.041281	-3.83	0.000	.7484697 .9105476
LE8_TOTALSCORE	.9991858	.0003627	-2.24	0.025	.9984752 .9998968

-> Model for the mediator

Iteration 0: Log likelihood = -49920.334  
 Iteration 1: Log likelihood = -49920.334

Linear regression (Maximum Likelihood)  
 Number of obs = 35,511  
 Wald chi2(7) = 946.58  
 Log likelihood = -49920.334 Prob > chi2 = 0.0000

	z fus	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.0504128	.015298	3.30	0.001	.0204294 .0803963
AGE		.0042349	.0009979	4.24	0.000	.002279 .0061907
SEX		-.1150552	.0105873	-10.87	0.000	-.135806 -.0943045
NonWhite		-.0444489	.0253136	-1.76	0.079	-.0941027 .0051248
householdsize		.0014933	.0048214	0.31	0.757	-.0079564 .010943
SES		-.0152488	.0079442	-1.92	0.055	-.0308192 .0003215
LE8_TOTALSCORE		-.0014425	.0000564	-25.58	0.000	-.001553 -.001332
_cons		.6340187	.0721287	8.79	0.000	.4926491 .7753884
<b>sigma2</b>						
_cons		.9740087	.0073096	133.25	0.000	.959682 .9883353

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.246007	.1626312	7.66	0.000	.9272559 1.564758
ereri_cde	1.247526	.1629129	7.66	0.000	.9282231 1.56683
ereri_intref	-.0052449	.0056458	-0.93	0.353	-.0163104 .0058206
ereri_intmed	.0089249	.0074395	1.20	0.230	-.0056564 .0235061
ereri_pie	-.0051993	.0026069	-1.99	0.046	-.0103086 -.0000899

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zfut3_fut5
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04637 2.216 -.07448 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9160.406**  
 Iteration 1: Log likelihood = **-9074.1772**  
 Iteration 2: Log likelihood = **-9063.2513**  
 Iteration 3: Log likelihood = **-9063.1582**  
 Iteration 4: Log likelihood = **-9063.1582**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-9063.1582**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,751</b>	Number of obs =	<b>36,751</b>
No. of failures =	<b>977</b>		
Time at risk =	<b>446,451.479</b>	LR chi2(9) =	<b>194.50</b>
Log likelihood =	<b>-9063.1582</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.202906</b>	<b>.1618951</b>	<b>10.75</b>	<b>0.000</b>	<b>1.907391</b> <b>2.544205</b>
zfut3_fut5		<b>1.017282</b>	<b>.0398683</b>	<b>0.44</b>	<b>0.662</b>	<b>.9420675</b> <b>1.098502</b>
_infectionburXzfut3_fut5_000		<b>1.039564</b>	<b>.071694</b>	<b>0.56</b>	<b>0.574</b>	<b>.9081292</b> <b>1.190021</b>
AGE		<b>1.033322</b>	<b>.0129847</b>	<b>2.61</b>	<b>0.009</b>	<b>1.008183</b> <b>1.059087</b>
SEX		<b>.7643401</b>	<b>.0506335</b>	<b>-4.06</b>	<b>0.000</b>	<b>.6712728</b> <b>.8703106</b>
NonWhite		<b>1.107313</b>	<b>.1899977</b>	<b>0.59</b>	<b>0.552</b>	<b>.791075</b> <b>1.549971</b>
householdsize		<b>.9339699</b>	<b>.0394721</b>	<b>-1.62</b>	<b>0.106</b>	<b>.8597235</b> <b>1.014628</b>
SES		<b>.8184815</b>	<b>.0402254</b>	<b>-4.08</b>	<b>0.000</b>	<b>.7433192</b> <b>.901244</b>
LE8_TOTALSCORE		<b>.9990496</b>	<b>.0003539</b>	<b>-2.68</b>	<b>0.007</b>	<b>.9983563</b> <b>.9997434</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50588.142**  
 Iteration 1: Log likelihood = **-50588.142**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,751</b>
	Wald chi2(7) =	<b>3253.58</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	<u>zfut3_fut5</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.0913184</b>	<b>.0145933</b>	<b>6.26</b>	<b>0.000</b>	<b>.062716</b> <b>.1199207</b>
AGE		<b>.0219633</b>	<b>.0009549</b>	<b>23.00</b>	<b>0.000</b>	<b>.0200916</b> <b>.0238349</b>
SEX		<b>-.3182732</b>	<b>.0101089</b>	<b>-31.48</b>	<b>0.000</b>	<b>-.3380863</b> <b>-.2984602</b>
NonWhite		<b>-.6860866</b>	<b>.0242513</b>	<b>-28.29</b>	<b>0.000</b>	<b>-.7336182</b> <b>-.6385549</b>
householdsize		<b>-.0250028</b>	<b>.0048018</b>	<b>-5.21</b>	<b>0.000</b>	<b>-.0344141</b> <b>-.0155915</b>
SES		<b>-.05497</b>	<b>.0075917</b>	<b>-7.24</b>	<b>0.000</b>	<b>-.0698494</b> <b>-.0400906</b>
LE8_TOTALSCORE		<b>-.0007716</b>	<b>.0000538</b>	<b>-14.33</b>	<b>0.000</b>	<b>-.0008772</b> <b>-.0006661</b>
_cons		<b>-.3777721</b>	<b>.0692411</b>	<b>-5.46</b>	<b>0.000</b>	<b>-.5134822</b> <b>-.2420619</b>
<b>sigma2</b>						
_cons		<b>.9186447</b>	<b>.0067769</b>	<b>135.56</b>	<b>0.000</b>	<b>.9053624</b> <b>.9319271</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.215982	.1599664	7.60	0.000	.9024535 1.52951
ereri_cde	1.203005	.1618969	7.43	0.000	.8856926 1.520317
ereri_intref	.0016868	.0049719	0.34	0.734	-.0080579 .0114316
ereri_intmed	.0097244	.0121392	0.80	0.423	-.0140681 .0335169
ereri_pie	.0015659	.0035932	0.44	0.663	-.0054766 .0086085

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zfut8
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.17 1.532 .0464 2.216 -.07458 500.7

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -8985.4467

Iteration 1: Log likelihood = -8895.3685

Iteration 2: Log likelihood = -8886.5154

Iteration 3: Log likelihood = -8886.4744

Iteration 4: Log likelihood = -8886.4744

Refining estimates:

Iteration 0: Log likelihood = -8886.4744

Cox regression with Breslow method for ties

No. of subjects = 36,164

Number of obs = 36,164

No. of failures = 960

Time at risk = 439,440.668

LR chi2(9) = 197.94

Log likelihood = -8886.4744 Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.200355	.1590065	10.91	0.000	1.909772
	zfut8	.9274944	.0360883	-1.93	0.053	.8593924
_infectionburXzfut8_000		.996715	.0712066	-0.05	0.963	.866483
	AGE	1.03711	.0131077	2.88	0.004	1.011735
	SEX	.7451323	.048811	-4.49	0.000	.6553512
	NonWhite	1.037261	.1812397	0.21	0.834	.7364758
	householdsize	.9410709	.0394129	-1.45	0.147	.8669085
	SES	.8096118	.0400943	-4.26	0.000	.7347217
	LE8_TOTALSCORE	.9989752	.0003568	-2.87	0.004	.9982762
						.9996747

-> Model for the mediator

Iteration 0: Log likelihood = -51148.976  
Iteration 1: Log likelihood = -51148.976

Linear regression (Maximum Likelihood)  
Number of obs = 36,164  
Log likelihood = -51148.976 Wald chi2(7) = 331.55  
Prob > chi2 = 0.0000

	zfut8	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0095707	.0152891	-0.63	0.531	-.0395368
AGE		.0004802	.0010004	0.48	0.631	-.0014805
SEX		.0714374	.0105832	6.75	0.000	.0506948
NonWhite		.221792	.0253769	8.74	0.000	.1720542
householdsiz		-.0146481	.005019	-2.92	0.004	-.0244851
SES		-.0257065	.0079555	-3.23	0.001	-.041299
LE8_TOTALSCORE		-.0006898	.0000563	-12.25	0.000	-.0008001
_cons		.2286027	.0725011	3.15	0.002	.0865032
sigma2						
_cons		.9908881	.0073689	134.47	0.000	.9764453
						1.005331

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.202553</b>	.1587749	<b>7.57</b>	<b>0.000</b>	.8913596    1.513746
ereri_cde	<b>1.19711</b>	.1585134	<b>7.55</b>	<b>0.000</b>	.8864296    1.507791
ereri_intref	<b>.0037872</b>	.0104935	<b>0.36</b>	<b>0.718</b>	-.0167798    .0243541
ereri_intmed	<b>.0009348</b>	.0019961	<b>0.47</b>	<b>0.640</b>	-.0029776    .0048471
ereri_pie	<b>.0007206</b>	.0012104	<b>0.60</b>	<b>0.552</b>	-.0016517    .003093

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intre to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
Warning: this analysis assumes a rare outcome.  
Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zfxn  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.18 1.531 .04659 2.218 -.07483 500.6

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9201.1117  
 Iteration 1: Log likelihood = -9111.6604  
 Iteration 2: Log likelihood = -9103.015  
 Iteration 3: Log likelihood = -9102.9961  
 Iteration 4: Log likelihood = -9102.9961  
 Refining estimates:  
 Iteration 0: Log likelihood = -9102.9961

Cox regression with Breslow method for ties

No. of subjects =	36,726	Number of obs =	36,726
No. of failures =	982		
Time at risk =	446,105.322	LR chi2(9) =	196.23
Log likelihood =	-9102.9961	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.258753	.1605661	11.46	0.000	1.964989 2.596435
zfxn	.9550077	.0369639	-1.19	0.234	.8852396 1.030274
_infectionburXzfxn_000	1.036478	.0726986	0.51	0.609	.9033518 1.189223
AGE	1.0342	.0129528	2.68	0.007	1.009122 1.059901
SEX	.757915	.0490186	-4.29	0.000	.6676803 .8603447
NonWhite	1.081553	.1839498	0.46	0.645	.774954 1.509453
householdszie	.9329269	.0392879	-1.65	0.099	.8590162 1.013197
SES	.8207519	.0402301	-4.03	0.000	.7455715 .9035133
LE8_TOTALSCORE	.9990748	.000354	-2.61	0.009	.9983813 .9997688

-> Model for the mediator

Iteration 0: Log likelihood = -51914.317  
 Iteration 1: Log likelihood = -51914.317

Linear regression (Maximum Likelihood)  
 Number of obs = 36,726  
 Wald chi2(7) = 396.36  
 Log likelihood = -51914.317 Prob > chi2 = 0.0000

zfxn	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>-.0006738</b>	<b>.0151616</b>	<b>-0.04</b>	<b>0.965</b>	<b>-.0303899 .0290424</b>
AGE	<b>-.001603</b>	<b>.0009888</b>	<b>-1.62</b>	<b>0.105</b>	<b>-.0035411 .0003351</b>
SEX	<b>-.0092547</b>	<b>.0104921</b>	<b>-0.88</b>	<b>0.378</b>	<b>-.0298188 .0113095</b>
NonWhite	<b>.1818705</b>	<b>.0251034</b>	<b>7.24</b>	<b>0.000</b>	<b>.1326688 .2310722</b>
householdsize	<b>-.0000549</b>	<b>.0047772</b>	<b>-0.01</b>	<b>0.991</b>	<b>-.009418 .0093083</b>
SES	<b>-.0437892</b>	<b>.0078694</b>	<b>-5.56</b>	<b>0.000</b>	<b>-.0592129 -.0283655</b>
LE8_TOTALSCORE	<b>-.0008528</b>	<b>.0000559</b>	<b>-15.26</b>	<b>0.000</b>	<b>-.0009623 -.0007432</b>
_cons	<b>.5259706</b>	<b>.0715098</b>	<b>7.36</b>	<b>0.000</b>	<b>.385814 .6661272</b>
<b>sigma2</b>					
_cons	<b>.9892959</b>	<b>.0073005</b>	<b>135.51</b>	<b>0.000</b>	<b>.9749871 1.003605</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.256526</b>	<b>.1603767</b>	<b>7.83</b>	<b>0.000</b>	<b>.9421932 1.570858</b>
ereri_cde	<b>1.25744</b>	<b>.1603713</b>	<b>7.84</b>	<b>0.000</b>	<b>.9431176 1.571762</b>
ereri_intref	<b>-.0009293</b>	<b>.0021996</b>	<b>-0.42</b>	<b>0.673</b>	<b>-.0052405 .0033819</b>
ereri_intmed	<b>-.0000155</b>	<b>.000361</b>	<b>-0.04</b>	<b>0.966</b>	<b>-.000723 .000692</b>
ereri_pie	<b>.000031</b>	<b>.0006985</b>	<b>0.04</b>	<b>0.965</b>	<b>-.001338 .0014</b>

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zfxyd5
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.53 .04656 2.215 -.07626 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8913.3312**  
 Iteration 1: Log likelihood = **-8826.0174**  
 Iteration 2: Log likelihood = **-8817.8554**  
 Iteration 3: Log likelihood = **-8817.8303**  
 Iteration 4: Log likelihood = **-8817.8303**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8817.8303**

Cox regression with Breslow method for ties

No. of subjects =	<b>35,761</b>	Number of obs =	<b>35,761</b>
No. of failures =	<b>953</b>		
Time at risk =	<b>434,427.923</b>	LR chi2(9) =	<b>191.00</b>
Log likelihood =	<b>-8817.8303</b>	Prob > chi2 =	<b>0.0000</b>

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.224929</b>	.1614521	<b>11.02</b>	<b>0.000</b>	<b>1.929962</b> <b>2.564978</b>
zfxyd5	<b>.9210775</b>	.0368972	<b>-2.05</b>	<b>0.040</b>	<b>.8515264</b> <b>.9963094</b>
_infectionburXzfxyd5_000	<b>1.025582</b>	.0759078	<b>0.34</b>	<b>0.733</b>	<b>.8870934</b> <b>1.185691</b>
AGE	<b>1.036969</b>	.0131552	<b>2.86</b>	<b>0.004</b>	<b>1.011503</b> <b>1.063076</b>
SEX	<b>.752687</b>	.0494768	<b>-4.32</b>	<b>0.000</b>	<b>.6617011</b> <b>.8561836</b>
NonWhite	<b>1.050412</b>	.1834141	<b>0.28</b>	<b>0.778</b>	<b>.745985</b> <b>1.479072</b>
householdszie	<b>.9348713</b>	.0398053	<b>-1.58</b>	<b>0.114</b>	<b>.860021</b> <b>1.016236</b>
SES	<b>.8261851</b>	.0411079	<b>-3.84</b>	<b>0.000</b>	<b>.749419</b> <b>.9108147</b>
LE8_TOTALSCORE	<b>.9990218</b>	.0003588	<b>-2.73</b>	<b>0.006</b>	<b>.9983188</b> <b>.9997253</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50656.628**  
 Iteration 1: Log likelihood = **-50656.628**

Linear regression (Maximum Likelihood)	Number of obs =	<b>35,761</b>	
	Wald chi2(7) =	<b>171.47</b>	
Log likelihood =	<b>-50656.628</b>	Prob > chi2 =	<b>0.0000</b>

<u>zfxyd5</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>-.0052302</b>	.0154159	<b>-0.34</b>	<b>0.734</b>	<b>-.0354448</b> <b>.0249844</b>
AGE	<b>-.0037637</b>	.0010041	<b>-3.75</b>	<b>0.000</b>	<b>-.0057316</b> <b>-.0017958</b>
SEX	<b>.0488793</b>	.0106631	<b>4.58</b>	<b>0.000</b>	<b>.02798</b> <b>.0697786</b>
NonWhite	<b>-.0577524</b>	.0255135	<b>-2.26</b>	<b>0.024</b>	<b>-.107758</b> <b>-.0077468</b>
householdszie	<b>-.0023631</b>	.0048501	<b>-0.49</b>	<b>0.626</b>	<b>-.0118691</b> <b>.0071428</b>
SES	<b>-.0195505</b>	.0079947	<b>-2.45</b>	<b>0.014</b>	<b>-.0352199</b> <b>-.0038812</b>
LE8_TOTALSCORE	<b>-.0006224</b>	.0000568	<b>-10.95</b>	<b>0.000</b>	<b>-.0007337</b> <b>-.000511</b>
_cons	<b>.4704438</b>	.0725249	<b>6.49</b>	<b>0.000</b>	<b>.3282976</b> <b>.61259</b>
<b>sigma2</b>					
_cons	<b>.9952</b>	.0074425	<b>133.72</b>	<b>0.000</b>	<b>.9806129</b> <b>1.009787</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.221743</b>	.1607471	7.60	0.000	.9066844 1.536802
ereri_cde	<b>1.220889</b>	.1607713	7.59	0.000	.9057832 1.535995
ereri_intref	<b>.0001921</b>	.0083815	0.02	0.982	-.0162353 .0166195
ereri_intmed	<b>.0002316</b>	.0010174	0.23	0.820	-.0017625 .0022257
ereri_pie	<b>.0004301</b>	.0012851	0.33	0.738	-.0020887 .0029488

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zfyb1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04638 2.215 -.07492 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9091.4035

Iteration 1: Log likelihood = -8998.6245

Iteration 2: Log likelihood = -8988.7469

Iteration 3: Log likelihood = -8988.6854

Iteration 4: Log likelihood = -8988.6854

Refining estimates:

Iteration 0: Log likelihood = -8988.6854

Cox regression with Breslow method for ties

No. of subjects = 36,394 Number of obs = 36,394

No. of failures = 971

Time at risk = 442,059.414

LR chi2(9) = 205.44

Log likelihood = -8988.6854

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.238143	.1609587	11.20	0.000	1.943894
	zfyb1	.879967	.0338934	-3.32	0.001	.8159826
_infectionburXzfyb1_000		1.011121	.0718184	0.16	0.876	.8797183
	AGE	1.035028	.0130133	2.74	0.006	1.009834
	SEX	.7543863	.049086	-4.33	0.000	.6640614
	NonWhite	1.089928	.1852426	0.51	0.612	.7811401
	householdszie	.9390325	.0393312	-1.50	0.133	.8650242
	SES	.824665	.0406182	-3.91	0.000	.7487767
	LE8_TOTALSCORE	.9988498	.0003563	-3.23	0.001	.9981518
						.9995483

-> Model for the mediator

Iteration 0: Log likelihood = -51364.006  
Iteration 1: Log likelihood = -51364.006

Linear regression (Maximum Likelihood) Number of obs = 36,394  
Log likelihood = -51364.006 Wald chi2(7) = 556.90  
Prob > chi2 = 0.0000

	zfyb1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0034898	.0151766	-0.23	0.818	-.0332355
AGE		-.0025084	.0009935	-2.52	0.012	-.0044556
SEX		-.0149113	.0105193	-1.42	0.156	-.0355287
NonWhite		.0028872	.0252158	0.11	0.909	-.0465349
householdszie		.0023485	.0049979	0.47	0.638	-.0074473
SES		-.0199531	.0079031	-2.52	0.012	-.0354428
LE8_TOTALSCORE		-.0012393	.000056	-22.13	0.000	-.0013491
_cons		.7878121	.0720496	10.93	0.000	.6465975
sigma2						
_cons		.9849015	.0073012	134.90	0.000	.9705914
						.9992115

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.236086	.1599677	7.73	0.000	.9225547 1.549616
ereri_cde	1.228289	.1594165	7.70	0.000	.9158388 1.54074
ereri_intref	.0068847	.0160155	0.43	0.667	-.024505 .0382744
ereri_intmed	.000465	.0020813	0.22	0.823	-.0036143 .0045444
ereri_pie	.0004463	.0019462	0.23	0.819	-.0033681 .0042608

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intre to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
Warning: this analysis assumes a rare outcome.  
Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zgal  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.18 1.531 .04635 2.216 -.07488 500.5

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9125.8833  
 Iteration 1: Log likelihood = -9039.6059  
 Iteration 2: Log likelihood = -9030.1308  
 Iteration 3: Log likelihood = -9030.0822  
 Iteration 4: Log likelihood = -9030.0822  
 Refining estimates:  
 Iteration 0: Log likelihood = -9030.0822

Cox regression with Breslow method for ties

No. of subjects = 36,595	Number of obs = 36,595
No. of failures = 974	
Time at risk = 444,506.48	LR chi2(9) = 191.60
Log likelihood = -9030.0822	Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.242164	.1600773	11.31	0.000	1.949381 2.578922
zgal	1.021902	.0403945	0.55	0.584	.9457191 1.104221
_infectionburXzgal_000	1.020889	.0703142	0.30	0.764	.8919727 1.168437
AGE	1.035793	.013004	2.80	0.005	1.010617 1.061596
SEX	.7714399	.052554	-3.81	0.000	.6750165 .8816369
NonWhite	1.094516	.1862917	0.53	0.596	.7840494 1.527919
householdsize	.936487	.0393503	-1.56	0.118	.8624523 1.016877
SES	.8273249	.0407724	-3.85	0.000	.7511506 .9112242
LE8_TOTALSCORE	.9990183	.0003551	-2.76	0.006	.9983226 .9997145

-> Model for the mediator

Iteration 0: Log likelihood = -50292.75  
 Iteration 1: Log likelihood = -50292.75

Linear regression (Maximum Likelihood)  
 Number of obs = 36,595  
 Wald chi2(7) = 3415.75  
 Log likelihood = -50292.75 Prob > chi2 = 0.0000

	zgal	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		-.0632499	.014588	-4.34	0.000	-.0918418 -.034658
AGE		-.0112269	.0009521	-11.79	0.000	-.0130929 -.0093608
SEX		-.533202	.0101078	-52.75	0.000	-.5530129 -.513391
NonWhite		-.1324769	.0242335	-5.47	0.000	-.1799736 -.0849802
householdsize		.0016985	.0046021	0.37	0.712	-.0073215 .0107186
SES		.0454458	.0075868	5.99	0.000	.0305758 .0603157
LE8_TOTALSCORE		.0010928	.0000538	20.30	0.000	.0009873 .0011983
_cons		.9599014	.0687676	13.96	0.000	.8251194 1.094683
<b>sigma2</b>						
_cons		.9146042	.0067614	135.27	0.000	.9013521 .9278564

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.237928	.1597957	7.75	0.000	.9247341 1.551122
ereri_cde	1.241661	.160025	7.76	0.000	.9280177 1.555304
ereri_intref	.002268	.0062897	0.36	0.718	-.0100596 .0145956
ereri_intmed	-.0046317	.0086154	-0.54	0.591	-.0215176 .0122542
ereri_pie	-.0013694	.0025166	-0.54	0.586	-.0063019 .0035631

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zgalnt10
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04658 2.216 -.07524 500.8

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9057.6167**  
 Iteration 1: Log likelihood = **-8969.2449**  
 Iteration 2: Log likelihood = **-8958.8702**  
 Iteration 3: Log likelihood = **-8958.8031**  
 Iteration 4: Log likelihood = **-8958.8031**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8958.8031**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,264</b>	Number of obs =	<b>36,264</b>
No. of failures =	<b>968</b>		
Time at risk =	<b>440,524.906</b>	LR chi2(9) =	<b>197.63</b>
Log likelihood =	<b>-8958.8031</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.284384</b>	<b>.1637054</b>	<b>11.53</b>	<b>0.000</b>	<b>1.985042</b> <b>2.628867</b>
zgalnt10		<b>.9840875</b>	<b>.0389623</b>	<b>-0.41</b>	<b>0.685</b>	<b>.9106106</b> <b>1.063493</b>
_infectionburXzgalnt10_000		<b>.9015349</b>	<b>.0635743</b>	<b>-1.47</b>	<b>0.142</b>	<b>.785159</b> <b>1.03516</b>
AGE		<b>1.032329</b>	<b>.013007</b>	<b>2.53</b>	<b>0.012</b>	<b>1.007148</b> <b>1.05814</b>
SEX		<b>.7476581</b>	<b>.0487292</b>	<b>-4.46</b>	<b>0.000</b>	<b>.6579992</b> <b>.8495339</b>
NonWhite		<b>1.07859</b>	<b>.1836285</b>	<b>0.44</b>	<b>0.657</b>	<b>.7725751</b> <b>1.505818</b>
householdsize		<b>.9348167</b>	<b>.0393309</b>	<b>-1.60</b>	<b>0.109</b>	<b>.8608224</b> <b>1.015172</b>
SES		<b>.8175106</b>	<b>.0403122</b>	<b>-4.09</b>	<b>0.000</b>	<b>.7421982</b> <b>.9004651</b>
LE8_TOTALSCORE		<b>.998972</b>	<b>.0003589</b>	<b>-2.86</b>	<b>0.004</b>	<b>.9982688</b> <b>.9996757</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50633.89**  
 Iteration 1: Log likelihood = **-50633.89**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,264</b>
	Wald chi2(7) =	<b>1681.83</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	<u>zgalnt10</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.0923476</b>	<b>.0149816</b>	<b>6.16</b>	<b>0.000</b>	<b>.0629843</b> <b>.1217109</b>
AGE		<b>.0172846</b>	<b>.0009783</b>	<b>17.67</b>	<b>0.000</b>	<b>.0153673</b> <b>.019202</b>
SEX		<b>-.0929761</b>	<b>.0103775</b>	<b>-8.96</b>	<b>0.000</b>	<b>-.1133157</b> <b>-.0726365</b>
NonWhite		<b>-.2823998</b>	<b>.0248318</b>	<b>-11.37</b>	<b>0.000</b>	<b>-.3310693</b> <b>-.2337302</b>
householdsize		<b>-.0164636</b>	<b>.0047196</b>	<b>-3.49</b>	<b>0.000</b>	<b>-.0257138</b> <b>-.0072133</b>
SES		<b>-.0042889</b>	<b>.0077831</b>	<b>-0.55</b>	<b>0.582</b>	<b>-.0195434</b> <b>.0109656</b>
LE8_TOTALSCORE		<b>-.0015757</b>	<b>.0000553</b>	<b>-28.51</b>	<b>0.000</b>	<b>-.001684</b> <b>-.0014674</b>
_cons		<b>-.0722872</b>	<b>.0707003</b>	<b>-1.02</b>	<b>0.307</b>	<b>-.2108573</b> <b>.066283</b>
<b>sigma2</b>						
_cons		<b>.9556518</b>	<b>.007097</b>	<b>134.66</b>	<b>0.000</b>	<b>.9417419</b> <b>.9695618</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.277539</b>	.1636892	7.80	<b>0.000</b>	.956714 1.598364
ereri_cde	<b>1.283962</b>	.1637224	7.84	<b>0.000</b>	.9630721 1.604852
ereri_intref	<b>.0188917</b>	.0174614	1.08	0.279	-.0153319 .0531153
ereri_intmed	<b>-.0238348</b>	.0138352	-1.72	0.085	-.0509513 .0032818
ereri_pie	<b>-.0014802</b>	.0036587	-0.40	0.686	-.0086512 .0056908

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zgalnt2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04659 2.218 -.07483 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9201.1117

Iteration 1: Log likelihood = -9106.9134

Iteration 2: Log likelihood = -9098.1789

Iteration 3: Log likelihood = -9098.1554

Iteration 4: Log likelihood = -9098.1554

Refining estimates:

Iteration 0: Log likelihood = -9098.1554

Cox regression with Breslow method for ties

No. of subjects = 36,726 Number of obs = 36,726

No. of failures = 982

Time at risk = 446,105.322

LR chi2(9) = 205.91

Log likelihood = -9098.1554

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.272706	.1619867	11.52	0.000	1.976396 2.613439
zgalnt2		.8835403	.0334236	-3.27	0.001	.8204009 .951539
_infectionburXzgalnt2_000		1.085174	.074511	1.19	0.234	.9485357 1.241496
AGE		1.033355	.0129372	2.62	0.009	1.008307 1.059025
SEX		.7320059	.0479592	-4.76	0.000	.6437925 .8323064
NonWhite		1.062748	.1807329	0.36	0.720	.7615064 1.483158
householdsize		.9322144	.0393398	-1.66	0.096	.8582123 1.012597
SES		.8298847	.0407252	-3.80	0.000	.7537833 .9136693
LE8_TOTALSCORE		.999074	.0003532	-2.62	0.009	.9983819 .9997665

-> Model for the mediator

Iteration 0: Log likelihood = -51379.512  
 Iteration 1: Log likelihood = -51379.512

Linear regression (Maximum Likelihood) Number of obs = 36,726  
 Wald chi2(7) = 1493.41  
 Log likelihood = -51379.512 Prob > chi2 = 0.0000

	zgalnt2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		-.0228075	.0149424	-1.53	0.127	-.0520941 .0064791
AGE		-.0030806	.0009745	-3.16	0.002	-.0049907 -.0011705
SEX		-.3689466	.0103404	-35.68	0.000	-.3892135 -.3486797
NonWhite		-.1492301	.0247405	-6.03	0.000	-.1977205 -.1007396
householdsize		-.005054	.0047081	-1.07	0.283	-.0142817 .0041738
SES		.0774593	.0077556	9.99	0.000	.0622586 .0926601
LE8_TOTALSCORE		-.0001755	.0000551	-3.19	0.001	-.0002835 -.0000676
_cons		.865214	.070476	12.28	0.000	.7270836 1.003344
<b>sigma2</b>						
_cons		.9608991	.007091	135.51	0.000	.947001 .9747972

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.260699	.1606354	7.85	0.000	.9458592 1.575538
ereri_cde	1.26386	.1605893	7.87	0.000	.9491108 1.578609
ereri_intref	-.0053298	.0064832	-0.82	0.411	-.0180368 .0073771
ereri_intmed	-.0006595	.0031241	-0.21	0.833	-.0067826 .0054637
ereri_pie	.002828	.0020472	1.38	0.167	-.0011845 .0068404

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zgalnt3  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.18 1.53 .04656 2.215 -.07626 500.6

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -8913.3312  
 Iteration 1: Log likelihood = -8832.03  
 Iteration 2: Log likelihood = -8817.8369  
 Iteration 3: Log likelihood = -8817.4401  
 Iteration 4: Log likelihood = -8817.4392  
 Refining estimates:  
 Iteration 0: Log likelihood = -8817.4392

Cox regression with Breslow method for ties

No. of subjects =	35,761	Number of obs =	35,761
No. of failures =	953		
Time at risk =	434,427.923	LR chi2(9) =	191.78
Log likelihood =	-8817.4392	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.204676	.1603663	10.87	0.000	1.911742 2.542498
zgalnt3	1.041397	.0398418	1.06	0.289	.9661642 1.122487
_infectionburXzgalnt3_000	1.085159	.0721926	1.23	0.219	.952501 1.236293
AGE	1.036971	.0131597	2.86	0.004	1.011497 1.063087
SEX	.7469757	.0490875	-4.44	0.000	.6567042 .8496561
NonWhite	1.073109	.1875852	0.40	0.686	.7618145 1.511605
householdsize	.9344589	.0398541	-1.59	0.112	.8595219 1.015929
SES	.829512	.0412908	-3.76	0.000	.7524059 .9145199
LE8_TOTALSCORE	.9991218	.0003585	-2.45	0.014	.9984193 .9998248

-> Model for the mediator

Iteration 0: Log likelihood = -50617.88  
 Iteration 1: Log likelihood = -50617.88

Linear regression (Maximum Likelihood)  
 Number of obs = 35,761  
 Wald chi2(7) = 249.43  
 Log likelihood = -50617.88 Prob > chi2 = 0.0000

	zgalnt3	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.0441337	.0153992	2.87	0.004	.0139519 .0743156
AGE		-.0041644	.001003	-4.15	0.000	-.0061302 -.0021986
SEX		.0931637	.0106515	8.75	0.000	.072287 .1140403
NonWhite		-.229643	.0254859	-9.01	0.000	-.2795945 -.1796916
householdsize		.0145963	.0048448	3.01	0.003	.0051007 .024092
SES		-.0432728	.0079861	-5.42	0.000	-.0589252 -.0276204
LE8_TOTALSCORE		-.0003712	.0000568	-6.54	0.000	-.0004824 -.00026
_cons		.2628559	.0724464	3.63	0.000	.1208637 .4048482
<b>sigma2</b>						
_cons		.9930457	.0074264	133.72	0.000	.9784902 1.007601

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.23019	.1615092	7.62	0.000	.9136375 1.546742
ereri_cde	1.203991	.160264	7.51	0.000	.8898795 1.518103
ereri_intref	.0141943	.0140119	1.01	0.311	-.0132685 .041657
ereri_intmed	.0102123	.0067123	1.52	0.128	-.0029436 .0233683
ereri_pie	.0017918	.0018035	0.99	0.320	-.0017431 .0053267

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zgalnt7
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04658 2.216 -.07524 500.8

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9057.6167**  
 Iteration 1: Log likelihood = **-8969.9259**  
 Iteration 2: Log likelihood = **-8960.6407**  
 Iteration 3: Log likelihood = **-8960.601**  
 Iteration 4: Log likelihood = **-8960.601**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8960.601**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,264</b>	Number of obs =	<b>36,264</b>
No. of failures =	<b>968</b>		
Time at risk =	<b>440,524.906</b>	LR chi2(9) =	<b>194.03</b>
Log likelihood =	<b>-8960.601</b>	Prob > chi2 =	<b>0.0000</b>

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.247847</b>	.1616042	<b>11.27</b>	<b>0.000</b>	<b>1.952412</b> <b>2.587987</b>
zgalnt7	<b>.9895128</b>	.0381792	<b>-0.27</b>	<b>0.785</b>	<b>.9174423</b> <b>1.067245</b>
_infectionburXzgalnt7_000	<b>.9670091</b>	.0659347	<b>-0.49</b>	<b>0.623</b>	<b>.8460424</b> <b>1.105272</b>
AGE	<b>1.031499</b>	.012997	<b>2.46</b>	<b>0.014</b>	<b>1.006337</b> <b>1.05729</b>
SEX	<b>.7551602</b>	.0495668	<b>-4.28</b>	<b>0.000</b>	<b>.6640004</b> <b>.8588351</b>
NonWhite	<b>1.089411</b>	.185376	<b>0.50</b>	<b>0.615</b>	<b>.7804583</b> <b>1.520665</b>
householdszie	<b>.9364441</b>	.0393258	<b>-1.56</b>	<b>0.118</b>	<b>.8624537</b> <b>1.016782</b>
SES	<b>.8168026</b>	.0402797	<b>-4.10</b>	<b>0.000</b>	<b>.7415511</b> <b>.8996905</b>
LE8_TOTALSCORE	<b>.9990532</b>	.000355	<b>-2.67</b>	<b>0.008</b>	<b>.9983576</b> <b>.9997493</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-51051.773**  
 Iteration 1: Log likelihood = **-51051.773**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,264</b>	
	Wald chi2(7) =	<b>817.30</b>	
Log likelihood =	<b>-51051.773</b>	Prob > chi2 =	<b>0.0000</b>

<u>zgalnt7</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>-.0220648</b>	.0151552	<b>-1.46</b>	<b>0.145</b>	<b>-.0517685</b> <b>.0076388</b>
AGE	<b>-.0113362</b>	.0009896	<b>-11.46</b>	<b>0.000</b>	<b>-.0132758</b> <b>-.0093966</b>
SEX	<b>.2560067</b>	.0104978	<b>24.39</b>	<b>0.000</b>	<b>.2354314</b> <b>.276582</b>
NonWhite	<b>.1051689</b>	.0251196	<b>4.19</b>	<b>0.000</b>	<b>.0559353</b> <b>.1544025</b>
householdszie	<b>-.0047063</b>	.0047743	<b>-0.99</b>	<b>0.324</b>	<b>-.0140638</b> <b>.0046511</b>
SES	<b>-.0090254</b>	.0078733	<b>-1.15</b>	<b>0.252</b>	<b>-.0244567</b> <b>.0064059</b>
LE8_TOTALSCORE	<b>-.0002629</b>	.0000559	<b>-4.70</b>	<b>0.000</b>	<b>-.0003724</b> <b>-.0001533</b>
_cons	<b>.4297058</b>	.0715198	<b>6.01</b>	<b>0.000</b>	<b>.2895296</b> <b>.5698819</b>
<b>sigma2</b>					
_cons	<b>.9779322</b>	.0072625	<b>134.66</b>	<b>0.000</b>	<b>.963698</b> <b>.9921664</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.251821</b>	.1613756	7.76	<b>0.000</b>	.9355301 1.568111
ereri_cde	<b>1.247819</b>	.1615865	7.72	<b>0.000</b>	.9311157 1.564523
ereri_intref	<b>.0018115</b>	.0051155	0.35	0.723	-.0082147 .0118378
ereri_intmed	<b>.0019569</b>	.0032177	0.61	0.543	-.0043497 .0082635
ereri_pie	<b>.0002326</b>	.0008664	0.27	0.788	-.0014655 .0019308

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zgas6
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04632 2.216 -.07571 500.4

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9152.1226

Iteration 1: Log likelihood = -9064.0047

Iteration 2: Log likelihood = -9056.0458

Iteration 3: Log likelihood = -9056.0287

Iteration 4: Log likelihood = -9056.0287

Refining estimates:

Iteration 0: Log likelihood = -9056.0287

Cox regression with Breslow method for ties

No. of subjects = 36,678 Number of obs = 36,678

No. of failures = 977

Time at risk = 445,605.284

LR chi2(9) = 192.19

Log likelihood = -9056.0287

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.222902	.1589712	11.17	0.000	1.932175
zgas6		.9742223	.0385945	-0.66	0.510	.9014407
_infectionburXzgas6_000		1.027104	.0729655	0.38	0.707	.8936043
AGE		1.036087	.0130327	2.82	0.005	1.010856
SEX		.7533853	.0498118	-4.28	0.000	.6618171
NonWhite		1.026867	.1792478	0.15	0.879	.7293402
householdsize		.9361621	.0394782	-1.56	0.118	.8618975
SES		.8248726	.0405927	-3.91	0.000	.7490287
LE8_TOTALSCORE		.9990155	.0003536	-2.78	0.005	.9983228
						.9997088

-> Model for the mediator

Iteration 0: Log likelihood = -51182.389  
Iteration 1: Log likelihood = -51182.389

Linear regression (Maximum Likelihood) Number of obs = 36,678  
Log likelihood = -51182.389 Wald chi2(7) = 1762.94  
Prob > chi2 = 0.0000

	zgas6	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.095876	.014872	6.45	0.000	.0667274 .1250246
AGE		.0055538	.0009715	5.72	0.000	.0036497 .007458
SEX		.3910834	.0103107	37.93	0.000	.3708748 .4112919
NonWhite		-.1014533	.0247324	-4.10	0.000	-.149928 -.0529786
householdsiz		-.0140982	.0046991	-3.00	0.003	-.0233082 -.0048882
SES		-.0726561	.0077365	-9.39	0.000	-.0878193 -.0574928
LE8_TOTALSCORE		-.0003099	.0000549	-5.64	0.000	-.0004176 -.0002023
_cons		-.7606749	.0702331	-10.83	0.000	-.8983294 -.6230205
sigma2						
_cons		.9541131	.0070455	135.42	0.000	.9403042 .967922

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.22152</b>	.1585893	<b>7.70</b>	<b>0.000</b>	.9106906 1.532349
ereri_cde	<b>1.222078</b>	.1588562	<b>7.69</b>	<b>0.000</b>	.9107256 1.53343
ereri_intref	<b>-.0006918</b>	.0022538	<b>-0.31</b>	<b>0.759</b>	-.0051093 .0037256
ereri_intmed	<b>.0026345</b>	.0132074	<b>0.20</b>	<b>0.842</b>	-.0232515 .0285205
ereri_pie	<b>-.0025007</b>	.0038085	<b>-0.66</b>	<b>0.511</b>	-.0099652 .0049637

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intre to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
Warning: this analysis assumes a rare outcome.  
Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zgbp2  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.18 1.53 .04656 2.215 -.07626 500.6

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -8913.3312  
 Iteration 1: Log likelihood = -8828.1252  
 Iteration 2: Log likelihood = -8820.3479  
 Iteration 3: Log likelihood = -8820.3305  
 Iteration 4: Log likelihood = -8820.3305  
 Refining estimates:  
 Iteration 0: Log likelihood = -8820.3305

Cox regression with Breslow method for ties

No. of subjects = 35,761	Number of obs = 35,761
No. of failures = 953	
Time at risk = 434,427.923	
Log likelihood = -8820.3305	LR chi2(9) = 186.00
	Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.220771	.160657	11.03	0.000	1.927193 2.55907
zgbp2	.9899347	.0386159	-0.26	0.795	.9170699 1.068589
_infectionburXzgbp2_000	.995476	.0715861	-0.06	0.950	.8646088 1.146151
AGE	1.037077	.0131613	2.87	0.004	1.0116 1.063196
SEX	.7499327	.0493341	-4.37	0.000	.6592137 .8531361
NonWhite	1.055846	.1843814	0.31	0.756	.7498182 1.486774
householdsize	.9350746	.0397921	-1.58	0.115	.8602475 1.01641
SES	.8270828	.0411579	-3.82	0.000	.7502238 .9118158
LE8_TOTALSCORE	.9990624	.0003584	-2.61	0.009	.9983601 .9997651

-> Model for the mediator

Iteration 0: Log likelihood = -50661.05  
 Iteration 1: Log likelihood = -50661.05

Linear regression (Maximum Likelihood)

Log likelihood = -50661.05	Number of obs = 35,761
	Wald chi2(7) = 162.59
	Prob > chi2 = 0.0000

	zgbp2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.013138	.0154178	0.85	0.394	-.0170803 .0433564
AGE		.0042605	.0010042	4.24	0.000	.0022923 .0062286
SEX		.1008935	.0106644	9.46	0.000	.0799917 .1217954
NonWhite		.0804788	.0255167	3.15	0.002	.030467 .1304906
householdsize		-.000979	.0048507	-0.20	0.840	-.0104861 .0085282
SES		-.0203096	.0079957	-2.54	0.011	-.0359809 -.0046383
LE8_TOTALSCORE		-.0003025	.0000568	-5.32	0.000	-.0004139 -.0001912
_cons		-.2642536	.0725339	-3.64	0.000	-.4064173 -.1220898
<b>sigma2</b>						
_cons		.9954462	.0074444	133.72	0.000	.9808555 1.010037

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.220486	.1606448	7.60	0.000	.9056276 1.535344
ereri_cde	1.220686	.1606491	7.60	0.000	.9058197 1.535552
ereri_intref	.0002271	.0022546	0.10	0.920	-.0041918 .0046461
ereri_intmed	-.0002945	.0018694	-0.16	0.875	-.0039584 .0033694
ereri_pie	-.0001329	.0005356	-0.25	0.804	-.0011827 .0009169

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zgbp4
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04688 2.215 -.07424 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8819.5642**  
 Iteration 1: Log likelihood = **-8734.7859**  
 Iteration 2: Log likelihood = **-8725.5003**  
 Iteration 3: Log likelihood = **-8725.4213**  
 Iteration 4: Log likelihood = **-8725.4213**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8725.4213**

Cox regression with Breslow method for ties

No. of subjects =	<b>35,601</b>	Number of obs =	<b>35,601</b>
No. of failures =	<b>943</b>		
Time at risk =	<b>432,443.367</b>	LR chi2(9) =	<b>188.29</b>
Log likelihood =	<b>-8725.4213</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.211443</b>	.1613206	<b>10.88</b>	<b>0.000</b>	<b>1.916824</b> <b>2.551346</b>
zgbp4		<b>.9426006</b>	.0380055	<b>-1.47</b>	<b>0.143</b>	<b>.8709784</b> <b>1.020113</b>
_infectionburXzgbp4_000		<b>1.149013</b>	.0822658	<b>1.94</b>	<b>0.052</b>	<b>.9985772</b> <b>1.322113</b>
AGE		<b>1.037648</b>	.0132118	<b>2.90</b>	<b>0.004</b>	<b>1.012074</b> <b>1.063868</b>
SEX		<b>.7495583</b>	.0495119	<b>-4.36</b>	<b>0.000</b>	<b>.658536</b> <b>.8531616</b>
NonWhite		<b>1.093044</b>	.1884832	<b>0.52</b>	<b>0.606</b>	<b>.7795744</b> <b>1.532561</b>
householdszie		<b>.9301278</b>	.0401593	<b>-1.68</b>	<b>0.093</b>	<b>.8546555</b> <b>1.012265</b>
SES		<b>.8148658</b>	.0406688	<b>-4.10</b>	<b>0.000</b>	<b>.7389308</b> <b>.8986041</b>
LE8_TOTALSCORE		<b>.9991964</b>	.0003603	<b>-2.23</b>	<b>0.026</b>	<b>.9984905</b> <b>.9999028</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50462.109**  
 Iteration 1: Log likelihood = **-50462.109**

Linear regression (Maximum Likelihood)	Number of obs =	<b>35,601</b>
	Wald chi2(7) =	<b>106.20</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	zgbp4	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.0112288</b>	.0154427	<b>0.73</b>	<b>0.467</b>	<b>-.0190384</b> <b>.0414959</b>
AGE		<b>-.002621</b>	.0010111	<b>-0.26</b>	<b>0.795</b>	<b>-.0022438</b> <b>.0017196</b>
SEX		<b>.0473691</b>	.0106981	<b>4.43</b>	<b>0.000</b>	<b>.0264012</b> <b>.0683371</b>
NonWhite		<b>.184917</b>	.0255267	<b>7.24</b>	<b>0.000</b>	<b>.1348855</b> <b>.2349485</b>
householdszie		<b>.0004147</b>	.0050752	<b>0.08</b>	<b>0.935</b>	<b>-.0095325</b> <b>.010362</b>
SES		<b>-.0225345</b>	.0080366	<b>-2.80</b>	<b>0.005</b>	<b>-.0382859</b> <b>-.0067831</b>
LE8_TOTALSCORE		<b>-.0001877</b>	.000057	<b>-3.29</b>	<b>0.001</b>	<b>-.0002995</b> <b>-.000076</b>
_cons		<b>.02441</b>	.0733006	<b>0.33</b>	<b>0.739</b>	<b>-.1192565</b> <b>.1680765</b>
<b>sigma2</b>						
_cons		<b>.9969978</b>	.0074727	<b>133.42</b>	<b>0.000</b>	<b>.9823515</b> <b>1.011644</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.216117</b>	.1613667	7.54	<b>0.000</b>	.8998441 1.53239
ereri_cde	<b>1.209223</b>	.1609658	7.51	<b>0.000</b>	.8937364 1.524711
ereri_intref	<b>.0049089</b>	.0105861	0.46	0.643	-.0158394 .0256572
ereri_intmed	<b>.0026482</b>	.0039578	0.67	0.503	-.0051089 .0104053
ereri_pie	<b>-.0006635</b>	.0010183	-0.65	0.515	-.0026593 .0013323

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zgcg
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04669 2.217 -.07551 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -8882.1967

Iteration 1: Log likelihood = -8794.8854

Iteration 2: Log likelihood = -8786.7482

Iteration 3: Log likelihood = -8786.7279

Iteration 4: Log likelihood = -8786.7279

Refining estimates:

Iteration 0: Log likelihood = -8786.7279

Cox regression with Breslow method for ties

No. of subjects = 35,573 Number of obs = 35,573

No. of failures = 951

Time at risk = 432,088.637

LR chi2(9) = 190.94

Log likelihood = -8786.7279

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.245373</b>	.1626738	<b>11.16</b>	<b>0.000</b>	<b>1.948141</b> <b>2.587955</b>
zgcg		<b>.9211314</b>	.0356771	-2.12	0.034	<b>.8537939</b> <b>.9937797</b>
_infectionburXzgcg_000		<b>1.080344</b>	.0749518	<b>1.11</b>	<b>0.265</b>	<b>.9429912</b> <b>1.237703</b>
AGE		<b>1.037896</b>	.0132056	<b>2.92</b>	<b>0.003</b>	<b>1.012334</b> <b>1.064104</b>
SEX		<b>.7385493</b>	.0487603	-4.59	<b>0.000</b>	<b>.6489059</b> <b>.8405767</b>
NonWhite		<b>1.102468</b>	.1875536	<b>0.57</b>	<b>0.566</b>	<b>.7898751</b> <b>1.53877</b>
householdszie		<b>.9391773</b>	.039571	-1.49	0.136	<b>.8647356</b> <b>1.020028</b>
SES		<b>.8303201</b>	.0414065	-3.73	<b>0.000</b>	<b>.7530048</b> <b>.9155738</b>
LE8_TOTALSCORE		<b>.9991552</b>	.0003614	-2.34	0.019	<b>.998447</b> <b>.9998638</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50028.286**  
 Iteration 1: Log likelihood = **-50028.286**

Linear regression (Maximum Likelihood)  
 Number of obs = 35,573  
 Wald chi2(7) = 905.56  
 Prob > chi2 = 0.0000  
 Log likelihood = **-50028.286**

	zgcg	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.0284245</b>	.0152969	<b>1.86</b>	<b>0.063</b>	<b>-.0015569</b> <b>.0584059</b>
AGE		<b>.0076205</b>	.0009975	<b>7.64</b>	<b>0.000</b>	<b>.0056655</b> <b>.0095755</b>
SEX		<b>-.1777725</b>	.0105846	-16.80	<b>0.000</b>	<b>-.198518</b> <b>-.157027</b>
NonWhite		<b>-.1002867</b>	.0252963	-3.96	<b>0.000</b>	<b>-.1498666</b> <b>-.0507068</b>
householdszie		<b>-.0063153</b>	.0048174	-1.31	0.190	<b>-.0157573</b> <b>.0031267</b>
SES		<b>.0199209</b>	.0079388	<b>2.51</b>	<b>0.012</b>	<b>.0043612</b> <b>.0354806</b>
LE8_TOTALSCORE		<b>-.0011693</b>	.0000564	-20.75	<b>0.000</b>	<b>-.0012798</b> <b>-.0010588</b>
_cons		<b>.4150887</b>	.0720892	<b>5.76</b>	<b>0.000</b>	<b>.2737964</b> <b>.5563811</b>
<b>sigma2</b>						
_cons		<b>.975148</b>	.0073118	<b>133.37</b>	<b>0.000</b>	<b>.9608171</b> <b>.9894789</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.237031</b>	.16202	<b>7.64</b>	<b>0.000</b>	<b>.9194778</b> <b>1.554584</b>
ereri_cde	<b>1.24088</b>	.1621186	<b>7.65</b>	<b>0.000</b>	<b>.9231334</b> <b>1.558627</b>
ereri_intref	<b>-.003539</b>	.0034463	-1.03	0.304	<b>-.0102937</b> <b>.0032157</b>
ereri_intmed	<b>.0020225</b>	.0039887	<b>0.51</b>	<b>0.612</b>	<b>-.0057952</b> <b>.0098403</b>
ereri_pie	<b>-.0023324</b>	.0016668	-1.40	0.162	<b>-.0055993</b> <b>.0009345</b>

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdszie SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zgcnt1  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.18 1.531 .04658 2.216 -.07524 500.8

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9057.6167  
 Iteration 1: Log likelihood = -8968.5527  
 Iteration 2: Log likelihood = -8960.0821  
 Iteration 3: Log likelihood = -8960.063  
 Iteration 4: Log likelihood = -8960.063  
 Refining estimates:  
 Iteration 0: Log likelihood = -8960.063

Cox regression with Breslow method for ties

No. of subjects =	36,264	Number of obs =	36,264
No. of failures =	968		
Time at risk =	440,524.906	LR chi2(9) =	195.11
Log likelihood =	-8960.063	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.263727	.163906	11.28	0.000	1.96423 2.608889
zgcnt1	.9573793	.0378462	-1.10	0.271	.886003 1.034506
_infectionburXzgcnt1_000	.9986343	.0718565	-0.02	0.985	.8672783 1.149885
AGE	1.032813	.0130268	2.56	0.010	1.007594 1.058663
SEX	.7444543	.0487497	-4.51	0.000	.6547841 .8464046
NonWhite	1.068368	.1822418	0.39	0.698	.7647563 1.492514
householdsize	.9361879	.0393416	-1.57	0.117	.8621698 1.016561
SES	.8154122	.0402185	-4.14	0.000	.7402757 .898175
LE8_TOTALSCORE	.9990437	.0003553	-2.69	0.007	.9983476 .9997403

-> Model for the mediator

Iteration 0: Log likelihood = -50641.692  
 Iteration 1: Log likelihood = -50641.692

Linear regression (Maximum Likelihood)  
 Number of obs = 36,264  
 Wald chi2(7) = 1665.50  
 Log likelihood = -50641.692 Prob > chi2 = 0.0000

	zgcnt1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.1247422	.0149848	8.32	0.000	.0953726 .1541118
AGE		.0228795	.0009785	23.38	0.000	.0209618 .0247973
SEX		-.1960735	.0103798	-18.89	0.000	-.2164175 -.1757296
NonWhite		-.3908678	.0248372	-15.74	0.000	-.4395478 -.3421878
householdsize		.0027884	.0047206	0.59	0.555	-.0064638 .0120406
SES		-.0539636	.0077847	-6.93	0.000	-.0692213 -.0387058
LE8_TOTALSCORE		-.0004678	.0000553	-8.46	0.000	-.0005761 -.0003594
_cons		-.8517678	.0707156	-12.04	0.000	-.9903677 -.7131679
<b>sigma2</b>						
_cons		.9560631	.0071001	134.66	0.000	.9421472 .969979

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.25126	.162309	7.71	0.000	.9331404 1.56938
ereri_cde	1.261629	.1637984	7.70	0.000	.9405897 1.582667
ereri_intref	.0022824	.0086202	0.26	0.791	-.0146128 .0191777
ereri_intmed	-.0072323	.01789	-0.40	0.686	-.0422961 .0278315
ereri_pie	-.0054185	.0049472	-1.10	0.273	-.0151149 .0042779

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zgdf15
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04648 2.216 -.0752 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9225.1762**  
 Iteration 1: Log likelihood = **-9165.1642**  
 Iteration 2: Log likelihood = **-9109.6783**  
 Iteration 3: Log likelihood = **-9100.9337**  
 Iteration 4: Log likelihood = **-9100.4615**  
 Iteration 5: Log likelihood = **-9100.4599**  
 Iteration 6: Log likelihood = **-9100.4599**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-9100.4599**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,896</b>	Number of obs =	<b>36,896</b>
No. of failures =	<b>984</b>		
Time at risk =	<b>448,211.761</b>	LR chi2(9) =	<b>249.43</b>
Log likelihood =	<b>-9100.4599</b>	Prob > chi2 =	<b>0.0000</b>

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.16085</b>	<b>.1787526</b>	<b>9.31</b>	<b>0.000</b>	<b>1.837429</b> <b>2.5412</b>
zgdf15	<b>1.297632</b>	<b>.0493475</b>	<b>6.85</b>	<b>0.000</b>	<b>1.204429</b> <b>1.398047</b>
_infectionburXzgdf15_000	<b>.9415878</b>	<b>.0534471</b>	<b>-1.06</b>	<b>0.289</b>	<b>.8424503</b> <b>1.052392</b>
AGE	<b>1.016627</b>	<b>.0129205</b>	<b>1.30</b>	<b>0.194</b>	<b>.9916161</b> <b>1.042269</b>
SEX	<b>.8187289</b>	<b>.0537161</b>	<b>-3.05</b>	<b>0.002</b>	<b>.7199354</b> <b>.9310794</b>
NonWhite	<b>1.027294</b>	<b>.1748318</b>	<b>0.16</b>	<b>0.874</b>	<b>.7359219</b> <b>1.434029</b>
householdszie	<b>.9430853</b>	<b>.0391589</b>	<b>-1.41</b>	<b>0.158</b>	<b>.8693753</b> <b>1.023045</b>
SES	<b>.8620788</b>	<b>.0425106</b>	<b>-3.01</b>	<b>0.003</b>	<b>.7826593</b> <b>.9495573</b>
LE8_TOTALSCORE	<b>.9996447</b>	<b>.0003586</b>	<b>-0.99</b>	<b>0.322</b>	<b>.9989421</b> <b>1.000348</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-47065.778**  
 Iteration 1: Log likelihood = **-47065.778**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,896</b>	
	Wald chi2(7) =	<b>12244.61</b>	
Log likelihood =	<b>-47065.778</b>	Prob > chi2 =	<b>0.0000</b>

<u>zgdf15</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.3220355</b>	<b>.0131604</b>	<b>24.47</b>	<b>0.000</b>	<b>.2962416</b> <b>.3478295</b>
AGE	<b>.0570457</b>	<b>.0008592</b>	<b>66.40</b>	<b>0.000</b>	<b>.0553618</b> <b>.0587297</b>
SEX	<b>-.2853383</b>	<b>.0091196</b>	<b>-31.29</b>	<b>0.000</b>	<b>-.3032124</b> <b>-.2674642</b>
NonWhite	<b>.0136544</b>	<b>.0218386</b>	<b>0.63</b>	<b>0.532</b>	<b>-.0291484</b> <b>.0564572</b>
householdszie	<b>-.0182092</b>	<b>.0041578</b>	<b>-4.38</b>	<b>0.000</b>	<b>-.0263583</b> <b>-.0100601</b>
SES	<b>-.1925187</b>	<b>.0068438</b>	<b>-28.13</b>	<b>0.000</b>	<b>-.2059323</b> <b>-.179105</b>
LE8_TOTALSCORE	<b>-.0022013</b>	<b>.0000486</b>	<b>-45.32</b>	<b>0.000</b>	<b>-.0022965</b> <b>-.0021061</b>
_cons	<b>-1.914152</b>	<b>.0621171</b>	<b>-30.82</b>	<b>0.000</b>	<b>-2.035899</b> <b>-1.792404</b>
<b>sigma2</b>					
_cons	<b>.7508046</b>	<b>.0055278</b>	<b>135.82</b>	<b>0.000</b>	<b>.7399703</b> <b>.7616389</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.287143</b>	.17121	7.52	<b>0.000</b>	<b>.9515776</b> <b>1.622709</b>
ereri_cde	<b>1.144919</b>	.1750251	6.54	<b>0.000</b>	<b>.8018756</b> <b>1.487961</b>
ereri_intref	<b>-.0006842</b>	.0108466	-0.06	0.950	<b>-.0219431</b> <b>.0205746</b>
ereri_intmed	<b>.0553848</b>	.03145	1.76	<b>0.078</b>	<b>-.006256</b> <b>.1170256</b>
ereri_pie	<b>.087524</b>	.0138307	6.33	<b>0.000</b>	<b>.0604163</b> <b>.1146316</b>

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zgdf2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04649 2.218 -.07578 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9064.8284

Iteration 1: Log likelihood = -8979.0215

Iteration 2: Log likelihood = -8965.2293

Iteration 3: Log likelihood = -8965.0626

Iteration 4: Log likelihood = -8965.0625

Refining estimates:

Iteration 0: Log likelihood = -8965.0625

Cox regression with Breslow method for ties

No. of subjects = 36,441 Number of obs = 36,441

No. of failures = 968

Time at risk = 442,700.115

Log likelihood = -8965.0625

LR chi2(9) = 199.53

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.25502	.1629669	11.25	0.000	1.9572 2.598157
zgdf2	.9698479	.0396582	-0.75	0.454	.8951525 1.050776
_infectionburXzgdf2_000	.9392781	.0658009	-0.89	0.371	.8187729 1.077519
AGE	1.033104	.0130192	2.58	0.010	1.007899 1.058939
SEX	.7768991	.054365	-3.61	0.000	.6773299 .8911053
NonWhite	1.021101	.180808	0.12	0.906	.721681 1.444749
householdsize	.9273094	.0398399	-1.76	0.079	.8524218 1.008776
SES	.8256253	.0408147	-3.88	0.000	.7493833 .9096243
LE8_TOTALSCORE	.9990666	.0003557	-2.62	0.009	.9983697 .999764

-> Model for the mediator

Iteration 0: Log likelihood = **-48927.901**  
 Iteration 1: Log likelihood = **-48927.901**

Linear regression (Maximum Likelihood) Number of obs = 36,441  
 Wald chi2(7) = 6004.57  
 Log likelihood = **-48927.901** Prob > chi2 = 0.0000

	zgdf2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr	-.067869	.0141603	-4.79	0.000	-.0956227	-.0401153
AGE	-.00061	.0009248	-0.66	0.510	-.0024226	.0012027
SEX	.7410978	.0098125	75.53	0.000	.7218656	.76033
NonWhite	.074895	.0234955	3.19	0.001	.0288446	.1209454
householdsize	-.0015251	.0044655	-0.34	0.733	-.0102774	.0072271
SES	-.0197815	.0073635	-2.69	0.007	-.0342136	-.0053493
LE8_TOTALSCORE	.0003685	.0000523	7.05	0.000	.000266	.0004711
_cons	-1.274669	.0668417	-19.07	0.000	-1.405676	-1.143662
<b>sigma2</b>						
_cons	.8585112	.0063601	134.98	0.000	.8460456	.8709769

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.275565	.1626023	7.84	0.000	.9568703 1.594259
ereri_cde	1.254877	.1629204	7.70	0.000	.9355588 1.574195
ereri_intref	.0063303	.009476	0.67	0.504	-.0122422 .0249028
ereri_intmed	.0122775	.0097313	1.26	0.207	-.0067955 .0313506
ereri_pie	.00208	.0028147	0.74	0.460	-.0034367 .0075968

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zgdnf  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.18 1.531 .04688 2.215 -.07424 500.5

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -8819.5642  
 Iteration 1: Log likelihood = -8734.2551  
 Iteration 2: Log likelihood = -8723.4279  
 Iteration 3: Log likelihood = -8723.2982  
 Iteration 4: Log likelihood = -8723.2981  
 Refining estimates:  
 Iteration 0: Log likelihood = -8723.2981

Cox regression with Breslow method for ties

No. of subjects =	35,601	Number of obs =	35,601
No. of failures =	943		
Time at risk =	432,443.367	LR chi2(9) =	192.53
Log likelihood =	-8723.2981	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.21172	.1650027	10.64	0.000	1.910853 2.559959
zgdnf	1.106778	.0429885	2.61	0.009	1.02565 1.194324
_infectionburXzgdnf_000	.9797055	.0695953	-0.29	0.773	.8523711 1.126062
AGE	1.035892	.0131987	2.77	0.006	1.010344 1.062087
SEX	.7790637	.0525475	-3.70	0.000	.6825898 .8891727
NonWhite	1.069898	.1845785	0.39	0.695	.762945 1.500346
householdsize	.931521	.0402368	-1.64	0.101	.8559043 1.013818
SES	.8168696	.0408058	-4.05	0.000	.7406822 .9008938
LE8_TOTALSCORE	.9993055	.0003621	-1.92	0.055	.998596 1.000015

-> Model for the mediator

Iteration 0: Log likelihood = -49178.739  
 Iteration 1: Log likelihood = -49178.739

Linear regression (Maximum Likelihood)  
 Number of obs = 35,601  
 Wald chi2(7) = 2775.67  
 Log likelihood = -49178.739 Prob > chi2 = 0.0000

zgdnf	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	.0883548	.0148959	5.93	0.000	.0591593 .1175503
AGE	.0122445	.0009753	12.55	0.000	.0103329 .014156
SEX	-.4236883	.0103193	-41.06	0.000	-.4439138 -.4034628
NonWhite	.2718874	.0246229	11.04	0.000	.2236274 .3201475
householdsize	-.0137017	.0048955	-2.80	0.005	-.0232968 -.0041067
SES	-.0152692	.007752	-1.97	0.049	-.0304629 -.0000754
LE8_TOTALSCORE	-.001108	.000055	-20.14	0.000	-.0012159 -.0010002
_cons	.4703858	.0707053	6.65	0.000	.331806 .6089655
<b>sigma2</b>					
_cons	.9276468	.0069529	133.42	0.000	.9140194 .9412743

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.224295	.1626595	7.53	0.000	.9054882 1.543102
ereri_cde	1.207452	.1640822	7.36	0.000	.8858563 1.529047
ereri_intref	.0009912	.0088399	0.11	0.911	-.0163347 .018317
ereri_intmed	.006848	.0122193	0.56	0.575	-.0171014 .0307973
ereri_pie	.0090042	.0037836	2.38	0.017	.0015885 .0164199

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zgfp
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04666 2.217 -.07543 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8854.5083**  
 Iteration 1: Log likelihood = **-8737.1546**  
 Iteration 2: Log likelihood = **-8629.6953**  
 Iteration 3: Log likelihood = **-8613.1958**  
 Iteration 4: Log likelihood = **-8612.2406**  
 Iteration 5: Log likelihood = **-8612.2369**  
 Iteration 6: Log likelihood = **-8612.2369**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8612.2369**

Cox regression with Breslow method for ties

No. of subjects =	<b>35,515</b>	Number of obs =	<b>35,515</b>
No. of failures =	<b>948</b>		
Time at risk =	<b>431,399.6</b>	LR chi2(9) =	<b>484.54</b>
Log likelihood =	<b>-8612.2369</b>	Prob > chi2 =	<b>0.0000</b>

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.221964</b>	.1875047	<b>9.46</b>	<b>0.000</b>	<b>1.883244</b> <b>2.621605</b>
zgfap	<b>1.567876</b>	.0353658	<b>19.94</b>	<b>0.000</b>	<b>1.50007</b> <b>1.638747</b>
_infectionburXzgfap_000	<b>1.018548</b>	.0576691	<b>0.32</b>	<b>0.745</b>	<b>.9115645</b> <b>1.138087</b>
AGE	<b>1.003343</b>	.01288	<b>0.26</b>	<b>0.795</b>	<b>.9784136</b> <b>1.028908</b>
SEX	<b>.6401747</b>	.0424262	<b>-6.73</b>	<b>0.000</b>	<b>.5621949</b> <b>.7289707</b>
NonWhite	<b>1.061808</b>	.180714	<b>0.35</b>	<b>0.725</b>	<b>.7606345</b> <b>1.482231</b>
householdsize	<b>.9391813</b>	.0397118	<b>-1.48</b>	<b>0.138</b>	<b>.8644854</b> <b>1.020331</b>
SES	<b>.7894181</b>	.0389403	<b>-4.79</b>	<b>0.000</b>	<b>.7166698</b> <b>.8695508</b>
LE8_TOTALSCORE	<b>.9990627</b>	.0003634	<b>-2.58</b>	<b>0.010</b>	<b>.9983508</b> <b>.9997752</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-48273.329**  
 Iteration 1: Log likelihood = **-48273.329**

Linear regression (Maximum Likelihood)	Number of obs =	<b>35,515</b>
	Wald chi2(7) =	<b>4502.97</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

<u>zgfap</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.0307483</b>	.0146024	<b>2.11</b>	<b>0.035</b>	<b>.0021281</b> <b>.0593684</b>
AGE	<b>.0551397</b>	.0009524	<b>57.89</b>	<b>0.000</b>	<b>.053273</b> <b>.0570065</b>
SEX	<b>.3172415</b>	.0101061	<b>31.39</b>	<b>0.000</b>	<b>.2974339</b> <b>.337049</b>
NonWhite	<b>.1037095</b>	.0241596	<b>4.29</b>	<b>0.000</b>	<b>.0563575</b> <b>.1510615</b>
householdsize	<b>.0020603</b>	.0045976	<b>0.45</b>	<b>0.654</b>	<b>-.0069509</b> <b>.0110714</b>
SES	<b>.004767</b>	.0075799	<b>0.63</b>	<b>0.529</b>	<b>-.0100893</b> <b>.0196233</b>
LE8_TOTALSCORE	<b>.0004414</b>	.0000538	<b>8.20</b>	<b>0.000</b>	<b>.0003359</b> <b>.0005469</b>
_cons	<b>-4.03862</b>	.068832	<b>-58.67</b>	<b>0.000</b>	<b>-4.173528</b> <b>-3.903712</b>
<b>sigma2</b>					
_cons	<b>.8874514</b>	.0066597	<b>133.26</b>	<b>0.000</b>	<b>.8743986</b> <b>.9005041</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.270933</b>	.1705373	7.45	<b>0.000</b>	.9366863 1.60518
ereri_cde	<b>1.119222</b>	.1699698	6.58	<b>0.000</b>	.7860873 1.452357
ereri_intref	<b>.1192592</b>	.043238	2.76	<b>0.006</b>	.0345144 .2040041
ereri_intmed	<b>.0185278</b>	.0096755	1.91	<b>0.056</b>	-.0004358 .0374913
ereri_pie	<b>.0139242</b>	.0066955	2.08	<b>0.038</b>	.0008013 .0270471

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zgfer
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04669 2.217 -.07551 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -8882.1967

Iteration 1: Log likelihood = -8793.8585

Iteration 2: Log likelihood = -8785.8138

Iteration 3: Log likelihood = -8785.7962

Iteration 4: Log likelihood = -8785.7962

Refining estimates:

Iteration 0: Log likelihood = -8785.7962

Cox regression with Breslow method for ties

No. of subjects = 35,573 Number of obs = 35,573

No. of failures = 951

Time at risk = 432,088.637

LR chi2(9) = 192.80

Log likelihood = -8785.7962

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.258935</b>	.1633094	<b>11.27</b>	<b>0.000</b>	<b>1.960498</b> <b>2.602803</b>
zgfer	<b>.9066472</b>	.0369903	-2.40	0.016	.8369705    .9821244
_infectionburXzgfer_000	<b>1.05343</b>	.0781081	<b>0.70</b>	<b>0.483</b>	.9109447    1.218202
AGE	<b>1.037983</b>	.0131915	2.93	0.003	<b>1.012447</b> <b>1.064162</b>
SEX	<b>.7397407</b>	.0487358	-4.58	<b>0.000</b>	.6501303    .8417025
NonWhite	<b>1.105347</b>	.1880561	<b>0.59</b>	<b>0.556</b>	.7919196    1.542823
householdsize	<b>.9387496</b>	.0396117	-1.50	0.134	.8642358    1.019688
SES	<b>.8270992</b>	.041268	-3.80	<b>0.000</b>	.7500444    .91207
LE8_TOTALSCORE	<b>.9991117</b>	.0003621	-2.45	0.014	.9984023    .9998217

-> Model for the mediator

Iteration 0: Log likelihood = **-49909.743**  
 Iteration 1: Log likelihood = **-49909.743**

Linear regression (Maximum Likelihood)                          Number of obs = **35,573**  
     Wald chi2(7) = **1149.50**  
 Log likelihood = **-49909.743**                                      Prob > chi2 = **0.0000**

	zgfer	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.0513049</b>	.015246	<b>3.37</b>	<b>0.001</b>	.0214232    .0811865
AGE		<b>-.0004089</b>	.0009942	-0.41	0.681	-.0023574    .0015396
SEX		<b>-.1472107</b>	.0105494	-13.95	<b>0.000</b>	-.1678872    -.1265342
NonWhite		<b>-.0344247</b>	.0252122	-1.37	0.172	-.0838397    .0149902
householdsize		<b>-.0077994</b>	.0048014	-1.62	0.104	-.01721    .0016112
SES		<b>-.0260659</b>	.0079124	-3.29	0.001	-.0415739    -.010558
LE8_TOTALSCORE		<b>-.0015506</b>	.0000562	-27.60	<b>0.000</b>	-.0016607    -.0014405
_cons		<b>1.036057</b>	.0718494	14.42	<b>0.000</b>	.8952349    1.176879
<b>sigma2</b>						
_cons		<b>.9686705</b>	.0072632	<b>133.37</b>	<b>0.000</b>	.9544348    .9829062

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.244621</b>	.162146	<b>7.68</b>	<b>0.000</b>	.9268209    1.562422
ereri_cde	<b>1.25222</b>	.1622954	<b>7.72</b>	<b>0.000</b>	.9341264    1.570313
ereri_intref	<b>-.0023003</b>	.0083073	-0.28	0.782	-.0185824    .0139817
ereri_intmed	<b>-.0002825</b>	.0074827	-0.04	0.970	-.0149484    .0143834
ereri_pie	<b>-.0050154</b>	.0025588	-1.96	0.050	-.0100306    -1.01e-07

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```

Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zgfod2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

Model for the outcome (yreg): cox
Model for the mediator (mreg): linear

Referent exposure level (a0):          0
Actual exposure level (a1):           1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c):    60.19 1.531 .04669 2.217 -.07551 500.6

```

-> Model for the outcome

```

Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid

```

```

Iteration 0: Log likelihood = -8882.1967
Iteration 1: Log likelihood = -8797.2546
Iteration 2: Log likelihood = -8788.0521
Iteration 3: Log likelihood = -8787.9879
Iteration 4: Log likelihood = -8787.9879
Refining estimates:
Iteration 0: Log likelihood = -8787.9879

```

Cox regression with Breslow method for ties

No. of subjects =	35,573	Number of obs =	35,573
No. of failures =	951		
Time at risk =	432,088.637	LR chi2(9) =	188.42
Log likelihood =	-8787.9879	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.248394	.1625881	11.20	0.000	1.951279 2.590749
zgfod2	.9648101	.0393571	-0.88	0.380	.8906748 1.045116
_infectionburXzgfod2_000	1.103389	.0762981	1.42	0.155	.9635382 1.263538
AGE	1.037515	.0131957	2.90	0.004	1.011972 1.063704
SEX	.7455401	.0490349	-4.46	0.000	.6553702 .8481162
NonWhite	1.105564	.1881381	0.59	0.555	.7920117 1.543249
householdsize	.9392059	.0396515	-1.49	0.137	.8646189 1.020227
SES	.8287193	.0413374	-3.77	0.000	.7515341 .9138318
LE8_TOTALSCORE	.9992177	.0003588	-2.18	0.029	.9985147 .9999212

-> Model for the mediator

Iteration 0: Log likelihood = -50470.797	Number of obs = 35,573
Iteration 1: Log likelihood = -50470.797	Wald chi2(7) = 9.21
Log likelihood = -50470.797	Prob > chi2 = 0.2381

	zgfod2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.0076049	.0154884	0.49	0.623	-.0227518 .0379616
AGE		-.001943	.00101	-1.92	0.054	-.0039225 .0000365
SEX		.0217041	.0107171	2.03	0.043	.0006989 .0427093
NonWhite		-.0212122	.025613	-0.83	0.408	-.0714126 .0289883
householdsize		-.0025211	.0048777	-0.52	0.605	-.0120813 .0070391
SES		-.0014695	.0080381	-0.18	0.855	-.0172239 .014285
LE8_TOTALSCORE		-.0000215	.0000571	-0.38	0.707	-.0001333 .0000904
_cons		.0998803	.0729916	1.37	0.171	-.0431807 .2429412
<b>sigma2</b>						
_cons		.9997131	.007496	133.37	0.000	.9850212 1.014405

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.25219	.1626126	7.70	0.000	.9334754 1.570905
ereri_cde	1.247546	.1624392	7.68	0.000	.9291713 1.565921
ereri_intref	.0035727	.0079283	0.45	0.652	-.0119664 .0191117
ereri_intmed	.0013437	.0029166	0.46	0.645	-.0043728 .0070602
ereri_pie	-.0002724	.0006355	-0.43	0.668	-.001518 .0009732

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zgfra1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04661 2.218 -.07452 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9189.6152**  
 Iteration 1: Log likelihood = **-9104.1929**  
 Iteration 2: Log likelihood = **-9088.9203**  
 Iteration 3: Log likelihood = **-9088.6146**  
 Iteration 4: Log likelihood = **-9088.6143**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-9088.6143**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,668</b>	Number of obs =	<b>36,668</b>
No. of failures =	<b>981</b>		
Time at risk =	<b>445,408.659</b>	LR chi2(9) =	<b>202.00</b>
Log likelihood =	<b>-9088.6143</b>	Prob > chi2 =	<b>0.0000</b>

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.184798</b>	.165784	<b>10.30</b>	<b>0.000</b>	<b>1.882875</b> <b>2.535135</b>
zgfra1	<b>1.086941</b>	.043402	<b>2.09</b>	<b>0.037</b>	<b>1.005118</b> <b>1.175424</b>
_infectionburXzgfra1_000	<b>1.024167</b>	.0648172	<b>0.38</b>	<b>0.706</b>	<b>.9046904</b> <b>1.159421</b>
AGE	<b>1.030739</b>	.0129657	<b>2.41</b>	<b>0.016</b>	<b>1.005637</b> <b>1.056467</b>
SEX	<b>.7389355</b>	.0483738	<b>-4.62</b>	<b>0.000</b>	<b>.649955</b> <b>.8400977</b>
NonWhite	<b>1.122793</b>	.1916075	<b>0.68</b>	<b>0.497</b>	<b>.8036004</b> <b>1.568771</b>
householdszie	<b>.9342376</b>	.0392243	<b>-1.62</b>	<b>0.105</b>	<b>.8604376</b> <b>1.014367</b>
SES	<b>.8316757</b>	.0409477	<b>-3.74</b>	<b>0.000</b>	<b>.7551704</b> <b>.9159317</b>
LE8_TOTALSCORE	<b>.9993067</b>	.0003621	<b>-1.91</b>	<b>0.056</b>	<b>.9985973</b> <b>1.000017</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-49446.123**  
 Iteration 1: Log likelihood = **-49446.123**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,668</b>
	Wald chi2(7) =	<b>5547.65</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.2298571</b>	.0142207	<b>16.16</b>	<b>0.000</b>	<b>.2019851</b> <b>.2577292</b>
AGE	<b>.0281294</b>	.0009273	<b>30.33</b>	<b>0.000</b>	<b>.0263118</b> <b>.0299469</b>
SEX	<b>.2638839</b>	.0098388	<b>26.82</b>	<b>0.000</b>	<b>.2446003</b> <b>.2831675</b>
NonWhite	<b>-.468452</b>	.0235367	<b>-19.90</b>	<b>0.000</b>	<b>-.514583</b> <b>-.422321</b>
householdszie	<b>-.0044345</b>	.0044792	<b>-0.99</b>	<b>0.322</b>	<b>-.0132136</b> <b>.0043446</b>
SES	<b>-.1302709</b>	.00738	<b>-17.65</b>	<b>0.000</b>	<b>-.1447355</b> <b>-.1158063</b>
LE8_TOTALSCORE	<b>-.0023755</b>	.0000524	<b>-45.32</b>	<b>0.000</b>	<b>-.0024782</b> <b>-.0022727</b>
_cons	<b>-.9176275</b>	.0670561	<b>-13.68</b>	<b>0.000</b>	<b>-1.049055</b> <b>-.7861999</b>
<b>sigma2</b>					
_cons	<b>.8685641</b>	.0064147	<b>135.40</b>	<b>0.000</b>	<b>.8559916</b> <b>.8811366</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.242051</b>	.1620355	<b>7.67</b>	<b>0.000</b>	.9244671 1.559635
ereri_cde	<b>1.184368</b>	.1655418	<b>7.15</b>	<b>0.000</b>	.8599115 1.508823
ereri_intref	<b>.0030896</b>	.0069245	<b>0.45</b>	<b>0.655</b>	-.0104822 .0166614
ereri_intmed	<b>.0352465</b>	.0266436	<b>1.32</b>	<b>0.186</b>	-.0169739 .0874669
ereri_pie	<b>.0193473</b>	.0094336	<b>2.05</b>	<b>0.040</b>	.0008578 .0378367

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zgfra2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04658 2.216 -.07524 500.8

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9057.6167

Iteration 1: Log likelihood = -8966.9202

Iteration 2: Log likelihood = -8957.0199

Iteration 3: Log likelihood = -8956.9658

Iteration 4: Log likelihood = -8956.9658

Refining estimates:

Iteration 0: Log likelihood = -8956.9658

Cox regression with Breslow method for ties

No. of subjects = 36,264 Number of obs = 36,264

No. of failures = 968

Time at risk = 440,524.906

LR chi2(9) = 201.30

Log likelihood = -8956.9658

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.244507	.163054	11.13	0.000	1.946636 2.587957
zgfra2	1.099607	.0421506	2.48	0.013	1.020021 1.185403
_infectionburXzgfra2_000	.9830351	.0682051	-0.25	0.805	.8580465 1.12623
AGE	1.030681	.0129843	2.40	0.016	1.005544 1.056446
SEX	.7432122	.0484733	-4.55	0.000	.654028 .8445577
NonWhite	1.096671	.1865685	0.54	0.588	.7857202 1.530682
householdsize	.9372243	.0392987	-1.55	0.122	.8632805 1.017502
SES	.8211625	.0405197	-3.99	0.000	.7454648 .9045468
LE8_TOTALSCORE	.9990598	.0003547	-2.65	0.008	.9983648 .9997552

-> Model for the mediator

Iteration 0: Log likelihood = -51292.777  
 Iteration 1: Log likelihood = -51292.777

Linear regression (Maximum Likelihood)  
 Number of obs = 36,264  
 Wald chi2(7) = 327.69  
 Prob > chi2 = 0.0000  
 Log likelihood = -51292.777

zgfra2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	.0854089	.0152562	5.60	0.000	.0555072 .1153106
AGE	.0093951	.0009962	9.43	0.000	.0074426 .0113476
SEX	.1041054	.0105678	9.85	0.000	.0833929 .1248179
NonWhite	-.1232003	.0252871	-4.87	0.000	-.1727622 -.0736384
householdsize	-.0009005	.0048061	-0.19	0.851	-.0103203 .0085194
SES	-.0501636	.0079258	-6.33	0.000	-.0656978 -.0346294
LE8_TOTALSCORE	.0000395	.0000563	0.70	0.483	-.0000708 .001498
_cons	-.7525151	.0719966	-10.45	0.000	-.8936259 -.6114042
<b>sigma2</b>					
_cons	.9910173	.0073597	134.66	0.000	.9765926 1.005442

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.256629	.1616775	7.77	0.000	.939747 1.573511
ereri_cde	1.240356	.1622947	7.64	0.000	.9222638 1.558447
ereri_intref	.0013202	.0089997	0.15	0.883	-.016319 .0189594
ereri_intmed	.0068105	.0116339	0.59	0.558	-.0159915 .0296125
ereri_pie	.0081428	.0036093	2.26	0.024	.0010688 .0152168

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```

Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zgfra3
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

Model for the outcome (yreg): cox
Model for the mediator (mreg): linear

Referent exposure level (a0):          0
Actual exposure level (a1):           1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c):    60.17 1.532 .04633 2.216 -.07459 500.6

```

-> Model for the outcome

```

Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid

```

```

Iteration 0: Log likelihood = -8953.3003
Iteration 1: Log likelihood = -8863.2014
Iteration 2: Log likelihood = -8855.5491
Iteration 3: Log likelihood = -8855.5336
Iteration 4: Log likelihood = -8855.5336
Refining estimates:
Iteration 0: Log likelihood = -8855.5336

```

Cox regression with Breslow method for ties

No. of subjects =	36,065	Number of obs =	36,065
No. of failures =	957		
Time at risk =	438,226.976	LR chi2(9) =	195.53
Log likelihood =	-8855.5336	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.205457	.1596214	10.93	0.000	1.913782 2.541587
zgfra3	.9362576	.037061	-1.66	0.096	.8663656 1.011788
_infectionburXzgfra3_000	1.089844	.0779379	1.20	0.229	.9473102 1.253823
AGE	1.038274	.0131838	2.96	0.003	1.012753 1.064438
SEX	.7505176	.0500954	-4.30	0.000	.6584837 .8554148
NonWhite	1.026183	.1792722	0.15	0.882	.7286543 1.4452
householdszie	.9433023	.0394633	-1.40	0.163	.8690418 1.023908
SES	.8132522	.0403333	-4.17	0.000	.737921 .8962736
LE8_TOTALSCORE	.9990654	.0003578	-2.61	0.009	.9983645 .9997669

-> Model for the mediator

Iteration 0: Log likelihood = -50012.286	Number of obs = 36,065
Iteration 1: Log likelihood = -50012.286	Wald chi2(7) = 2398.87
Log likelihood = -50012.286	Prob > chi2 = 0.0000

zgfra3	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	.0003619	.0148895	0.02	0.981	-.028821 .0295447
AGE	.0237421	.0009743	24.37	0.000	.0218325 .0256517
SEX	.3791798	.0103092	36.78	0.000	.3589741 .3993855
NonWhite	.1472833	.0247321	5.96	0.000	.0988092 .1957573
householdsize	-.0098431	.0048863	-2.01	0.044	-.0194201 -.000266
SES	.0076726	.0077476	0.99	0.322	-.0075125 .0228577
LE8_TOTALSCORE	.0010103	.0000549	18.42	0.000	.0009028 .0011178
_cons	-2.499659	.0706117	-35.40	0.000	-2.638055 -2.361263
<b>sigma2</b>					
_cons	.937607	.0069822	134.29	0.000	.9239222 .9512919

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.201403	.1592358	7.54	0.000	.8893065 1.513499
ereri_cde	1.203004	.1593272	7.55	0.000	.8907287 1.51528
ereri_intref	-.0016174	.00359	-0.45	0.652	-.0086537 .0054189
ereri_intmed	.0000399	.0016426	0.02	0.981	-.0031795 .0032593
ereri_pie	-.0000238	.0009808	-0.02	0.981	-.0019461 .0018985

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zgga1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04688 2.215 -.07424 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8819.5642**  
 Iteration 1: Log likelihood = **-8736.1814**  
 Iteration 2: Log likelihood = **-8726.3512**  
 Iteration 3: Log likelihood = **-8726.2182**  
 Iteration 4: Log likelihood = **-8726.2179**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8726.2179**

Cox regression with Breslow method for ties

No. of subjects =	<b>35,601</b>	Number of obs =	<b>35,601</b>
No. of failures =	<b>943</b>		
Time at risk =	<b>432,443.367</b>	LR chi2(9) =	<b>186.69</b>
Log likelihood =	<b>-8726.2179</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.217159</b>	.1614116	<b>10.94</b>	<b>0.000</b>	<b>1.922332</b> <b>2.557203</b>
zgga1		<b>1.014667</b>	.0400109	<b>0.37</b>	<b>0.712</b>	<b>.9392007</b> <b>1.096197</b>
_infectionburXzgga1_000		<b>1.082125</b>	.0780475	<b>1.09</b>	<b>0.274</b>	<b>.9394751</b> <b>1.246435</b>
AGE		<b>1.038032</b>	.0132278	<b>2.93</b>	<b>0.003</b>	<b>1.012427</b> <b>1.064284</b>
SEX		<b>.7474309</b>	.049378	<b>-4.41</b>	<b>0.000</b>	<b>.6566556</b> <b>.8507549</b>
NonWhite		<b>1.094124</b>	.1885188	<b>0.52</b>	<b>0.602</b>	<b>.7805547</b> <b>1.533661</b>
householdszie		<b>.9309265</b>	.0401787	<b>-1.66</b>	<b>0.097</b>	<b>.8554164</b> <b>1.013102</b>
SES		<b>.8162607</b>	.0407801	<b>-4.06</b>	<b>0.000</b>	<b>.7401218</b> <b>.9002323</b>
LE8_TOTALSCORE		<b>.999195</b>	.0003603	<b>-2.23</b>	<b>0.026</b>	<b>.998489</b> <b>.9999015</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50427.973**  
 Iteration 1: Log likelihood = **-50427.973**

Linear regression (Maximum Likelihood)	Number of obs =	<b>35,601</b>
	Wald chi2(7) =	<b>174.74</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	zgga1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>-.0039936</b>	.0154279	<b>-0.26</b>	<b>0.796</b>	<b>-.0342318</b> <b>.0262446</b>
AGE		<b>-.0099591</b>	.0010101	<b>-9.86</b>	<b>0.000</b>	<b>-.0119389</b> <b>-.0079793</b>
SEX		<b>.0655683</b>	.0106879	<b>6.13</b>	<b>0.000</b>	<b>.0446205</b> <b>.0865161</b>
NonWhite		<b>-.1329438</b>	.0255023	<b>-5.21</b>	<b>0.000</b>	<b>-.1829274</b> <b>-.0829603</b>
householdszie		<b>-.0095759</b>	.0050704	<b>-1.89</b>	<b>0.059</b>	<b>-.0195137</b> <b>.0003618</b>
SES		<b>.0117815</b>	.0080289	<b>1.47</b>	<b>0.142</b>	<b>-.0039548</b> <b>.0275179</b>
LE8_TOTALSCORE		<b>-.0000761</b>	.000057	<b>-1.34</b>	<b>0.181</b>	<b>-.0001878</b> <b>.0000355</b>
_cons		<b>.5659621</b>	.0732303	<b>7.73</b>	<b>0.000</b>	<b>.4224332</b> <b>.7094909</b>
<b>sigma2</b>						
_cons		<b>.9950877</b>	.0074584	<b>133.42</b>	<b>0.000</b>	<b>.9804695</b> <b>1.009706</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.225853	.162363	7.55	0.000	.907627 1.544078
ereri_cde	1.217021	.1614097	7.54	0.000	.9006635 1.533378
ereri_intref	.009663	.0126718	0.76	0.446	-.0151733 .0344993
ereri_intmed	-.000773	.0030393	-0.25	0.799	-.0067299 .0051838
ereri_pie	-.0000581	.0002743	-0.21	0.832	-.0005958 .0004795

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zggh
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04658 2.216 -.07524 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -8888.1761

Iteration 1: Log likelihood = -8800.862

Iteration 2: Log likelihood = -8792.7

Iteration 3: Log likelihood = -8792.681

Iteration 4: Log likelihood = -8792.681

Refining estimates:

Iteration 0: Log likelihood = -8792.681

Cox regression with Breslow method for ties

No. of subjects = 35,827 Number of obs = 35,827

No. of failures = 951

Time at risk = 435,200.714

Log likelihood = -8792.681

LR chi2(9) = 190.99

Prob > chi2 = 0.0000

### -> Model for the mediator

Iteration 0: Log likelihood = -48955.883  
Iteration 1: Log likelihood = -48955.883

Linear regression (Maximum Likelihood) Number of obs = 35,827  
Log likelihood = -48955.883 Wald chi2(7) = 3964.23  
Prob > chi2 = 0.0000

	zggh	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0501651	.0146243	3.43	0.001	.021502 .0788282
AGE		-.0014042	.000955	-1.47	0.141	-.0032759 .0004675
SEX		.0830679	.010135	8.20	0.000	.0632037 .1029322
NonWhite		.4730485	.0242409	19.51	0.000	.4255371 .5205599
householdszie		-.003868	.004607	-0.84	0.401	-.0128975 .0051616
SES		-.145556	.0076078	-19.13	0.000	-.160467 -.1306449
LE8_TOTALSCORE		-.0026213	.0000541	-48.49	0.000	-.0027272 -.0025153
_cons		1.238301	.0690241	17.94	0.000	1.103017 1.373586
sigma2						
	_cons	.9003491	.006727	133.84	0.000	.8871645 .9135338

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.239936</b>	.1621129	7.65	<b>0.000</b>	.9222002 1.557671
ereri_cde	<b>1.244915</b>	.162039	7.68	<b>0.000</b>	.9273246 1.562506
ereri_intref	<b>.0027794</b>	.0097806	0.28	<b>0.776</b>	-.0163902 .021949
ereri_intmed	<b>-.0039698</b>	.0071806	-0.55	<b>0.580</b>	-.0180435 .010104
ereri_pie	<b>-.003789</b>	.0023266	-1.63	<b>0.103</b>	-.0083491 .000771

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intre to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
Warning: this analysis assumes a rare outcome.  
Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zgg1  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.19 1.531 .0464 2.215 -.07491 500.5

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9100.6518  
 Iteration 1: Log likelihood = -9009.1504  
 Iteration 2: Log likelihood = -9000.1005  
 Iteration 3: Log likelihood = -9000.0626  
 Iteration 4: Log likelihood = -9000.0626  
 Refining estimates:  
 Iteration 0: Log likelihood = -9000.0626

Cox regression with Breslow method for ties

No. of subjects =	36,398	Number of obs =	36,398
No. of failures =	972		
Time at risk =	442,075.159	LR chi2(9) =	201.18
Log likelihood =	-9000.0626	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.242263	.1608564	11.26	0.000	1.948151 2.580776
zgg1	.8871402	.0391691	-2.71	0.007	.8135981 .9673299
_infectionburXzgg1_000	1.111941	.0804721	1.47	0.143	.9648943 1.281398
AGE	1.035548	.0130388	2.77	0.006	1.010305 1.061422
SEX	.7212815	.0487283	-4.84	0.000	.6318287 .8233988
NonWhite	1.093786	.1859272	0.53	0.598	.7838646 1.526244
householdsize	.9380564	.03933	-1.53	0.127	.8640532 1.018398
SES	.8224326	.0404947	-3.97	0.000	.7467738 .9057566
LE8_TOTALSCORE	.9988326	.0003646	-3.20	0.001	.9981182 .9995474

-> Model for the mediator

Iteration 0: Log likelihood = -48339.039	Number of obs = 36,398
Iteration 1: Log likelihood = -48339.039	Wald chi2(7) = 7253.01
Log likelihood = -48339.039	Prob > chi2 = 0.0000

	zggt1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.0795879	.0139659	5.70	0.000	.0522152 .1069607
AGE		-.00061	.0009141	-0.67	0.505	-.0024016 .0011816
SEX		-.5661464	.0096783	-58.50	0.000	-.5851155 -.5471772
NonWhite		.0939851	.0231968	4.05	0.000	.0485202 .1394499
householdsize		-.0130757	.0045976	-2.84	0.004	-.0220868 -.0040646
SES		-.0054748	.0072675	-0.75	0.451	-.0197188 .0087692
LE8_TOTALSCORE		-.0027993	.0000515	-54.33	0.000	-.0029003 -.0026984
_cons		2.317882	.0662962	34.96	0.000	2.187944 2.44782
<b>sigma2</b>						
_cons		.8338181	.0061808	134.90	0.000	.8217039 .8459324

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.224039	.1593434	7.68	0.000	.911732 1.536347
ereri_cde	1.233224	.159697	7.72	0.000	.9202232 1.546224
ereri_intref	-.0067676	.0055797	-1.21	0.225	-.0177036 .0041684
ereri_intmed	.007069	.011072	0.64	0.523	-.0146316 .0287696
ereri_pie	-.0094856	.0038548	-2.46	0.014	-.0170407 -.0019304

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zggt5
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.17 1.532 .0464 2.216 -.07458 500.7

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8985.4467**  
 Iteration 1: Log likelihood = **-8899.1611**  
 Iteration 2: Log likelihood = **-8887.2269**  
 Iteration 3: Log likelihood = **-8887.0566**  
 Iteration 4: Log likelihood = **-8887.0565**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8887.0565**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,164</b>	Number of obs =	<b>36,164</b>
No. of failures =	<b>960</b>		
Time at risk =	<b>439,440.668</b>	LR chi2(9) =	<b>196.78</b>
Log likelihood =	<b>-8887.0565</b>	Prob > chi2 =	<b>0.0000</b>

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.164655</b>	.1595722	<b>10.48</b>	<b>0.000</b>	<b>1.873443</b> 2.501133
zggt5	<b>1.046237</b>	.0409263	<b>1.16</b>	<b>0.248</b>	<b>.9690209</b> 1.129606
_infectionburXzggt5_000	<b>1.056388</b>	.0726915	<b>0.80</b>	<b>0.425</b>	<b>.9231054</b> 1.208915
AGE	<b>1.036309</b>	.0131115	<b>2.82</b>	<b>0.005</b>	<b>1.010927</b> 1.062329
SEX	<b>.7348245</b>	.0481788	<b>-4.70</b>	<b>0.000</b>	<b>.6462113</b> .8355889
NonWhite	<b>1.041176</b>	.1822199	<b>0.23</b>	<b>0.818</b>	<b>.7388432</b> 1.467222
householdszie	<b>.943452</b>	.0395495	<b>-1.39</b>	<b>0.165</b>	<b>.8690353</b> 1.024241
SES	<b>.8124671</b>	.0402552	<b>-4.19</b>	<b>0.000</b>	<b>.7372783</b> .8953238
LE8_TOTALSCORE	<b>.9990888</b>	.0003567	<b>-2.55</b>	<b>0.011</b>	<b>.9983899</b> .9997881

-> Model for the mediator

Iteration 0: Log likelihood = **-50890.84**  
 Iteration 1: Log likelihood = **-50890.84**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,164</b>
	Wald chi2(7) =	<b>856.29</b>
Log likelihood =	<b>-50890.84</b>	Prob > chi2 = <b>0.0000</b>

<u>zggt5</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.143467</b>	.0151804	<b>9.45</b>	<b>0.000</b>	<b>.113714</b> .1732199
AGE	<b>.0127739</b>	.0009932	<b>12.86</b>	<b>0.000</b>	<b>.0108271</b> .0147206
SEX	<b>.0907019</b>	.0105079	<b>8.63</b>	<b>0.000</b>	<b>.0701068</b> .111297
NonWhite	<b>-.4478849</b>	.0251964	<b>-17.78</b>	<b>0.000</b>	<b>-.4972689</b> -.3985009
householdszie	<b>-.0075224</b>	.0049833	<b>-1.51</b>	<b>0.131</b>	<b>-.0172895</b> .0022446
SES	<b>-.0290004</b>	.0078989	<b>-3.67</b>	<b>0.000</b>	<b>-.044482</b> -.0135187
LE8_TOTALSCORE	<b>-.000468</b>	.0000559	<b>-8.37</b>	<b>0.000</b>	<b>-.0005776</b> -.0003584
_cons	<b>-.6578894</b>	.0719854	<b>-9.14</b>	<b>0.000</b>	<b>-.7989782</b> -.5168005
<b>sigma2</b>					
_cons	<b>.9768428</b>	.0072644	<b>134.47</b>	<b>0.000</b>	<b>.9626048</b> .9910808

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.20211</b>	.1590162	7.56	<b>0.000</b>	.8904439 1.513776
ereri_cde	<b>1.16454</b>	.1595144	7.30	<b>0.000</b>	.8518972 1.477182
ereri_intref	<b>.0061853</b>	.0096228	0.64	0.520	-.012675 .0250457
ereri_intmed	<b>.0248791</b>	.0187985	1.32	0.186	-.0119653 .0617234
ereri_pie	<b>.0065058</b>	.0056907	1.14	0.253	-.0046477 .0176593

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zgh1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): **cox**

Model for the mediator (mreg): **linear**

Referent exposure level (a0): **0**

Actual exposure level (a1): **1**

Mediator level for the decomposition (m): **0**

Fixed values of the covariates (c): **60.18 1.531 .04653 2.218 -.07587 500.5**

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9043.1078**

Iteration 1: Log likelihood = **-8951.1105**

Iteration 2: Log likelihood = **-8941.9323**

Iteration 3: Log likelihood = **-8941.9051**

Iteration 4: Log likelihood = **-8941.9051**

Refining estimates:

Iteration 0: Log likelihood = **-8941.9051**

Cox regression with Breslow method for ties

No. of subjects = **36,384** Number of obs = **36,384**

No. of failures = **966**

Time at risk = **442,032.251**

Log likelihood = **-8941.9051**

LR chi2(9) = **202.41**

Prob > chi2 = **0.0000**

-> Model for the mediator

Iteration 0: Log likelihood = -49657.407  
Iteration 1: Log likelihood = -49657.407

Linear regression (Maximum Likelihood)  
Number of obs = 36,384  
Log likelihood = -49657.407 Wald chi2(7) = 4158.46  
Prob > chi2 = 0.0000

	zgh1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0154673	.0144901	1.07	0.286	-.0129327 .0438674
AGE		.0067459	.0009463	7.13	0.000	.0048911 .0086006
SEX		.5519285	.0100404	54.97	0.000	.5322497 .5716073
NonWhite		-.0272904	.0240301	-1.14	0.256	-.0743885 .0198078
householdsiz		-.0115047	.0045678	-2.52	0.012	-.0204575 -.0025518
SES		-.0145715	.007534	-1.93	0.053	-.029338 .000195
LE8_TOTALSCORE		.0014838	.0000535	27.73	0.000	.0013789 .0015887
_cons		-1.970158	.0683878	-28.81	0.000	-2.104195 -1.83612
sigma2						
	_cons	.8974048	.0066535	134.88	0.000	.8843642 .9104453

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.280389</b>	.163076	7.85	<b>0.000</b>	.9607655 <b>1.600012</b>
ereri_cde	<b>1.271169</b>	.1622772	7.83	<b>0.000</b>	.953111 <b>1.589226</b>
ereri_intref	<b>.0060318</b>	.0112546	0.54	<b>0.592</b>	- .0160268 <b>.0280904</b>
ereri_intmed	<b>.0021505</b>	.0030246	0.71	<b>0.477</b>	- .0037777 <b>.0080786</b>
ereri_pie	<b>.0010377</b>	.0011538	0.90	<b>0.368</b>	- .0012237 <b>.0032992</b>

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intre to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
Warning: this analysis assumes a rare outcome.  
Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zgh2  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.19 1.531 .04669 2.217 -.07551 500.6

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -8882.1967  
 Iteration 1: Log likelihood = -8796.918  
 Iteration 2: Log likelihood = -8788.8778  
 Iteration 3: Log likelihood = -8788.8608  
 Iteration 4: Log likelihood = -8788.8608  
 Refining estimates:  
 Iteration 0: Log likelihood = -8788.8608

Cox regression with Breslow method for ties

No. of subjects =	35,573	Number of obs =	35,573
No. of failures =	951		
Time at risk =	432,088.637	LR chi2(9) =	186.67
Log likelihood =	-8788.8608	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.252369	.1627113	11.24	0.000	1.955009 2.594959
zgh2	.981179	.0389418	-0.48	0.632	.9077475 1.060551
_infectionburXzgh2_000	1.024816	.0725418	0.35	0.729	.8920588 1.17733
AGE	1.037516	.0131969	2.90	0.004	1.01197 1.063707
SEX	.7469479	.049256	-4.42	0.000	.6563863 .8500044
NonWhite	1.107654	.1884854	0.60	0.548	.7935204 1.546144
householdsize	.939616	.0396213	-1.48	0.140	.8650821 1.020572
SES	.8287684	.0413348	-3.77	0.000	.7515875 .9138751
LE8_TOTALSCORE	.9992217	.0003588	-2.17	0.030	.9985187 .9999252

-> Model for the mediator

Iteration 0: Log likelihood = -50362.928	Number of obs = 35,573
Iteration 1: Log likelihood = -50362.928	Wald chi2(7) = 225.66
Log likelihood = -50362.928	Prob > chi2 = 0.0000

	zgh2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.00641	.0154415	0.42	0.678	-.0238547 .0366748
AGE		-.0054479	.0010069	-5.41	0.000	-.0074214 -.0034744
SEX		.1408433	.0106847	13.18	0.000	.1199017 .1617849
NonWhite		-.090527	.0255354	-3.55	0.000	-.1405755 -.0404785
householdsize		.0018367	.004863	0.38	0.706	-.0076945 .011368
SES		-.0016589	.0080138	-0.21	0.836	-.0173657 .0140478
LE8_TOTALSCORE		-.0000405	.0000569	-0.71	0.476	-.000152 .000071
_cons		.1317209	.0727706	1.81	0.070	-.0109068 .2743487
<b>sigma2</b>						
_cons		.9936686	.0074507	133.37	0.000	.9790655 1.008272

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.25203	.162682	7.70	0.000	.9331789 1.570881
ereri_cde	1.252123	.1626557	7.70	0.000	.9333242 1.570923
ereri_intref	-.0001733	.0010093	-0.17	0.864	-.0021515 .001805
ereri_intmed	.0002014	.0010088	0.20	0.842	-.0017759 .0021787
ereri_pie	-.0001218	.0003883	-0.31	0.754	-.0008828 .0006392

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zghrhr
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04688 2.215 -.07424 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8819.5642**  
 Iteration 1: Log likelihood = **-8734.7317**  
 Iteration 2: Log likelihood = **-8727.1731**  
 Iteration 3: Log likelihood = **-8727.156**  
 Iteration 4: Log likelihood = **-8727.156**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8727.156**

Cox regression with Breslow method for ties

No. of subjects =	<b>35,601</b>	Number of obs =	<b>35,601</b>
No. of failures =	<b>943</b>		
Time at risk =	<b>432,443.367</b>	LR chi2(9) =	<b>184.82</b>
Log likelihood =	<b>-8727.156</b>	Prob > chi2 =	<b>0.0000</b>

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.212528</b>	.1611474	<b>10.90</b>	<b>0.000</b>	<b>1.918193</b> <b>2.552027</b>
zghrhr	<b>1.025859</b>	.038847	<b>0.67</b>	<b>0.500</b>	<b>.9524771</b> <b>1.104894</b>
_infectionburXzghrhr_000	<b>.985985</b>	.0665628	<b>-0.21</b>	<b>0.834</b>	<b>.8637869</b> <b>1.12547</b>
AGE	<b>1.037428</b>	.0132086	<b>2.89</b>	<b>0.004</b>	<b>1.01186</b> <b>1.063642</b>
SEX	<b>.7485539</b>	.0494335	<b>-4.39</b>	<b>0.000</b>	<b>.6576743</b> <b>.8519916</b>
NonWhite	<b>1.09096</b>	.187979	<b>0.51</b>	<b>0.613</b>	<b>.7782899</b> <b>1.529241</b>
householdszie	<b>.9301443</b>	.0401656	<b>-1.68</b>	<b>0.094</b>	<b>.8546605</b> <b>1.012295</b>
SES	<b>.8162237</b>	.0407521	<b>-4.07</b>	<b>0.000</b>	<b>.7401347</b> <b>.900135</b>
LE8_TOTALSCORE	<b>.9991973</b>	.0003605	<b>-2.23</b>	<b>0.026</b>	<b>.998491</b> <b>.999904</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50501.437**  
 Iteration 1: Log likelihood = **-50501.437**

Linear regression (Maximum Likelihood)	Number of obs =	<b>35,601</b>
	Wald chi2(7) =	<b>27.40</b>
Log likelihood =	<b>-50501.437</b>	Prob > chi2 = <b>0.0003</b>

<u>zghrhr</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.0223504</b>	.0154598	<b>1.45</b>	<b>0.148</b>	<b>-.0079502</b> <b>.0526511</b>
AGE	<b>-.0017257</b>	.0010122	<b>-1.70</b>	<b>0.088</b>	<b>-.0037096</b> <b>.0002582</b>
SEX	<b>.027027</b>	.0107099	<b>2.52</b>	<b>0.012</b>	<b>.0060359</b> <b>.0480181</b>
NonWhite	<b>-.0613824</b>	.025555	<b>-2.40</b>	<b>0.016</b>	<b>-.1114691</b> <b>-.0112956</b>
householdszie	<b>-.004639</b>	.0050808	<b>-0.91</b>	<b>0.361</b>	<b>-.0145973</b> <b>.0053192</b>
SES	<b>-.0081763</b>	.0080455	<b>-1.02</b>	<b>0.310</b>	<b>-.0239451</b> <b>.0075925</b>
LE8_TOTALSCORE	<b>-.000161</b>	.0000571	<b>-2.82</b>	<b>0.005</b>	<b>-.0002729</b> <b>-.0000491</b>
_cons	<b>.1525028</b>	.0733816	<b>2.08</b>	<b>0.038</b>	<b>.0086775</b> <b>.2963281</b>
<b>sigma2</b>					
_cons	<b>.999203</b>	.0074892	<b>133.42</b>	<b>0.000</b>	<b>.9845243</b> <b>1.013882</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.212613</b>	.1610557	7.53	<b>0.000</b>	.8969498 1.528276
ereri_cde	<b>1.212229</b>	.1611018	7.52	<b>0.000</b>	.8964756 1.527983
ereri_intref	<b>-.0001807</b>	.0013315	-0.14	0.892	-.0027903 .0024289
ereri_intmed	<b>-6.29e-06</b>	.0028896	-0.00	0.998	-.0056697 .0056572
ereri_pie	<b>.0005708</b>	.0009344	0.61	0.541	-.0012606 .0024022

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zghrl
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04649 2.218 -.07578 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9064.8284

Iteration 1: Log likelihood = -8975.7237

Iteration 2: Log likelihood = -8964.9145

Iteration 3: Log likelihood = -8964.8464

Iteration 4: Log likelihood = -8964.8464

Refining estimates:

Iteration 0: Log likelihood = -8964.8464

Cox regression with Breslow method for ties

No. of subjects = 36,441 Number of obs = 36,441

No. of failures = 968

Time at risk = 442,700.115

Log likelihood = -8964.8464 LR chi2(9) = 199.96

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.288212</b>	.1645423	11.51	<b>0.000</b>	<b>1.98741</b> 2.634541
zghrl	<b>.9369954</b>	.0364615	-1.67	<b>0.094</b>	<b>.8681893</b> 1.011254
_infectionburXzghrl_000	<b>1.019374</b>	.0698636	0.28	<b>0.779</b>	<b>.8912421</b> 1.165927
AGE	<b>1.03287</b>	.0130141	2.57	<b>0.010</b>	<b>1.007675</b> 1.058695
SEX	<b>.7747675</b>	.0523661	-3.78	<b>0.000</b>	<b>.6786395</b> .8845118
NonWhite	<b>.9723943</b>	.1732091	-0.16	<b>0.875</b>	<b>.6858371</b> 1.378681
householdsize	<b>.92596</b>	.0398809	-1.79	<b>0.074</b>	<b>.8510031</b> 1.007519
SES	<b>.8314656</b>	.0411931	-3.73	<b>0.000</b>	<b>.7545247</b> .9162523
LE8_TOTALSCORE	<b>.9990762</b>	.0003557	-2.60	<b>0.009</b>	<b>.9983792</b> .9997736

-> Model for the mediator

Iteration 0: Log likelihood = **-49723.259**  
 Iteration 1: Log likelihood = **-49723.259**

Linear regression (Maximum Likelihood)                          Number of obs = **36,441**  
     Wald chi2(7) = **4191.60**  
 Log likelihood = **-49723.259**                                      Prob > chi2 = **0.0000**

zghrl	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>-.0273461</b>	.0144728	-1.89	<b>0.059</b>	<b>-.0557122</b> .0010201
AGE	<b>-.0005559</b>	.0009452	-0.59	<b>0.556</b>	<b>-.0024085</b> .0012968
SEX	<b>.5437984</b>	.010029	54.22	<b>0.000</b>	<b>.5241419</b> .563455
NonWhite	<b>-.6278305</b>	.024014	-26.14	<b>0.000</b>	<b>-.674897</b> -.5807639
householdsize	<b>-.0130447</b>	.0045641	-2.86	<b>0.004</b>	<b>-.0219902</b> -.0040993
SES	<b>.0869652</b>	.0075259	11.56	<b>0.000</b>	<b>.0722146</b> .1017157
LE8_TOTALSCORE	<b>.000529</b>	.0000535	9.89	<b>0.000</b>	<b>.0004242</b> .0006338
_cons	<b>-.9954552</b>	.0683166	-14.57	<b>0.000</b>	<b>-.129353</b> -.8615571
<b>sigma2</b>					
_cons	<b>.8968168</b>	.0066439	134.98	<b>0.000</b>	<b>.883795</b> .9098386

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.289066</b>	.16368	7.88	<b>0.000</b>	<b>.9682586</b> 1.609872
ereri_cde	<b>1.286086</b>	.1640844	7.84	<b>0.000</b>	<b>.9644863</b> 1.607685
ereri_intref	<b>.000109</b>	.0053023	0.02	<b>0.984</b>	<b>-.0102832</b> .0105012
ereri_intmed	<b>.0010895</b>	.003778	0.29	<b>0.773</b>	<b>-.0063153</b> .0084943
ereri_pie	<b>.0017812</b>	.0014236	1.25	<b>0.211</b>	<b>-.001009</b> .0045714

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```

Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zgkn1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

Model for the outcome (yreg): cox
Model for the mediator (mreg): linear

Referent exposure level (a0):          0
Actual exposure level (a1):           1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c):    60.18 1.53 .047 2.215 -.07444 500.5

```

-> Model for the outcome

```

Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid

Iteration 0: Log likelihood = -8553.8397
Iteration 1: Log likelihood = -8469.2064
Iteration 2: Log likelihood = -8461.631
Iteration 3: Log likelihood = -8461.6146
Iteration 4: Log likelihood = -8461.6146
Refining estimates:
Iteration 0: Log likelihood = -8461.6146

Cox regression with Breslow method for ties

No. of subjects = 34,912                               Number of obs = 34,912
No. of failures = 917
Time at risk = 424,067.696
Log likelihood = -8461.6146
LR chi2(9) = 184.45
Prob > chi2 = 0.0000

```

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.238423	.1658923	10.87	0.000	1.935792 2.588367
zgkn1	1.074255	.0424134	1.81	0.070	.994261 1.160684
_infectionburXzgkn1_000	.9371536	.0683846	-0.89	0.374	.8122657 1.081243
AGE	1.037097	.0134317	2.81	0.005	1.011103 1.06376
SEX	.7512554	.0503918	-4.26	0.000	.6587062 .8568079
NonWhite	1.001294	.1826253	0.01	0.994	.7003439 1.431566
householdsize	.9320033	.0414495	-1.58	0.113	.8542039 1.016889
SES	.8124784	.0411326	-4.10	0.000	.7357306 .8972322
LE8_TOTALSCORE	.9992068	.0003652	-2.17	0.030	.9984913 .9999229

-> Model for the mediator

```

Iteration 0: Log likelihood = -49330.985
Iteration 1: Log likelihood = -49330.985

Linear regression (Maximum Likelihood)
Number of obs = 34,912
Wald chi2(7) = 415.45
Prob > chi2 = 0.0000
Log likelihood = -49330.985

```

	zgkn1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.040838	.0155307	2.63	0.009	.0103984 .0712776
AGE		.0103402	.001018	10.16	0.000	.008345 .0123354
SEX		.1343343	.0107563	12.49	0.000	.1132523 .1554163
NonWhite		-.1960562	.0256408	-7.65	0.000	-.2463113 -.1458011
householdsize		-.0085577	.005183	-1.65	0.099	-.0187161 .0016007
SES		-.0396033	.0080758	-4.90	0.000	-.0554316 -.023775
LE8_TOTALSCORE		-.0001336	.0000573	-2.33	0.020	-.0002459 -.0000213
_cons		-.7413857	.0738884	-10.03	0.000	-.8862044 -.596567
<b>sigma2</b>						
_cons		.9882118	.0074796	132.12	0.000	.9735521 1.002872

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.234241	.1649349	7.48	0.000	.9109741 1.557507
ereri_cde	1.23579	.1653741	7.47	0.000	.9116623 1.559917
ereri_intref	-.002162	.0025889	-0.84	0.404	-.0072362 .0029122
ereri_intmed	-.0023164	.0058973	-0.39	0.694	-.013875 .0092422
ereri_pie	.0029294	.0019646	1.49	0.136	-.0009212 .00678

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zglb1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.17 1.532 .0464 2.216 -.07458 500.7

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8985.4467**  
 Iteration 1: Log likelihood = **-8891.7134**  
 Iteration 2: Log likelihood = **-8883.3529**  
 Iteration 3: Log likelihood = **-8883.3224**  
 Iteration 4: Log likelihood = **-8883.3224**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8883.3224**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,164</b>	Number of obs =	<b>36,164</b>
No. of failures =	<b>960</b>		
Time at risk =	<b>439,440.668</b>	LR chi2(9) =	<b>204.25</b>
Log likelihood =	<b>-8883.3224</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.205829</b>	.1589932	<b>10.98</b>	<b>0.000</b>	<b>1.915219</b> <b>2.540536</b>
zglb1		<b>.8904166</b>	.0366609	<b>-2.82</b>	<b>0.005</b>	<b>.8213853</b> <b>.9652494</b>
_infectionburXzglb1_000		<b>.9893545</b>	.0738714	<b>-0.14</b>	<b>0.886</b>	<b>.854665</b> <b>1.14527</b>
AGE		<b>1.037542</b>	.0131152	<b>2.92</b>	<b>0.004</b>	<b>1.012153</b> <b>1.063569</b>
SEX		<b>.7061938</b>	.0471963	<b>-5.21</b>	<b>0.000</b>	<b>.6194931</b> <b>.8050287</b>
NonWhite		<b>1.014988</b>	.1771715	<b>0.09</b>	<b>0.932</b>	<b>.7209074</b> <b>1.429035</b>
householdszie		<b>.942544</b>	.0391668	<b>-1.42</b>	<b>0.154</b>	<b>.8688214</b> <b>1.022522</b>
SES		<b>.8067015</b>	.0399276	<b>-4.34</b>	<b>0.000</b>	<b>.7321207</b> <b>.8888798</b>
LE8_TOTALSCORE		<b>.9988495</b>	.0003602	<b>-3.19</b>	<b>0.001</b>	<b>.9981438</b> <b>.9995558</b>

-> Model for the mediator

Iteration 0: Log likelihood =	<b>-49957.211</b>	Number of obs =	<b>36,164</b>
Iteration 1: Log likelihood =	<b>-49957.211</b>	(backed up)	
Linear regression (Maximum Likelihood)		Wald chi2(7) =	<b>2817.96</b>
Log likelihood =	<b>-49957.211</b>	Prob > chi2 =	<b>0.0000</b>

	zglb1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.0185744</b>	.0147935	<b>1.26</b>	<b>0.209</b>	<b>-.0104203</b> <b>.0475691</b>
AGE		<b>.0022896</b>	.0009679	<b>2.37</b>	<b>0.018</b>	<b>.0003925</b> <b>.0041867</b>
SEX		<b>-.4163754</b>	.0102401	<b>-40.66</b>	<b>0.000</b>	<b>-.4364456</b> <b>-.3963052</b>
NonWhite		<b>-.0634283</b>	.0245542	<b>-2.58</b>	<b>0.010</b>	<b>-.1115536</b> <b>-.0153029</b>
householdszie		<b>-.0064866</b>	.0048563	<b>-1.34</b>	<b>0.182</b>	<b>-.0160047</b> <b>.0030316</b>
SES		<b>-.0443164</b>	.0076976	<b>-5.76</b>	<b>0.000</b>	<b>-.0594034</b> <b>-.0292293</b>
LE8_TOTALSCORE		<b>-.0015083</b>	.0000545	<b>-27.68</b>	<b>0.000</b>	<b>-.0016151</b> <b>-.0014015</b>
_cons		<b>1.266507</b>	.0701508	<b>18.05</b>	<b>0.000</b>	<b>1.129014</b> <b>1.404</b>
<b>sigma2</b>						
_cons		<b>.9276854</b>	.0068989	<b>134.47</b>	<b>0.000</b>	<b>.9141639</b> <b>.9412069</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.203357</b>	.1594791	7.55	<b>0.000</b>	.8907836 1.51593
ereri_cde	<b>1.19796</b>	.1580055	7.58	<b>0.000</b>	.8882749 1.507645
ereri_intref	<b>.010591</b>	.0173883	0.61	0.542	-.0234894 .0446714
ereri_intmed	<b>-.0030407</b>	.0036631	-0.83	0.406	-.0102202 .0041388
ereri_pie	<b>-.0021535</b>	.0018756	-1.15	0.251	-.0058296 .0015225

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zglo1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04648 2.218 -.07459 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8905.4114**

Iteration 1: Log likelihood = **-8825.9798**

Iteration 2: Log likelihood = **-8812.3925**

Iteration 3: Log likelihood = **-8812.1738**

Iteration 4: Log likelihood = **-8812.1737**

Refining estimates:

Iteration 0: Log likelihood = **-8812.1737**

Cox regression with Breslow method for ties

No. of subjects = 35,755 Number of obs = 35,755

No. of failures = 953

Time at risk = 434,342.674

LR chi2(9) = 186.48

Log likelihood = -8812.1737

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.167342	.1589364	10.55	0.000	1.877184
	zglo1	.9850811	.0379968	-0.39	0.697	.9133541
_infectionburXzglo1_000		1.152033	.0826215	1.97	0.048	1.000964
	AGE	1.037231	.0131805	2.88	0.004	1.011717
	SEX	.7556239	.0498594	-4.25	0.000	.6639566
	NonWhite	1.106744	.1884833	0.60	0.551	.7926548
	householdsize	.9376955	.0394653	-1.53	0.126	.8634492
	SES	.835237	.0415456	-3.62	0.000	.7576524
	LE8_TOTALSCORE	.9990346	.000361	-2.67	0.008	.9983274
						.9997424

-> Model for the mediator

Iteration 0: Log likelihood = -50003.547  
Iteration 1: Log likelihood = -50003.547

Linear regression (Maximum Likelihood)  
Number of obs = 35,755  
Log likelihood = -50003.547 Wald chi2(7) = 1490.43  
Prob > chi2 = 0.0000

	zglo1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0555623	.0151272	3.67	0.000	.0259136 .085211
AGE		-.0036238	.0009874	-3.67	0.000	-.0055589 -.0016886
SEX		-.2096548	.0104752	-20.01	0.000	-.2301858 -.1891239
NonWhite		.2487264	.025083	9.92	0.000	.1995647 .2978882
householdsiz		-.0017005	.0047769	-0.36	0.722	-.011063 .007662
SES		-.0411682	.0078658	-5.23	0.000	-.056585 -.0257514
LE8_TOTALSCORE		-.0014758	.0000558	-26.44	0.000	-.0015852 -.0013664
_cons		1.259144	.0713858	17.64	0.000	1.119231 1.399058
sigma2						
	_cons	.9599568	.0071796	133.71	0.000	.9458851 .9740285

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.196818</b>	.1595449	7.50	<b>0.000</b>	.8841162 1.509521
ereri_cde	<b>1.16708</b>	.1588982	7.34	<b>0.000</b>	.8556453 1.478515
ereri_intref	<b>.0143523</b>	.0151666	0.95	<b>0.344</b>	-.0153736 .0440783
ereri_intmed	<b>.016221</b>	.0089274	1.82	<b>0.069</b>	-.0012765 .0337184
ereri_pie	<b>-.0008348</b>	.0021534	-0.39	<b>0.698</b>	-.0050554 .0033857

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intre to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
Warning: this analysis assumes a rare outcome.  
Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zglod4  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.19 1.532 .0463 2.216 -.07514 500.5

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9061.6849  
 Iteration 1: Log likelihood = -8972.3305  
 Iteration 2: Log likelihood = -8963.7539  
 Iteration 3: Log likelihood = -8963.7251  
 Iteration 4: Log likelihood = -8963.7251  
 Refining estimates:  
 Iteration 0: Log likelihood = -8963.7251

Cox regression with Breslow method for ties

No. of subjects =	36,371	Number of obs =	36,371
No. of failures =	968		
Time at risk =	441,834.357	LR chi2(9) =	195.92
Log likelihood =	-8963.7251	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.235407	.1602922	11.22	0.000	1.942318 2.572722
zglod4	.9284628	.0361722	-1.91	0.057	.8602059 1.002136
_infectionburXzglod4_000	1.102936	.0796447	1.36	0.175	.9573785 1.270623
AGE	1.037335	.0130845	2.91	0.004	1.012004 1.0633
SEX	.7509928	.0489627	-4.39	0.000	.6609061 .853359
NonWhite	1.063588	.1833832	0.36	0.721	.7585942 1.491204
householdsize	.9399062	.0392866	-1.48	0.138	.8659755 1.020149
SES	.822503	.0405937	-3.96	0.000	.7466677 .9060405
LE8_TOTALSCORE	.9989498	.0003568	-2.94	0.003	.9982508 .9996493

-> Model for the mediator

Iteration 0: Log likelihood = -51294.306	Number of obs = 36,371
Iteration 1: Log likelihood = -51294.306	Wald chi2(7) = 632.25
Log likelihood = -51294.306	Prob > chi2 = 0.0000

	zglod4	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		-.0056539	.01516	-0.37	0.709	-.0353669 .0240591
AGE		.0009046	.0009899	0.91	0.361	-.0010355 .0028448
SEX		-.1182066	.0105103	-11.25	0.000	-.1388063 -.0976069
NonWhite		.1202525	.025209	4.77	0.000	.0708438 .1696612
householdsize		.0005717	.0047804	0.12	0.905	-.0087977 .0099412
SES		-.0127742	.0078898	-1.62	0.105	-.028238 .0026896
LE8_TOTALSCORE		-.001108	.000056	-19.79	0.000	-.0012178 -.0009983
_cons		.6741154	.0715127	9.43	0.000	.533953 .8142778
<b>sigma2</b>						
_cons		.9828867	.0072885	134.85	0.000	.9686014 .997172

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.229853	.1597912	7.70	0.000	.9166684 1.543038
ereri_cde	1.232139	.1598025	7.71	0.000	.9189315 1.545346
ereri_intref	-.0019858	.0043941	-0.45	0.651	-.0105981 .0066265
ereri_intmed	-.0007192	.0020879	-0.34	0.730	-.0048113 .0033729
ereri_pie	.0004197	.0011471	0.37	0.714	-.0018285 .002668

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zglrx
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04643 2.218 -.07492 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8993.6683**  
 Iteration 1: Log likelihood = **-8909.3777**  
 Iteration 2: Log likelihood = **-8895.1016**  
 Iteration 3: Log likelihood = **-8894.8941**  
 Iteration 4: Log likelihood = **-8894.894**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8894.894**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,208</b>	Number of obs =	<b>36,208</b>
No. of failures =	<b>961</b>		
Time at risk =	<b>439,809.421</b>	LR chi2(9) =	<b>197.55</b>
Log likelihood =	<b>-8894.894</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.260793</b>	<b>.1628901</b>	<b>11.32</b>	<b>0.000</b>	<b>1.963052</b>	<b>2.603693</b>
zglrx	<b>.9955438</b>	<b>.0386875</b>	<b>-0.11</b>	<b>0.909</b>	<b>.9225335</b>	<b>1.074332</b>
_infectionburXzglrx_000	<b>1.139005</b>	<b>.0807049</b>	<b>1.84</b>	<b>0.066</b>	<b>.9913184</b>	<b>1.308694</b>
AGE	<b>1.033601</b>	<b>.0130745</b>	<b>2.61</b>	<b>0.009</b>	<b>1.00829</b>	<b>1.059546</b>
SEX	<b>.7498523</b>	<b>.0491493</b>	<b>-4.39</b>	<b>0.000</b>	<b>.6594523</b>	<b>.8526446</b>
NonWhite	<b>1.011004</b>	<b>.179085</b>	<b>0.06</b>	<b>0.951</b>	<b>.7144546</b>	<b>1.430643</b>
householdsize	<b>.9268374</b>	<b>.0401146</b>	<b>-1.76</b>	<b>0.079</b>	<b>.8514567</b>	<b>1.008892</b>
SES	<b>.8321047</b>	<b>.0413517</b>	<b>-3.70</b>	<b>0.000</b>	<b>.754879</b>	<b>.9172309</b>
LE8_TOTALSCORE	<b>.9991208</b>	<b>.0003593</b>	<b>-2.45</b>	<b>0.014</b>	<b>.9984168</b>	<b>.9998253</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50969.242**  
 Iteration 1: Log likelihood = **-50969.242**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,208</b>
	Wald chi2(7) =	<b>823.60</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	zglrx	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.0030368</b>	<b>.0151539</b>	<b>0.20</b>	<b>0.841</b>	<b>-.0266643</b>
AGE		<b>.0012154</b>	<b>.0009904</b>	<b>1.23</b>	<b>0.220</b>	<b>-.0007257</b>
SEX		<b>-.1627536</b>	<b>.0105055</b>	<b>-15.49</b>	<b>0.000</b>	<b>-.183344</b>
NonWhite		<b>.1603281</b>	<b>.0251671</b>	<b>6.37</b>	<b>0.000</b>	<b>.1110014</b>
householdsize		<b>-.0013831</b>	<b>.0047763</b>	<b>-0.29</b>	<b>0.772</b>	<b>-.0107444</b>
SES		<b>.0089958</b>	<b>.0078912</b>	<b>1.14</b>	<b>0.254</b>	<b>-.0064707</b>
LE8_TOTALSCORE		<b>-.0011915</b>	<b>.0000561</b>	<b>-21.25</b>	<b>0.000</b>	<b>-.0013014</b>
_cons		<b>.7682358</b>	<b>.0715992</b>	<b>10.73</b>	<b>0.000</b>	<b>.6279039</b>
<b>sigma2</b>						
_cons		<b>.9777326</b>	<b>.0072666</b>	<b>134.55</b>	<b>0.000</b>	<b>.9634903</b>
						<b>.991975</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.279043</b>	.1633064	7.83	<b>0.000</b>	.9589681 1.599117
ereri_cde	<b>1.260778</b>	.1628884	7.74	<b>0.000</b>	.9415227 1.580034
ereri_intref	<b>.0173948</b>	.0166061	1.05	0.295	-.0151525 .0499421
ereri_intmed	<b>.0008833</b>	.0044294	0.20	0.842	-.0077981 .0095647
ereri_pie	<b>-.0000136</b>	.000136	-0.10	0.921	-.0002802 .0002531

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zglt8d2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): **cox**

Model for the mediator (mreg): **linear**

Referent exposure level (a0): **0**

Actual exposure level (a1): **1**

Mediator level for the decomposition (m): **0**

Fixed values of the covariates (c): **60.18 1.531 .04688 2.215 -.07424 500.5**

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8819.5642**

Iteration 1: Log likelihood = **-8734.63**

Iteration 2: Log likelihood = **-8727.1301**

Iteration 3: Log likelihood = **-8727.1146**

Iteration 4: Log likelihood = **-8727.1146**

Refining estimates:

Iteration 0: Log likelihood = **-8727.1146**

Cox regression with Breslow method for ties

No. of subjects = **35,601** Number of obs = **35,601**

No. of failures = **943**

Time at risk = **432,443.367**

LR chi2(9) = **184.90**

Log likelihood = **-8727.1146**

Prob > chi2 = **0.0000**

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.215215	.1612942	10.92	0.000	1.920606 2.555015
zglt8d2		.9704032	.0396752	-0.73	0.462	.8956753 1.051366
_infectionburXglt8d2_000		1.036329	.0814496	0.45	0.650	.8883788 1.208919
AGE		1.037462	.0132097	2.89	0.004	1.011892 1.063678
SEX		.7494415	.0495361	-4.36	0.000	.6583784 .8531
NonWhite		1.090513	.1879212	0.50	0.615	.7779446 1.528667
householdsize		.9305756	.0401295	-1.67	0.095	.8551553 1.012648
SES		.8161396	.0407395	-4.07	0.000	.7400732 .9000242
LE8_TOTALSCORE		.9991951	.0003605	-2.23	0.026	.9984887 .9999019

-> Model for the mediator

Iteration 0: Log likelihood = -50485.856  
 Iteration 1: Log likelihood = -50485.856

Linear regression (Maximum Likelihood)  
 Number of obs = 35,601  
 Wald chi2(7) = 58.60  
 Log likelihood = -50485.856 Prob > chi2 = 0.0000

	zglt8d2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		-.0159675	.015453	-1.03	0.301	-.0462548 .0143199
AGE		-.001173	.0010118	-1.16	0.246	-.003156 .00081
SEX		.0666287	.0107052	6.22	0.000	.0456468 .0876106
NonWhite		-.0996157	.0255438	-3.90	0.000	-.1496806 -.0495509
householdsize		.00694	.0050786	1.37	0.172	-.0030139 .0168939
SES		.002188	.0080419	0.27	0.786	-.0135739 .0179499
LE8_TOTALSCORE		-.0000753	.0000571	-1.32	0.187	-.0001872 .0000365
_cons		-.0020057	.0733495	-0.03	0.978	-.1457681 .1417567
<b>sigma2</b>						
_cons		.9983287	.0074827	133.42	0.000	.9836629 1.012994

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.214228	.1611705	7.53	0.000	.8983394 1.530116
ereri_cde	1.214748	.1612086	7.54	0.000	.8987853 1.530711
ereri_intref	-.000321	.0016471	-0.19	0.845	-.0035491 .0029072
ereri_intmed	-.0006793	.0025488	-0.27	0.790	-.0056748 .0043162
ereri_pie	.0004798	.0008015	0.60	0.549	-.001091 .0020507

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zgmpr  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.18 1.531 .0466 2.218 -.07544 500.5

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9166.3755  
 Iteration 1: Log likelihood = -9075.4551  
 Iteration 2: Log likelihood = -9063.0107  
 Iteration 3: Log likelihood = -9062.9132  
 Iteration 4: Log likelihood = -9062.9132  
 Refining estimates:  
 Iteration 0: Log likelihood = -9062.9132

Cox regression with Breslow method for ties

No. of subjects =	<b>36,824</b>	Number of obs =	<b>36,824</b>
No. of failures =	<b>978</b>		
Time at risk =	<b>447,356.911</b>	LR chi2(9) =	<b>206.92</b>
Log likelihood =	<b>-9062.9132</b>	Prob > chi2 =	<b>0.0000</b>

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.278838</b>	.1622096	<b>11.57</b>	<b>0.000</b>	<b>1.982094</b> <b>2.620009</b>
zgmpr	<b>.9207687</b>	.0347321	<b>-2.19</b>	<b>0.029</b>	<b>.8551505</b> <b>.9914219</b>
_infectionburXzgmpr_000	<b>1.195622</b>	.0853105	<b>2.50</b>	<b>0.012</b>	<b>1.039581</b> <b>1.375084</b>
AGE	<b>1.035988</b>	.0129957	<b>2.82</b>	<b>0.005</b>	<b>1.010827</b> <b>1.061775</b>
SEX	<b>.7478536</b>	.0488692	<b>-4.45</b>	<b>0.000</b>	<b>.6579517</b> <b>.8500394</b>
NonWhite	<b>1.044215</b>	.1798771	<b>0.25</b>	<b>0.802</b>	<b>.7450092</b> <b>1.463587</b>
householdsize	<b>.936204</b>	.0392566	<b>-1.57</b>	<b>0.116</b>	<b>.8623393</b> <b>1.016396</b>
SES	<b>.818954</b>	.0401772	<b>-4.07</b>	<b>0.000</b>	<b>.7438755</b> <b>.9016101</b>
LE8_TOTALSCORE	<b>.9990692</b>	.0003541	<b>-2.63</b>	<b>0.009</b>	<b>.9983754</b> <b>.9997634</b>

-> Model for the mediator

Iteration 0: Log likelihood =	<b>-51706.038</b>	Number of obs =	<b>36,824</b>
Iteration 1: Log likelihood =	<b>-51706.038</b>	Wald chi2(7) =	<b>1105.17</b>
Linear regression (Maximum Likelihood)		Prob > chi2 =	<b>0.0000</b>
Log likelihood =	<b>-51706.038</b>		

zgmp	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>-.0499464</b>	.014992	-3.33	<b>0.001</b>	<b>-.0793302</b> -.0205625
AGE	<b>.002033</b>	.0009778	<b>2.08</b>	<b>0.038</b>	<b>.0001165</b> .0039496
SEX	<b>-.2982649</b>	.0103807	<b>-28.73</b>	<b>0.000</b>	<b>-.3186108</b> -.2779191
NonWhite	<b>.1350086</b>	.0248322	<b>5.44</b>	<b>0.000</b>	<b>.0863385</b> .1836788
householdsize	<b>.0008854</b>	.0047326	<b>0.19</b>	<b>0.852</b>	<b>-.0083902</b> .0101611
SES	<b>.0196272</b>	.0077842	<b>2.52</b>	<b>0.012</b>	<b>.0043704</b> .034884
LE8_TOTALSCORE	<b>-.0006822</b>	.0000553	<b>-12.35</b>	<b>0.000</b>	<b>-.0007905</b> -.0005739
_cons	<b>.6758482</b>	.0706832	<b>9.56</b>	<b>0.000</b>	<b>.5373117</b> .8143848
<b>sigma2</b>					
_cons	<b>.9708359</b>	.0071548	<b>135.69</b>	<b>0.000</b>	<b>.9568128</b> .984859

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.273408</b>	.1615972	<b>7.88</b>	<b>0.000</b>	<b>.9566838</b> 1.590133
ereri_cde	<b>1.275345</b>	.1617021	<b>7.89</b>	<b>0.000</b>	<b>.9584144</b> 1.592275
ereri_intref	<b>.0090043</b>	.0143407	<b>0.63</b>	<b>0.530</b>	<b>-.019103</b> .0371116
ereri_intmed	<b>-.0150719</b>	.0085231	<b>-1.77</b>	<b>0.077</b>	<b>-.0317768</b> .001633
ereri_pie	<b>.0041314</b>	.0022634	<b>1.83</b>	<b>0.068</b>	<b>-.0003048</b> .0085676

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zgne
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04669 2.217 -.07551 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8882.1967**  
 Iteration 1: Log likelihood = **-8794.9848**  
 Iteration 2: Log likelihood = **-8786.9694**  
 Iteration 3: Log likelihood = **-8786.9522**  
 Iteration 4: Log likelihood = **-8786.9522**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8786.9522**

Cox regression with Breslow method for ties

No. of subjects =	<b>35,573</b>	Number of obs =	<b>35,573</b>
No. of failures =	<b>951</b>		
Time at risk =	<b>432,088.637</b>	LR chi2(9) =	<b>190.49</b>
Log likelihood =	<b>-8786.9522</b>	Prob > chi2 =	<b>0.0000</b>

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.258682</b>	.163311	<b>11.27</b>	<b>0.000</b>	<b>1.960244</b> <b>2.602556</b>
zgne	<b>.9238175</b>	.0366607	<b>-2.00</b>	<b>0.046</b>	<b>.8546872</b> <b>.9985394</b>
_infectionburXzgne_000	<b>1.074124</b>	.0769429	<b>1.00</b>	<b>0.318</b>	<b>.9334264</b> <b>1.236029</b>
AGE	<b>1.037796</b>	.0131919	<b>2.92</b>	<b>0.004</b>	<b>1.01226</b> <b>1.063977</b>
SEX	<b>.7441128</b>	.0489653	<b>-4.49</b>	<b>0.000</b>	<b>.6540736</b> <b>.8465468</b>
NonWhite	<b>1.112046</b>	.1891815	<b>0.62</b>	<b>0.532</b>	<b>.7967392</b> <b>1.552135</b>
householdszie	<b>.9392601</b>	.0396197	<b>-1.49</b>	<b>0.137</b>	<b>.8647303</b> <b>1.020214</b>
SES	<b>.8285255</b>	.0413273	<b>-3.77</b>	<b>0.000</b>	<b>.751359</b> <b>.9136172</b>
LE8_TOTALSCORE	<b>.9991867</b>	.0003595	<b>-2.26</b>	<b>0.024</b>	<b>.9984825</b> <b>.9998915</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50370.51**  
 Iteration 1: Log likelihood = **-50370.51**

Linear regression (Maximum Likelihood)	Number of obs =	<b>35,573</b>
	Wald chi2(7) =	<b>210.40</b>
Log likelihood =	<b>-50370.51</b>	Prob > chi2 = <b>0.0000</b>

<u>zgne</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.0190579</b>	.0154448	<b>1.23</b>	<b>0.217</b>	<b>-.0112133</b> <b>.0493291</b>
AGE	<b>-.0030669</b>	.0010071	<b>-3.05</b>	<b>0.002</b>	<b>-.0050408</b> <b>-.001093</b>
SEX	<b>-.0500236</b>	.010687	<b>-4.68</b>	<b>0.000</b>	<b>-.0709697</b> <b>-.0290776</b>
NonWhite	<b>.0377143</b>	.0255409	<b>1.48</b>	<b>0.140</b>	<b>-.0123449</b> <b>.0877735</b>
householdszie	<b>-.0037197</b>	.004864	<b>-0.76</b>	<b>0.444</b>	<b>-.013253</b> <b>.0058136</b>
SES	<b>-.0104978</b>	.0080155	<b>-1.31</b>	<b>0.190</b>	<b>-.0262079</b> <b>.0052123</b>
LE8_TOTALSCORE	<b>-.0006928</b>	.0000569	<b>-12.17</b>	<b>0.000</b>	<b>-.0008043</b> <b>-.0005812</b>
_cons	<b>.6110288</b>	.0727861	<b>8.39</b>	<b>0.000</b>	<b>.4683706</b> <b>.7536869</b>
<b>sigma2</b>					
_cons	<b>.9940922</b>	.0074539	<b>133.37</b>	<b>0.000</b>	<b>.9794829</b> <b>1.008702</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.250954</b>	.1625983	7.69	<b>0.000</b>	.9322668 1.569641
ereri_cde	<b>1.254497</b>	.1626286	7.71	<b>0.000</b>	.9357512 1.573244
ereri_intref	<b>-.0032119</b>	.0035206	-0.91	0.362	-.0101121 .0036883
ereri_intmed	<b>.0011772</b>	.0028355	0.42	0.678	-.0043804 .0067347
ereri_pie	<b>-.001509</b>	.0014365	-1.05	0.293	-.0043245 .0013065

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zgnly
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): **cox**

Model for the mediator (mreg): **linear**

Referent exposure level (a0): **0**

Actual exposure level (a1): **1**

Mediator level for the decomposition (m): **0**

Fixed values of the covariates (c): **60.19 1.531 .04638 2.215 -.07464 500.5**

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9121.8147**

Iteration 1: Log likelihood = **-9033.512**

Iteration 2: Log likelihood = **-9025.3206**

Iteration 3: Log likelihood = **-9025.3015**

Iteration 4: Log likelihood = **-9025.3015**

Refining estimates:

Iteration 0: Log likelihood = **-9025.3015**

Cox regression with Breslow method for ties

No. of subjects = **36,459** Number of obs = **36,459**

No. of failures = **974**

Time at risk = **442,828.345**

LR chi2(9) = **193.03**

Log likelihood = **-9025.3015** Prob > chi2 = **0.0000**

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.236616	.1601399	11.24	0.000	1.943775
zgnly		.9721931	.0370437	-0.74	0.459	.9022336
_infectionburXzgnly_000		.9962485	.0689565	-0.05	0.957	.8698629
AGE		1.035679	.0130265	2.79	0.005	1.01046
SEX		.7573603	.0494492	-4.26	0.000	.6663866
NonWhite		1.095551	.1864248	0.54	0.592	.7848512
householdsize		.9397263	.0392979	-1.49	0.137	.8657758
SES		.8224153	.0405219	-3.97	0.000	.7467082
LE8_TOTALSCORE		.998995	.0003551	-2.83	0.005	.9982992
						.9996912

-> Model for the mediator

Iteration 0: Log likelihood = -51176.594  
Iteration 1: Log likelihood = -51176.594

Linear regression (Maximum Likelihood) Number of obs = 36,459  
Log likelihood = -51176.594 Wald chi2(7) = 1129.10  
Prob > chi2 = 0.0000

	zgnly	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0176744	.015051	1.17	0.240	-.0118251
AGE		.0180706	.0009851	18.34	0.000	.0161398
SEX		.1937493	.0104296	18.58	0.000	.1733077
NonWhite		.2812771	.0250049	11.25	0.000	.2322685
householdszie		.0069374	.0049561	1.40	0.162	-.0027765
SES		-.0586654	.0078336	-7.49	0.000	-.074019
LE8_TOTALSCORE		-.0007418	.0000555	-13.36	0.000	-.0008506
_cons		-1.048214	.0714391	-14.67	0.000	-1.188232
sigma2						
_cons		.9699345	.0071838	135.02	0.000	.9558545
						.9840146

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.235618	.1603303	7.71	0.000	.9213767 1.54986
ereri_cde	1.236053	.1601208	7.72	0.000	.9222221 1.549884
ereri_intref	.0008284	.0045039	0.18	0.854	-.0079991 .0096559
ereri_intmed	-.0007649	.0024874	-0.31	0.758	-.00564 .0041103
ereri_pie	-.0004983	.0007957	-0.63	0.531	-.0020578 .0010611

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intre to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
Warning: this analysis assumes a rare outcome.  
Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```

Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zgolm2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

Model for the outcome (yreg): cox
Model for the mediator (mreg): linear

Referent exposure level (a0):          0
Actual exposure level (a1):           1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c):    60.18 1.531 .04637 2.216 -.07448 500.6

```

-> Model for the outcome

```

Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid

Iteration 0: Log likelihood = -9160.406
Iteration 1: Log likelihood = -9071.4085
Iteration 2: Log likelihood = -9061.3839
Iteration 3: Log likelihood = -9061.3275
Iteration 4: Log likelihood = -9061.3275
Refining estimates:
Iteration 0: Log likelihood = -9061.3275

```

Cox regression with Breslow method for ties

No. of subjects =	36,751	Number of obs =	36,751
No. of failures =	977		
Time at risk =	446,451.479	LR chi2(9) =	198.16
Log likelihood =	-9061.3275	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.252831	.1605613	11.40	0.000	1.959127 2.590565
zgolm2	.9827908	.0385523	-0.44	0.658	.9100614 1.061332
_infectionburXzgolm2_000	.8953142	.0630633	-1.57	0.116	.7798649 1.027854
AGE	1.034156	.0129581	2.68	0.007	1.009068 1.059868
SEX	.7640841	.0499685	-4.11	0.000	.6721643 .868574
NonWhite	1.09619	.1864377	0.54	0.589	.7854444 1.529877
householdsize	.9330964	.0395615	-1.63	0.102	.8586917 1.013948
SES	.813176	.0400065	-4.20	0.000	.7384264 .8954923
LE8_TOTALSCORE	.998894	.0003634	-3.04	0.002	.9981821 .9996065

-> Model for the mediator

Iteration 0: Log likelihood = -50504.778	Number of obs = 36,751
Iteration 1: Log likelihood = -50504.778	Wald chi2(7) = 3435.48
Log likelihood = -50504.778	Prob > chi2 = 0.0000

	zgolm2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.11687	.0145602	8.03	0.000	.0883325 .1454076
AGE		.0055359	.0009528	5.81	0.000	.0036685 .0074033
SEX		.2128531	.010086	21.10	0.000	.193085 .2326212
NonWhite		.1538579	.0241963	6.36	0.000	.1064339 .2012819
householdsize		-.0007017	.0047909	-0.15	0.884	-.0100917 .0086882
SES		-.089088	.0075745	-11.76	0.000	-.1039337 -.0742423
LE8_TOTALSCORE		-.0025677	.0000537	-47.80	0.000	-.002673 -.0024624
_cons		.5978752	.0690843	8.65	0.000	.4624725 .7332778
<b>sigma2</b>						
_cons		.9144866	.0067462	135.56	0.000	.9012643 .9277088

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.239776	.1598123	7.76	0.000	.9265499 1.553002
ereri_cde	1.252305	.1605267	7.80	0.000	.9376787 1.566932
ereri_intref	.0212123	.0183569	1.16	0.248	-.0147666 .0571912
ereri_intmed	-.0317148	.0171687	-1.85	0.065	-.0653648 .0019352
ereri_pie	-.0020267	.0045822	-0.44	0.658	-.0110076 .0069542

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zgopc
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04646 2.216 -.07503 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9036.4379**  
 Iteration 1: Log likelihood = **-8947.1551**  
 Iteration 2: Log likelihood = **-8937.7441**  
 Iteration 3: Log likelihood = **-8937.7032**  
 Iteration 4: Log likelihood = **-8937.7032**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8937.7032**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,352</b>	Number of obs =	<b>36,352</b>
No. of failures =	<b>965</b>		
Time at risk =	<b>441,650.762</b>	LR chi2(9) =	<b>197.47</b>
Log likelihood =	<b>-8937.7032</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.253368</b>	<b>.1619277</b>	<b>11.31</b>	<b>0.000</b>	<b>1.957332</b>	<b>2.594178</b>
zgopc	<b>.9402526</b>	<b>.0360586</b>	<b>-1.61</b>	<b>0.108</b>	<b>.8721697</b>	<b>1.01365</b>
_infectionburXzgopc_000	<b>.978515</b>	<b>.0693252</b>	<b>-0.31</b>	<b>0.759</b>	<b>.8516519</b>	<b>1.124276</b>
AGE	<b>1.032487</b>	<b>.0130042</b>	<b>2.54</b>	<b>0.011</b>	<b>1.007311</b>	<b>1.058292</b>
SEX	<b>.7579255</b>	<b>.049443</b>	<b>-4.25</b>	<b>0.000</b>	<b>.6669583</b>	<b>.8612999</b>
NonWhite	<b>1.058117</b>	<b>.1823726</b>	<b>0.33</b>	<b>0.743</b>	<b>.7547865</b>	<b>1.483349</b>
householdsize	<b>.9330432</b>	<b>.0397095</b>	<b>-1.63</b>	<b>0.103</b>	<b>.8583716</b>	<b>1.014211</b>
SES	<b>.8181668</b>	<b>.0404039</b>	<b>-4.06</b>	<b>0.000</b>	<b>.7426883</b>	<b>.901316</b>
LE8_TOTALSCORE	<b>.9989645</b>	<b>.000356</b>	<b>-2.91</b>	<b>0.004</b>	<b>.998267</b>	<b>.9996626</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-51449.096**  
 Iteration 1: Log likelihood = **-51449.096**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,352</b>
	Wald chi2(7) =	<b>264.27</b>
Log likelihood =	<b>-51449.096</b>	Prob > chi2 = <b>0.0000</b>

	zgopc	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>-.0057652</b>	<b>.0152636</b>	<b>-0.38</b>	<b>0.706</b>	<b>-.0356813</b>
AGE		<b>-.0031585</b>	<b>.0009964</b>	<b>-3.17</b>	<b>0.002</b>	<b>-.0051114</b>
SEX		<b>-.0134858</b>	<b>.0105643</b>	<b>-1.28</b>	<b>0.202</b>	<b>-.0341914</b>
NonWhite		<b>.0408503</b>	<b>.0253156</b>	<b>1.61</b>	<b>0.107</b>	<b>-.0087673</b>
householdsize		<b>-.0038074</b>	<b>.0048895</b>	<b>-0.78</b>	<b>0.436</b>	<b>-.0133906</b>
SES		<b>-.0239278</b>	<b>.0079237</b>	<b>-3.02</b>	<b>0.003</b>	<b>-.039458</b>
LE8_TOTALSCORE		<b>-.0008098</b>	<b>.0000562</b>	<b>-14.40</b>	<b>0.000</b>	<b>-.0009201</b>
_cons		<b>.6217283</b>	<b>.0720784</b>	<b>8.63</b>	<b>0.000</b>	<b>.4804573</b>
<b>sigma2</b>						
_cons		<b>.9927554</b>	<b>.0073636</b>	<b>134.82</b>	<b>0.000</b>	<b>.9783229</b>
						<b>1.007188</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.257937</b>	.1616643	7.78	<b>0.000</b>	.9410809 1.574793
ereri_cde	<b>1.251071</b>	.161545	7.74	<b>0.000</b>	.9344482 1.567693
ereri_intref	<b>.0057819</b>	.0112617	0.51	<b>0.608</b>	-.0162906 .0278545
ereri_intmed	<b>.0007292</b>	.0020941	0.35	<b>0.728</b>	-.0033751 .0048335
ereri_pie	<b>.0003552</b>	.0009663	0.37	<b>0.713</b>	-.0015387 .0022492

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zgp1ba
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): **cox**

Model for the mediator (mreg): **linear**

Referent exposure level (a0): **0**

Actual exposure level (a1): **1**

Mediator level for the decomposition (m): **0**

Fixed values of the covariates (c): **60.18 1.531 .04657 2.216 -.07589 500.6**

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9047.4637**

Iteration 1: Log likelihood = **-8960.885**

Iteration 2: Log likelihood = **-8952.5083**

Iteration 3: Log likelihood = **-8952.4874**

Iteration 4: Log likelihood = **-8952.4874**

Refining estimates:

Iteration 0: Log likelihood = **-8952.4874**

Cox regression with Breslow method for ties

No. of subjects = **36,292** Number of obs = **36,292**

No. of failures = **967**

Time at risk = **440,901.286**

Log likelihood = **-8952.4874**

LR chi2(9) = **189.95**

Prob > chi2 = **0.0000**

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.241967</b>	.1608389	<b>11.25</b>	<b>0.000</b>	<b>1.947888</b>
	zgp1ba	<b>.974358</b>	.0375845	<b>-0.67</b>	<b>0.501</b>	<b>.9034094</b>
_infectionburXzgp1ba_000		<b>.9926378</b>	.0700858	<b>-0.10</b>	<b>0.917</b>	<b>.8643532</b>
	AGE	<b>1.03494</b>	.0130783	<b>2.72</b>	<b>0.007</b>	<b>1.009622</b>
	SEX	<b>.763864</b>	.0498026	<b>-4.13</b>	<b>0.000</b>	<b>.672232</b>
	NonWhite	<b>1.093438</b>	.1860773	<b>0.52</b>	<b>0.600</b>	<b>.7833206</b>
	householdsize	<b>.9331273</b>	.0396376	<b>-1.63</b>	<b>0.103</b>	<b>.858585</b>
	SES	<b>.8237542</b>	.0407665	<b>-3.92</b>	<b>0.000</b>	<b>.7476059</b>
	LE8_TOTALSCORE	<b>.9990711</b>	.0003566	<b>-2.60</b>	<b>0.009</b>	<b>.9983725</b>

-> Model for the mediator

Iteration 0: Log likelihood = -51372.259  
Iteration 1: Log likelihood = -51372.259

Linear regression (Maximum Likelihood) Number of obs = 36,292  
Log likelihood = -51372.259 Wald chi2(7) = 247.56  
Prob > chi2 = 0.0000

	zgp1ba	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0153889	.0152769	1.01	0.314	-.0145532 .045331
AGE		-.006218	.0009961	-6.24	0.000	-.0081703 -.0042657
SEX		.0074877	.0105768	0.71	0.479	-.0132425 .0282179
NonWhite		-.2410657	.0252984	-9.53	0.000	-.2906497 -.1914817
householdszie		-.0016617	.0048095	-0.35	0.730	-.0110881 .0077647
SES		-.0185696	.0079365	-2.34	0.019	-.0341248 -.0030143
LE8_TOTALSCORE		-.0006154	.0000564	-10.91	0.000	-.000726 -.0005048
_cons		.682206	.0720118	9.47	0.000	.5410654 .8233466
sigma2						
_cons		.9931976	.007373	134.71	0.000	.9787467 1.007648

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.241339</b>	.1606682	7.73	<b>0.000</b>	.9264355 1.556243
ereri_cde	<b>1.241482</b>	.1607449	7.72	<b>0.000</b>	.9264277 1.556536
ereri_intref	<b>.0010086</b>	.0048124	0.21	<b>0.834</b>	- .0084236 .0104407
ereri_intmed	<b>-.0007515</b>	.0022545	-0.33	<b>0.739</b>	- .0051702 .0036672
ereri_pie	<b>-.0003997</b>	.0007138	-0.56	<b>0.576</b>	- .0017986 .0009993

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intre to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
Warning: this analysis assumes a rare outcome.  
Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zgp2  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.18 1.531 .04621 2.218 -.07367 500.6

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -8822.7981  
 Iteration 1: Log likelihood = -8739.3656  
 Iteration 2: Log likelihood = -8731.9102  
 Iteration 3: Log likelihood = -8731.8838  
 Iteration 4: Log likelihood = -8731.8838  
 Refining estimates:  
 Iteration 0: Log likelihood = -8731.8838

Cox regression with Breslow method for ties

No. of subjects =	35,296	Number of obs =	35,296
No. of failures =	945		
Time at risk =	428,775.509	LR chi2(9) =	181.83
Log likelihood =	-8731.8838	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.203617	.1614469	10.78	0.000	1.908857 2.543894
zgp2	1.079991	.0420785	1.98	0.048	1.000589 1.165694
_infectionburXzgp2_000	.9525276	.0665248	-0.70	0.486	.8306717 1.092259
AGE	1.035216	.0132087	2.71	0.007	1.009648 1.061431
SEX	.7818575	.0529166	-3.64	0.000	.6847274 .8927657
NonWhite	1.105158	.1883812	0.59	0.557	.7912824 1.543537
householdsize	.9384111	.0397712	-1.50	0.134	.8636106 1.01969
SES	.8264791	.0413375	-3.81	0.000	.7493036 .9116034
LE8_TOTALSCORE	.9989943	.0003605	-2.79	0.005	.998288 .999701

-> Model for the mediator

Iteration 0: Log likelihood = -48912.203  
 Iteration 1: Log likelihood = -48912.203

Linear regression (Maximum Likelihood)

Number of obs =	35,296
Wald chi2(7) =	2419.63
Prob > chi2 =	0.0000

Log likelihood = -48912.203

	zgp2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>-.0243978</b>	<b>.0150235</b>	<b>-1.62</b>	<b>0.104</b>	<b>-.0538433</b>
AGE		<b>.0165113</b>	<b>.0009808</b>	<b>16.83</b>	<b>0.000</b>	<b>.0145889</b>
SEX		<b>-.4386174</b>	<b>.0104103</b>	<b>-42.13</b>	<b>0.000</b>	<b>-.4590213</b>
NonWhite		<b>.25291</b>	<b>.0249813</b>	<b>10.12</b>	<b>0.000</b>	<b>.2039475</b>
householdsize		<b>.0045992</b>	<b>.0047459</b>	<b>0.97</b>	<b>0.333</b>	<b>-.0047027</b>
SES		<b>.0364597</b>	<b>.0078198</b>	<b>4.66</b>	<b>0.000</b>	<b>.0211331</b>
LE8_TOTALSCORE		<b>.0008344</b>	<b>.0000555</b>	<b>15.04</b>	<b>0.000</b>	<b>.0007257</b>
_cons		<b>-.7556739</b>	<b>.0708963</b>	<b>-10.66</b>	<b>0.000</b>	<b>-.8946281</b>
<b>sigma2</b>						
_cons		<b>.9358188</b>	<b>.0070444</b>	<b>132.85</b>	<b>0.000</b>	<b>.922012</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.196464</b>	<b>.1605032</b>	<b>7.45</b>	<b>0.000</b>	<b>.8818836</b>
ereri_cde	<b>1.199974</b>	<b>.1607168</b>	<b>7.47</b>	<b>0.000</b>	<b>.8849746</b>
ereri_intref	<b>-.0019918</b>	<b>.0047905</b>	<b>-0.42</b>	<b>0.678</b>	<b>-.011381</b>
ereri_intmed	<b>.0003577</b>	<b>.0032879</b>	<b>0.11</b>	<b>0.913</b>	<b>-.0060865</b>
ereri_pie	<b>-.0018757</b>	<b>.0014939</b>	<b>-1.26</b>	<b>0.209</b>	<b>-.0048037</b>

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zgp6
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04638 2.215 -.07492 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9091.4035**  
 Iteration 1: Log likelihood = **-9003.4133**  
 Iteration 2: Log likelihood = **-8992.9887**  
 Iteration 3: Log likelihood = **-8992.9151**  
 Iteration 4: Log likelihood = **-8992.9151**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8992.9151**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,394</b>	Number of obs =	<b>36,394</b>
No. of failures =	<b>971</b>		
Time at risk =	<b>442,059.414</b>	LR chi2(9) =	<b>196.98</b>
Log likelihood =	<b>-8992.9151</b>	Prob > chi2 =	<b>0.0000</b>

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.22455</b>	.1598464	<b>11.13</b>	<b>0.000</b>	<b>1.932318</b> <b>2.560977</b>
zgp6	<b>.9387476</b>	.0360793	<b>-1.64</b>	<b>0.100</b>	<b>.8706312</b> <b>1.012193</b>
_infectionburXzgp6_000	<b>.9486735</b>	.0684969	<b>-0.73</b>	<b>0.466</b>	<b>.8234886</b> <b>1.092889</b>
AGE	<b>1.03444</b>	.013015	<b>2.69</b>	<b>0.007</b>	<b>1.009243</b> <b>1.060266</b>
SEX	<b>.7574859</b>	.0493105	<b>-4.27</b>	<b>0.000</b>	<b>.6667505</b> <b>.8605691</b>
NonWhite	<b>1.091904</b>	.1856082	<b>0.52</b>	<b>0.605</b>	<b>.7825144</b> <b>1.52362</b>
householdszie	<b>.9381886</b>	.0394211	<b>-1.52</b>	<b>0.129</b>	<b>.8640206</b> <b>1.018723</b>
SES	<b>.8245701</b>	.0406445	<b>-3.91</b>	<b>0.000</b>	<b>.7486354</b> <b>.908207</b>
LE8_TOTALSCORE	<b>.9989443</b>	.0003551	<b>-2.97</b>	<b>0.003</b>	<b>.9982486</b> <b>.9996404</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-51529.931**  
 Iteration 1: Log likelihood = **-51529.931**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,394</b>	
	Wald chi2(7) =	<b>221.51</b>	
Log likelihood =	<b>-51529.931</b>	Prob > chi2 =	<b>0.0000</b>

<u>zgp6</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>-.0009522</b>	.015246	<b>-0.06</b>	<b>0.950</b>	<b>-.0308338</b> <b>.0289294</b>
AGE	<b>-.0029183</b>	.0009981	<b>-2.92</b>	<b>0.003</b>	<b>-.0048745</b> <b>-.0009621</b>
SEX	<b>.0536003</b>	.0105674	<b>5.07</b>	<b>0.000</b>	<b>.0328886</b> <b>.0743119</b>
NonWhite	<b>-.0056277</b>	.025331	<b>-0.22</b>	<b>0.824</b>	<b>-.0552756</b> <b>.0440202</b>
householdszie	<b>-.0018188</b>	.0050208	<b>-0.36</b>	<b>0.717</b>	<b>-.0116594</b> <b>.0080217</b>
SES	<b>-.0281916</b>	.0079392	<b>-3.55</b>	<b>0.000</b>	<b>-.043752</b> <b>-.0126311</b>
LE8_TOTALSCORE	<b>-.0007033</b>	.0000563	<b>-12.50</b>	<b>0.000</b>	<b>-.0008136</b> <b>-.0005931</b>
_cons	<b>.447928</b>	.0723788	<b>6.19</b>	<b>0.000</b>	<b>.3060681</b> <b>.5897878</b>
<b>sigma2</b>					
_cons	<b>.9939231</b>	.0073681	<b>134.90</b>	<b>0.000</b>	<b>.979482</b> <b>1.008364</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.235238	.1598506	7.73	0.000	.921937 1.54854
ereri_cde	1.222131	.159454	7.66	0.000	.909607 1.534655
ereri_intref	.0128607	.0158997	0.81	0.419	-.0183021 .0440235
ereri_intmed	.0001865	.002989	0.06	0.950	-.0056719 .0060449
ereri_pie	.0000602	.0009644	0.06	0.950	-.0018301 .0019505

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zgpa33
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04658 2.216 -.07524 500.8

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9057.6167

Iteration 1: Log likelihood = -8966.8169

Iteration 2: Log likelihood = -8957.0478

Iteration 3: Log likelihood = -8956.9978

Iteration 4: Log likelihood = -8956.9978

Refining estimates:

Iteration 0: Log likelihood = -8956.9978

Cox regression with Breslow method for ties

No. of subjects = 36,264

Number of obs = 36,264

No. of failures = 968

Time at risk = 440,524.906

LR chi2(9) = 201.24

Log likelihood = -8956.9978

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.269488	.1635816	11.37	0.000	1.970491 2.613854
zgpa33	.9014465	.0347401	-2.69	0.007	.835865 .9721734
_infectionburXzgpa33_000	1.056381	.0743066	0.78	0.436	.920336 1.212536
AGE	1.031279	.0129857	2.45	0.014	1.006139 1.057048
SEX	.7770738	.0515209	-3.80	0.000	.6823804 .8849076
NonWhite	1.097188	.1866488	0.55	0.586	.7861007 1.531382
householdsize	.9344283	.0393459	-1.61	0.107	.8604082 1.014816
SES	.820166	.0404693	-4.02	0.000	.7445625 .9034465
LE8_TOTALSCORE	.9990694	.0003551	-2.62	0.009	.9983738 .9997656

-> Model for the mediator

Iteration 0: Log likelihood = -50745.944  
 Iteration 1: Log likelihood = -50745.944

Linear regression (Maximum Likelihood)  
 Number of obs = 36,264  
 Wald chi2(7) = 1448.05  
 Prob > chi2 = 0.0000  
 Log likelihood = -50745.944

zgpa33	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	-.027341	.0150279	-1.82	0.069	-.0567951 .0021132
AGE	-.0032977	.0009813	-3.36	0.001	-.005221 -.0013744
SEX	.3770268	.0104097	36.22	0.000	.3566242 .3974293
NonWhite	.041155	.0249087	1.65	0.098	-.0076651 .0899752
householdsize	-.0253163	.0047342	-5.35	0.000	-.0345952 -.0160375
SES	.0514033	.0078071	6.58	0.000	.0361016 .066705
LE8_TOTALSCORE	.0000252	.0000554	0.46	0.649	-.0000834 .0001339
_cons	-.3297316	.0709191	-4.65	0.000	-.4687306 -.1907327
<b>sigma2</b>					
_cons	.9615759	.007141	134.66	0.000	.9475798 .9755721

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.263866	.1621595	7.79	0.000	.9460392 1.581693
ereri_cde	1.263432	.1624951	7.78	0.000	.9449478 1.581917
ereri_intref	-.0025914	.006817	-0.38	0.704	-.0159525 .0107698
ereri_intmed	.0001843	.00381	0.05	0.961	-.0072833 .0076518
ereri_pie	.0028408	.0018872	1.51	0.132	-.0008581 .0065396

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```

Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zgpc1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

Model for the outcome (yreg): cox
Model for the mediator (mreg): linear

Referent exposure level (a0):          0
Actual exposure level (a1):           1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c):    60.18 1.531 .04659 2.218 -.07483 500.6

```

-> Model for the outcome

```

Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid

Iteration 0: Log likelihood = -9201.1117
Iteration 1: Log likelihood = -9110.3648
Iteration 2: Log likelihood = -9101.6844
Iteration 3: Log likelihood = -9101.663
Iteration 4: Log likelihood = -9101.663
Refining estimates:
Iteration 0: Log likelihood = -9101.663

Cox regression with Breslow method for ties

No. of subjects =      36,726                      Number of obs = 36,726
No. of failures =       982
Time at risk      = 446,105.322
Log likelihood = -9101.663                         LR chi2(9)      = 198.90
                                                               Prob > chi2    = 0.0000

```

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.274148	.1626293	11.49	0.000	1.976731 2.616315
zgpc1	1.081538	.0418098	2.03	0.043	1.002619 1.166668
_infectionburXzgpc1_000	.9228507	.0630373	-1.18	0.240	.8072133 1.055054
AGE	1.033778	.0129489	2.65	0.008	1.008707 1.059471
SEX	.7711489	.050448	-3.97	0.000	.6783491 .8766439
NonWhite	1.077256	.183161	0.44	0.662	.7719566 1.503297
householdsize	.931904	.0392835	-1.67	0.094	.8580046 1.012168
SES	.822991	.0403603	-3.97	0.000	.747569 .9060223
LE8_TOTALSCORE	.9990948	.0003532	-2.56	0.010	.9984028 .9997872

-> Model for the mediator

```

Iteration 0: Log likelihood = -51456.923
Iteration 1: Log likelihood = -51456.923

Linear regression (Maximum Likelihood)                      Number of obs = 36,726
                                                               Wald chi2(7)  = 1332.64
                                                               Prob > chi2  = 0.0000
Log likelihood = -51456.923

```

	zgpc1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.0272313	.0149739	1.82	0.069	-.0021171 .0565797
AGE		.0077082	.0009766	7.89	0.000	.0057941 .0096223
SEX		-.3569638	.0103623	-34.45	0.000	-.3772735 -.3366542
NonWhite		.0064575	.0247927	0.26	0.795	-.0421352 .0550503
householdsize		.0148763	.0047181	3.15	0.002	.0056291 .0241235
SES		-.0333059	.007772	-4.29	0.000	-.0485387 -.018073
LE8_TOTALSCORE		.0001555	.0000552	2.82	0.005	.0000473 .0002636
_cons		-.0347943	.0706247	-0.49	0.622	-.1732161 .1036276
<b>sigma2</b>						
_cons		.9649584	.0071209	135.51	0.000	.9510016 .9789152

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.267991	.1616597	7.84	0.000	.9511435 1.584838
ereri_cde	1.270753	.1619932	7.84	0.000	.953252 1.588254
ereri_intref	-.0026446	.0029065	-0.91	0.363	-.0083412 .0030519
ereri_intmed	-.0022544	.0038539	-0.58	0.559	-.0098079 .0052991
ereri_pie	.0021368	.00158	1.35	0.176	-.00096 .0052335

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zgpc5
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.17 1.532 .0464 2.216 -.07458 500.7

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8985.4467**  
 Iteration 1: Log likelihood = **-8901.6812**  
 Iteration 2: Log likelihood = **-8878.2665**  
 Iteration 3: Log likelihood = **-8877.6527**  
 Iteration 4: Log likelihood = **-8877.652**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8877.652**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,164</b>	Number of obs =	<b>36,164</b>
No. of failures =	<b>960</b>		
Time at risk =	<b>439,440.668</b>	LR chi2(9) =	<b>215.59</b>
Log likelihood =	<b>-8877.652</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.132029</b>	.1594498	<b>10.12</b>	<b>0.000</b>	<b>1.841339</b> <b>2.468611</b>
zgpc5		<b>.8858458</b>	.0343125	<b>-3.13</b>	<b>0.002</b>	<b>.8210839</b> <b>.9557158</b>
_infectionburXzgpc5_000		<b>.9080039</b>	.0635316	<b>-1.38</b>	<b>0.168</b>	<b>.7916451</b> <b>1.041466</b>
AGE		<b>1.035166</b>	.013084	<b>2.73</b>	<b>0.006</b>	<b>1.009836</b> <b>1.06113</b>
SEX		<b>.7743757</b>	.0512439	<b>-3.86</b>	<b>0.000</b>	<b>.68018</b> <b>.8816161</b>
NonWhite		<b>.9658709</b>	.169068	<b>-0.20</b>	<b>0.843</b>	<b>.6853668</b> <b>1.361179</b>
householdszie		<b>.9435248</b>	.0394449	<b>-1.39</b>	<b>0.164</b>	<b>.8692967</b> <b>1.024091</b>
SES		<b>.8176217</b>	.040504	<b>-4.06</b>	<b>0.000</b>	<b>.7419676</b> <b>.9009898</b>
LE8_TOTALSCORE		<b>.998971</b>	.000355	<b>-2.90</b>	<b>0.004</b>	<b>.9982755</b> <b>.999667</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50833.919**  
 Iteration 1: Log likelihood = **-50833.919**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,164</b>
	Wald chi2(7) =	<b>973.01</b>
Log likelihood =	<b>-50833.919</b>	Prob > chi2 = <b>0.0000</b>

	zgpc5	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>-.0888979</b>	.0151565	<b>-5.87</b>	<b>0.000</b>	<b>-.1186041</b> <b>-.0591917</b>
AGE		<b>-.0061886</b>	.0009917	<b>-6.24</b>	<b>0.000</b>	<b>-.0081323</b> <b>-.004245</b>
SEX		<b>.2431665</b>	.0104914	<b>23.18</b>	<b>0.000</b>	<b>.2226038</b> <b>.2637292</b>
NonWhite		<b>-.3780047</b>	.0251567	<b>-15.03</b>	<b>0.000</b>	<b>-.427311</b> <b>-.3286984</b>
householdszie		<b>.0028753</b>	.0049755	<b>0.58</b>	<b>0.563</b>	<b>-.0068764</b> <b>.012627</b>
SES		<b>.0675813</b>	.0078865	<b>8.57</b>	<b>0.000</b>	<b>.052124</b> <b>.0830386</b>
LE8_TOTALSCORE		<b>-.0002988</b>	.0000558	<b>-5.35</b>	<b>0.000</b>	<b>-.0004082</b> <b>-.0001893</b>
_cons		<b>.1780976</b>	.0718722	<b>2.48</b>	<b>0.013</b>	<b>.0372307</b> <b>.3189645</b>
<b>sigma2</b>						
_cons		<b>.9737726</b>	.0072416	<b>134.47</b>	<b>0.000</b>	<b>.9595793</b> <b>.9879659</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.205965</b>	.159299	7.57	<b>0.000</b>	.8937445 1.518185
ereri_cde	<b>1.125641</b>	.1582434	7.11	<b>0.000</b>	.8154897 1.435792
ereri_intref	<b>.0380383</b>	.0251146	1.51	<b>0.130</b>	-.0111853 .087262
ereri_intmed	<b>.0314516</b>	.0132291	2.38	<b>0.017</b>	.005523 .0573801
ereri_pie	<b>.0108338</b>	.0039451	2.75	<b>0.006</b>	.0031015 .0185661

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zgpkow
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04688 2.215 -.07424 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -8819.5642

Iteration 1: Log likelihood = -8735.5208

Iteration 2: Log likelihood = -8727.3058

Iteration 3: Log likelihood = -8727.2598

Iteration 4: Log likelihood = -8727.2598

Refining estimates:

Iteration 0: Log likelihood = -8727.2598

Cox regression with Breslow method for ties

No. of subjects = 35,601 Number of obs = 35,601

No. of failures = 943

Time at risk = 432,443.367

Log likelihood = -8727.2598

LR chi2(9) = 184.61

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.204866	.1617166	10.78	0.000	1.909636 2.545739
zgpkow	1.005303	.0379349	0.14	0.889	.933635 1.082473
_infectionburXzgpkow_000	1.023511	.0681725	0.35	0.727	.8982491 1.16624
AGE	1.037355	.013212	2.88	0.004	1.01178 1.063576
SEX	.7490527	.0494957	-4.37	0.000	.6580621 .8526246
NonWhite	1.09165	.1881315	0.51	0.611	.7787354 1.5303
householdsize	.9302214	.0401445	-1.68	0.094	.8547754 1.012327
SES	.8164055	.0407752	-4.06	0.000	.7402745 .9003658
LE8_TOTALSCORE	.99921	.0003628	-2.18	0.029	.9984992 .9999213

-> Model for the mediator

Iteration 0: Log likelihood = **-49979.818**  
 Iteration 1: Log likelihood = **-49979.818**

Linear regression (Maximum Likelihood) Number of obs = 35,601  
 Wald chi2(7) = 1086.89  
 Prob > chi2 = 0.0000  
 Log likelihood = **-49979.818**

zgpkow	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	.0868357	.0152349	5.70	0.000	.0569758 .1166956
AGE	.0054978	.0009975	5.51	0.000	.0035428 .0074528
SEX	-.1038854	.0105542	-9.84	0.000	-.1245712 -.0831996
NonWhite	-.0849021	.0251833	-3.37	0.001	-.1342604 -.0355438
householdsize	.0040337	.0050069	0.81	0.420	-.0057797 .0138471
SES	-.03344	.0079284	-4.22	0.000	-.0489794 -.0179005
LE8_TOTALSCORE	-.0014993	.0000563	-26.65	0.000	-.0016096 -.0013891
_cons	.5590476	.0723143	7.73	0.000	.4173142 .7007809
<b>sigma2</b>					
_cons	.9703475	.007273	133.42	0.000	.9560928 .9846023

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.210558	.1611368	7.51	0.000	.8947356 1.52638
ereri_cde	1.204926	.1617329	7.45	0.000	.8879357 1.521917
ereri_intref	.0001623	.0019462	0.08	0.934	-.0036521 .0039767
ereri_intmed	.0050099	.0110585	0.45	0.651	-.0166644 .0266842
ereri_pie	.0004594	.0032792	0.14	0.889	-.0059678 .0068865

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zgpnmb  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.18 1.531 .04648 2.219 -.07481 500.4

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -8819.8081  
 Iteration 1: Log likelihood = -8731.0589  
 Iteration 2: Log likelihood = -8720.655  
 Iteration 3: Log likelihood = -8720.5917  
 Iteration 4: Log likelihood = -8720.5917  
 Refining estimates:  
 Iteration 0: Log likelihood = -8720.5917

Cox regression with Breslow method for ties

No. of subjects =	35,458	Number of obs =	35,458
No. of failures =	945		
Time at risk =	430,716.851	LR chi2(9) =	198.43
Log likelihood =	-8720.5917	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.311232	.1673086	11.57	0.000	2.005514 2.663554
zgpnmb	1.021945	.0398302	0.56	0.578	.9467859 1.103069
_infectionburXzgpnmb_000	.892796	.0621174	-1.63	0.103	.7789846 1.023236
AGE	1.037949	.0132844	2.91	0.004	1.012235 1.064315
SEX	.7436144	.0491896	-4.48	0.000	.6531928 .8465531
NonWhite	1.010096	.1814294	0.06	0.955	.7103512 1.436322
householdsize	.9270167	.0404776	-1.74	0.083	.850982 1.009845
SES	.8275621	.0415426	-3.77	0.000	.7500173 .9131243
LE8_TOTALSCORE	.9990113	.0003609	-2.74	0.006	.9983042 .9997189

-> Model for the mediator

Iteration 0: Log likelihood = -49923.81  
 Iteration 1: Log likelihood = -49923.81

Linear regression (Maximum Likelihood)

Number of obs =	35,458
Wald chi2(7) =	785.40
Prob > chi2 =	0.0000

Log likelihood = -49923.81

	zgpnmb	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.0788164	.0153159	5.15	0.000	.0487978 .1088349
AGE		.0185953	.0010011	18.57	0.000	.0166331 .0205575
SEX		.1430718	.0106193	13.47	0.000	.1222583 .1638852
NonWhite		-.1040639	.0254273	-4.09	0.000	-.1539005 -.0542274
householdsize		-.0053099	.0048092	-1.10	0.270	-.0147357 .0041158
SES		-.0347879	.007983	-4.36	0.000	-.0504342 -.0191416
LE8_TOTALSCORE		-.0005291	.0000567	-9.34	0.000	-.0006402 -.0004181
_cons		-1.07037	.0723504	-14.79	0.000	-1.212174 -.9285658
<b>sigma2</b>						
_cons		.9783023	.0073474	133.15	0.000	.9639018 .9927029

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.306381	.1671729	7.81	0.000	.9787277 1.634033
ereri_cde	1.311242	.1672821	7.84	0.000	.9833753 1.639109
ereri_intref	.0118661	.013702	0.87	0.386	-.0149892 .0387215
ereri_intmed	-.0184402	.0117619	-1.57	0.117	-.0414932 .0046128
ereri_pie	.0017123	.0030951	0.55	0.580	-.0043539 .0077786

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zgpr37
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04648 2.218 -.07459 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8905.4114**  
 Iteration 1: Log likelihood = **-8823.4103**  
 Iteration 2: Log likelihood = **-8814.1969**  
 Iteration 3: Log likelihood = **-8814.1326**  
 Iteration 4: Log likelihood = **-8814.1326**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8814.1326**

Cox regression with Breslow method for ties

No. of subjects =	<b>35,755</b>	Number of obs =	<b>35,755</b>
No. of failures =	<b>953</b>		
Time at risk =	<b>434,342.674</b>	LR chi2(9) =	<b>182.56</b>
Log likelihood =	<b>-8814.1326</b>	Prob > chi2 =	<b>0.0000</b>

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.189565</b>	.1625632	<b>10.56</b>	<b>0.000</b>	<b>1.893045</b> 2.532532
zgpr37	<b>1.023874</b>	.0411048	<b>0.59</b>	<b>0.557</b>	<b>.9463977</b> 1.107692
_infectionburXzgpr37_000	<b>1.000181</b>	.0687523	<b>0.00</b>	<b>0.998</b>	<b>.8741122</b> 1.144432
AGE	<b>1.037047</b>	.0131778	<b>2.86</b>	<b>0.004</b>	<b>1.011538</b> 1.063199
SEX	<b>.7582943</b>	.0505121	<b>-4.15</b>	<b>0.000</b>	<b>.6654828</b> .8640497
NonWhite	<b>1.118129</b>	.1902608	<b>0.66</b>	<b>0.512</b>	<b>.8010346</b> 1.560746
householdszie	<b>.9384182</b>	.0396317	<b>-1.50</b>	<b>0.132</b>	<b>.8638693</b> 1.0194
SES	<b>.8368323</b>	.0418254	<b>-3.56</b>	<b>0.000</b>	<b>.7587433</b> .9229581
LE8_TOTALSCORE	<b>.9990392</b>	.0003637	<b>-2.64</b>	<b>0.008</b>	<b>.9983265</b> .9997523

-> Model for the mediator

Iteration 0: Log likelihood = **-49083.598**  
 Iteration 1: Log likelihood = **-49083.598**

Linear regression (Maximum Likelihood)	Number of obs =	<b>35,755</b>
	Wald chi2(7) =	<b>3457.19</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

<u>zgpr37</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.1518288</b>	.0147429	<b>10.30</b>	<b>0.000</b>	<b>.1229332</b> .1807244
AGE	<b>.0074517</b>	.0009623	<b>7.74</b>	<b>0.000</b>	<b>.0055656</b> .0093377
SEX	<b>-.3339029</b>	.0102091	<b>-32.71</b>	<b>0.000</b>	<b>-.3539124</b> -.3138935
NonWhite	<b>-.1134143</b>	.0244459	<b>-4.64</b>	<b>0.000</b>	<b>-.1613273</b> -.0655013
householdszie	<b>.0051359</b>	.0046555	<b>1.10</b>	<b>0.270</b>	<b>-.0039888</b> .0142605
SES	<b>-.1225964</b>	.007666	<b>-15.99</b>	<b>0.000</b>	<b>-.1376216</b> -.1075713
LE8_TOTALSCORE	<b>-.0019041</b>	.0000544	<b>-35.01</b>	<b>0.000</b>	<b>-.0020107</b> -.0017975
_cons	<b>.9794502</b>	.0695725	<b>14.08</b>	<b>0.000</b>	<b>.8430907</b> 1.11581
<b>sigma2</b>					
_cons	<b>.9118083</b>	.0068195	<b>133.71</b>	<b>0.000</b>	<b>.8984424</b> .9251742

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.197483</b>	.1603537	<b>7.47</b>	<b>0.000</b>	.8831957 1.511771
ereri_cde	<b>1.189855</b>	.1626017	<b>7.32</b>	<b>0.000</b>	.8711615 1.508548
ereri_intref	<b>-.0002895</b>	.000181	<b>-1.60</b>	<b>0.110</b>	-.0006444 .0000653
ereri_intmed	<b>.0043292</b>	.0197488	<b>0.22</b>	<b>0.826</b>	-.0343777 .0430362
ereri_pie	<b>.0035885</b>	.0061272	<b>0.59</b>	<b>0.558</b>	-.0084206 .0155976

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zgrap2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04649 2.218 -.07578 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9064.8284

Iteration 1: Log likelihood = -8972.5716

Iteration 2: Log likelihood = -8962.9241

Iteration 3: Log likelihood = -8962.8858

Iteration 4: Log likelihood = -8962.8858

Refining estimates:

Iteration 0: Log likelihood = -8962.8858

Cox regression with Breslow method for ties

No. of subjects = 36,441 Number of obs = 36,441

No. of failures = 968

Time at risk = 442,700.115

LR chi2(9) = 203.89

Log likelihood = -8962.8858

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.284014	.1635811	11.53	0.000	1.984887 2.628221
zgrap2	.9119926	.0349152	-2.41	0.016	.8460645 .983058
_infectionburXzgrap2_000	1.019544	.0721549	0.27	0.784	.8874934 1.171243
AGE	1.033561	.0130143	2.62	0.009	1.008365 1.059386
SEX	.7516931	.0489969	-4.38	0.000	.6615422 .8541293
NonWhite	1.011586	.1789704	0.07	0.948	.715167 1.430862
householdsize	.9270395	.0398747	-1.76	0.078	.8520903 1.008581
SES	.8247037	.0407774	-3.90	0.000	.748532 .9086267
LE8_TOTALSCORE	.9989959	.000356	-2.82	0.005	.9982985 .9996939

-> Model for the mediator

Iteration 0: Log likelihood = -51601.018  
 Iteration 1: Log likelihood = -51601.018

Linear regression (Maximum Likelihood)  
 Number of obs = 36,441  
 Wald chi2(7) = 212.66  
 Log likelihood = -51601.018 Prob > chi2 = 0.0000

	zgrap2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr	-.0131596	.0152381	-0.86	0.388	-.0430257	.0167065
AGE	-.0024111	.0009952	-2.42	0.015	-.0043617	-.0004605
SEX	.0120648	.0105594	1.14	0.253	-.0086312	.0327607
NonWhite	.0375973	.0252838	1.49	0.137	-.0119581	.0871527
householdsize	-.0005457	.0048054	-0.11	0.910	-.0099642	.0088727
SES	-.0216403	.0079239	-2.73	0.006	-.0371709	-.0061097
LE8_TOTALSCORE	-.0007394	.0000563	-13.13	0.000	-.0008497	-.000629
_cons	.4963355	.0719292	6.90	0.000	.355357	.6373141
<b>sigma2</b>						
_cons	.9941708	.0073651	134.98	0.000	.9797354	1.008606

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.282659	.1628706	7.88	0.000	.9634384 1.601879
ereri_cde	1.278824	.1627524	7.86	0.000	.9598353 1.597813
ereri_intref	.0016499	.0101608	0.16	0.871	-.0182648 .0215647
ereri_intmed	.0009718	.0021775	0.45	0.655	-.003296 .0052396
ereri_pie	.001213	.0014933	0.81	0.417	-.0017137 .0041398

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zgrk5  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.18 1.531 .04648 2.218 -.07459 500.6

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -8905.4114  
 Iteration 1: Log likelihood = -8820.9791  
 Iteration 2: Log likelihood = -8813.6363  
 Iteration 3: Log likelihood = -8813.6203  
 Iteration 4: Log likelihood = -8813.6203  
 Refining estimates:  
 Iteration 0: Log likelihood = -8813.6203

Cox regression with Breslow method for ties

No. of subjects =	35,755	Number of obs =	35,755
No. of failures =	953		
Time at risk =	434,342.674	LR chi2(9) =	183.58
Log likelihood =	-8813.6203	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.199185	.1597807	10.85	0.000	1.907297 2.535744
zgrk5	.9530775	.0395201	-1.16	0.246	.8786835 1.03377
_infectionburXzgrk5_000	1.024489	.0783949	0.32	0.752	.8818052 1.190261
AGE	1.037275	.0131756	2.88	0.004	1.01177 1.063423
SEX	.7531522	.0494777	-4.32	0.000	.6621612 .8566467
NonWhite	1.112728	.1892783	0.63	0.530	.7972548 1.553034
householdsize	.9384782	.039645	-1.50	0.133	.8639051 1.019488
SES	.83402	.0414795	-3.65	0.000	.7565585 .9194126
LE8_TOTALSCORE	.9989817	.0003581	-2.84	0.004	.9982802 .9996838

-> Model for the mediator

Iteration 0: Log likelihood = -50700.977  
 Iteration 1: Log likelihood = -50700.977

Linear regression (Maximum Likelihood)

Number of obs =	35,755
Wald chi2(7) =	65.40
Prob > chi2 =	0.0000

Log likelihood = -50700.977

	zgrk5	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>-.0184246</b>	<b>.0154251</b>	<b>-1.19</b>	<b>0.232</b>	<b>-.0486573</b>
AGE		<b>-.003775</b>	<b>.0010068</b>	<b>-3.75</b>	<b>0.000</b>	<b>-.0057483</b>
SEX		<b>.0026048</b>	<b>.0106815</b>	<b>0.24</b>	<b>0.807</b>	<b>-.0183306</b>
NonWhite		<b>-.0296871</b>	<b>.0255771</b>	<b>-1.16</b>	<b>0.246</b>	<b>-.0798172</b>
householdsize		<b>-.0006429</b>	<b>.004871</b>	<b>-0.13</b>	<b>0.895</b>	<b>-.0101898</b>
SES		<b>.0037876</b>	<b>.0080208</b>	<b>0.47</b>	<b>0.637</b>	<b>-.0119329</b>
LE8_TOTALSCORE		<b>-.000399</b>	<b>.0000569</b>	<b>-7.01</b>	<b>0.000</b>	<b>-.0005105</b>
_cons		<b>.4285451</b>	<b>.0727919</b>	<b>5.89</b>	<b>0.000</b>	<b>.2858756</b>
<b>sigma2</b>						
_cons		<b>.9981463</b>	<b>.0074652</b>	<b>133.71</b>	<b>0.000</b>	<b>.9835148</b>
						<b>1.012778</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.198379</b>	<b>.1594614</b>	<b>7.52</b>	<b>0.000</b>	<b>.8858401</b>
ereri_cde	<b>1.197951</b>	<b>.1595531</b>	<b>7.51</b>	<b>0.000</b>	<b>.8852329</b>
ereri_intref	<b>-.0005388</b>	<b>.0035437</b>	<b>-0.15</b>	<b>0.879</b>	<b>-.0074845</b>
ereri_intmed	<b>.0000806</b>	<b>.0027152</b>	<b>0.03</b>	<b>0.976</b>	<b>-.0052412</b>
ereri_pie	<b>.0008859</b>	<b>.0010655</b>	<b>0.83</b>	<b>0.406</b>	<b>-.0012024</b>

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zgrn
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04643 2.215 -.07512 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9077.2079**  
 Iteration 1: Log likelihood = **-8986.7157**  
 Iteration 2: Log likelihood = **-8978.1792**  
 Iteration 3: Log likelihood = **-8978.1579**  
 Iteration 4: Log likelihood = **-8978.1579**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8978.1579**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,288</b>	Number of obs =	<b>36,288</b>
No. of failures =	<b>970</b>		
Time at risk =	<b>440,710.653</b>	LR chi2(9) =	<b>198.10</b>
Log likelihood =	<b>-8978.1579</b>	Prob > chi2 =	<b>0.0000</b>

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.247228</b>	.1620047	11.23	<b>0.000</b>	<b>1.951117</b> <b>2.588279</b>
zgrn	<b>.9491946</b>	.0380388	-1.30	<b>0.193</b>	<b>.8774928</b> <b>1.026755</b>
_infectionburXzgrn_000	<b>1.060625</b>	.0740351	0.84	<b>0.399</b>	<b>.9250077</b> <b>1.216126</b>
AGE	<b>1.037193</b>	.0130912	2.89	<b>0.004</b>	<b>1.01185</b> <b>1.063172</b>
SEX	<b>.7544307</b>	.0495239	-4.29	<b>0.000</b>	<b>.6633504</b> <b>.8580166</b>
NonWhite	<b>1.096105</b>	.1865002	0.54	<b>0.590</b>	<b>.7852748</b> <b>1.529968</b>
householdszie	<b>.9360414</b>	.0395128	-1.57	<b>0.117</b>	<b>.8617148</b> <b>1.016779</b>
SES	<b>.8195105</b>	.0404383	-4.03	<b>0.000</b>	<b>.743965</b> <b>.9027273</b>
LE8_TOTALSCORE	<b>.9989908</b>	.0003583	-2.81	<b>0.005</b>	<b>.9982887</b> <b>.9996934</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50587.416**  
 Iteration 1: Log likelihood = **-50587.416**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,288</b>
	Wald chi2(7) =	<b>1850.70</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

<u>zgrn</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.12524</b>	.0149435	8.38	<b>0.000</b>	<b>.0959513</b> <b>.1545288</b>
AGE	<b>.0106674</b>	.000978	10.91	<b>0.000</b>	<b>.0087506</b> <b>.0125842</b>
SEX	<b>.2182738</b>	.010354	21.08	<b>0.000</b>	<b>.1979802</b> <b>.2385673</b>
NonWhite	<b>.167962</b>	.0248107	6.77	<b>0.000</b>	<b>.1193339</b> <b>.2165901</b>
householdszie	<b>-.0052019</b>	.0049185	-1.06	<b>0.290</b>	<b>-.0148419</b> <b>.0044381</b>
SES	<b>-.0894376</b>	.0077757	-11.50	<b>0.000</b>	<b>-.1046777</b> <b>-.0741976</b>
LE8_TOTALSCORE	<b>-.0015012</b>	.0000551	-27.23	<b>0.000</b>	<b>-.0016093</b> <b>-.0013932</b>
_cons	<b>-.245262</b>	.0709193	-3.46	<b>0.001</b>	<b>-.3842612</b> <b>-.1062627</b>
<b>sigma2</b>					
_cons	<b>.9514483</b>	.0070635	134.70	<b>0.000</b>	<b>.9376041</b> <b>.9652925</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.243962</b>	.1606872	7.74	<b>0.000</b>	.9290207 1.558903
ereri_cde	<b>1.244487</b>	.1616849	7.70	<b>0.000</b>	.92759 1.561383
ereri_intref	<b>-.0024118</b>	.0030317	-0.80	0.426	-.0083539 .0035303
ereri_intmed	<b>.0083959</b>	.0169595	0.50	0.621	-.0248441 .0416358
ereri_pie	<b>-.0065089</b>	.005046	-1.29	0.197	-.016399 .0033811

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zgrpell
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04658 2.216 -.07524 500.8

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9057.6167

Iteration 1: Log likelihood = -8968.7039

Iteration 2: Log likelihood = -8960.052

Iteration 3: Log likelihood = -8960.028

Iteration 4: Log likelihood = -8960.028

Refining estimates:

Iteration 0: Log likelihood = -8960.028

Cox regression with Breslow method for ties

No. of subjects = 36,264 Number of obs = 36,264

No. of failures = 968

Time at risk = 440,524.906

Log likelihood = -8960.028

LR chi2(9) = 195.18

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.254087	.161817	11.32	0.000	1.958233 2.594639
zgrpel1		.9462643	.0391586	-1.33	0.182	.8725449 1.026212
_infectionburXzgrpel1_000		1.061717	.0783163	0.81	0.417	.9187993 1.226864
AGE		1.031994	.0129979	2.50	0.012	1.006831 1.057787
SEX		.7499567	.0488608	-4.42	0.000	.6600534 .8521053
NonWhite		1.084572	.1844928	0.48	0.633	.7770758 1.513747
householdsize		.9360527	.0393261	-1.57	0.116	.862063 1.016393
SES		.8158475	.0402566	-4.12	0.000	.7406413 .8986902
LE8_TOTALSCORE		.9990162	.0003574	-2.75	0.006	.9983159 .999717

-> Model for the mediator

Iteration 0: Log likelihood = -50878.909  
 Iteration 1: Log likelihood = -50878.909

Linear regression (Maximum Likelihood) Number of obs = 36,264  
 Wald chi2(7) = 1172.51  
 Prob > chi2 = 0.0000  
 Log likelihood = -50878.909

	zgrpel1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.1121472	.0150831	7.44	0.000	.0825848 .1417095
AGE		.0014931	.0009849	1.52	0.130	-.0004372 .0034235
SEX		-.083932	.0104479	-8.03	0.000	-.1044095 -.0634545
NonWhite		-.0506148	.0250002	-2.02	0.043	-.0996143 -.0016153
householdsize		-.0132497	.0047516	-2.79	0.005	-.0225626 -.0039367
SES		-.0581461	.0078358	-7.42	0.000	-.073504 -.0427881
LE8_TOTALSCORE		-.0015158	.0000556	-27.24	0.000	-.0016249 -.0014068
_cons		.8095058	.0711796	11.37	0.000	.6699962 .9490153
<b>sigma2</b>						
_cons		.9686533	.0071936	134.66	0.000	.9545541 .9827524

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.249857	.1611139	7.76	0.000	.9340799 1.565635
ereri_cde	1.251158	.1614233	7.75	0.000	.9347742 1.567542
ereri_intref	-.0024746	.0032445	-0.76	0.446	-.0088337 .0038845
ereri_intmed	.007349	.0161533	0.45	0.649	-.0243109 .0390089
ereri_pie	-.0061751	.004686	-1.32	0.188	-.0153595 .0030092

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```

Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zgsap
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

Model for the outcome (yreg): cox
Model for the mediator (mreg): linear

Referent exposure level (a0):          0
Actual exposure level (a1):           1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c):    60.19 1.531 .04669 2.217 -.07551 500.6

```

-> Model for the outcome

```

Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid

```

```

Iteration 0: Log likelihood = -8882.1967
Iteration 1: Log likelihood = -8796.9883
Iteration 2: Log likelihood = -8788.5839
Iteration 3: Log likelihood = -8788.5619
Iteration 4: Log likelihood = -8788.5619
Refining estimates:
Iteration 0: Log likelihood = -8788.5619

```

Cox regression with Breslow method for ties

No. of subjects =	35,573	Number of obs =	35,573
No. of failures =	951		
Time at risk =	432,088.637	LR chi2(9) =	187.27
Log likelihood =	-8788.5619	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.244868	.1626001	11.16	0.000	1.947765 2.587289
zgsap	.9829216	.0393304	-0.43	0.667	.9087807 1.063111
_infectionburXzgsap_000	.965076	.0752956	-0.46	0.649	.828229 1.124534
AGE	1.037533	.0131961	2.90	0.004	1.011989 1.063722
SEX	.7459216	.049064	-4.46	0.000	.6556985 .8485592
NonWhite	1.109561	.1887695	0.61	0.541	.794944 1.548696
householdsize	.9395325	.0396056	-1.48	0.139	.8650273 1.020455
SES	.8290889	.0413515	-3.76	0.000	.7518768 .9142302
LE8_TOTALSCORE	.9992181	.0003588	-2.18	0.029	.9985152 .9999215

-> Model for the mediator

Iteration 0: Log likelihood = -50451.466	Number of obs = 35,573
Iteration 1: Log likelihood = -50451.466	Wald chi2(7) = 47.90
Log likelihood = -50451.466	Prob > chi2 = 0.0000

	zgsap	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		-.0163575	.01548	-1.06	0.291	-.0466977 .0139827
AGE		-.0055668	.0010094	-5.51	0.000	-.0075452 -.0035884
SEX		.0268232	.0107113	2.50	0.012	.0058294 .0478169
NonWhite		-.0250868	.025599	-0.98	0.327	-.07526 .0250864
householdsize		.0004581	.0048751	0.09	0.925	-.0090969 .0100131
SES		.0001535	.0080338	0.02	0.985	-.0155924 .0158994
LE8_TOTALSCORE		-.0001425	.000057	-2.50	0.012	-.0002543 -.0000307
_cons		.3677867	.0729519	5.04	0.000	.2248035 .5107699
<b>sigma2</b>						
_cons		.9986272	.0074879	133.37	0.000	.9839513 1.013303

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.249419	.1624568	7.69	0.000	.9310092 1.567828
ereri_cde	1.244732	.1625637	7.66	0.000	.9261131 1.563351
ereri_intref	.0027456	.0076251	0.36	0.719	-.0121993 .0176904
ereri_intmed	.0016592	.0029944	0.55	0.580	-.0042097 .007528
ereri_pie	.0002818	.000707	0.40	0.690	-.0011038 .0016674

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zgsta1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04653 2.218 -.07575 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9043.3766**  
 Iteration 1: Log likelihood = **-8942.5101**  
 Iteration 2: Log likelihood = **-8928.6012**  
 Iteration 3: Log likelihood = **-8928.4768**  
 Iteration 4: Log likelihood = **-8928.4768**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8928.4768**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,382</b>	Number of obs =	<b>36,382</b>
No. of failures =	<b>966</b>		
Time at risk =	<b>441,961.344</b>	LR chi2(9) =	<b>229.80</b>
Log likelihood =	<b>-8928.4768</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.296955</b>	.1646238	<b>11.60</b>	<b>0.000</b>	<b>1.995935</b> <b>2.643373</b>
_zgsta1		<b>.8158396</b>	.0349121	<b>-4.76</b>	<b>0.000</b>	<b>.7502041</b> <b>.8872175</b>
_infectionburXzgsta1_000		<b>.9986697</b>	.0753693	<b>-0.02</b>	<b>0.986</b>	<b>.8613546</b> <b>1.157875</b>
AGE		<b>1.034001</b>	.0130531	<b>2.65</b>	<b>0.008</b>	<b>1.008731</b> <b>1.059904</b>
SEX		<b>.7293836</b>	.047706	<b>-4.82</b>	<b>0.000</b>	<b>.6416267</b> <b>.8291432</b>
NonWhite		<b>1.014404</b>	.1794135	<b>0.08</b>	<b>0.936</b>	<b>.7172363</b> <b>1.434694</b>
householdszie		<b>.9304348</b>	.0398949	<b>-1.68</b>	<b>0.093</b>	<b>.8554376</b> <b>1.012007</b>
SES		<b>.8291834</b>	.0410205	<b>-3.79</b>	<b>0.000</b>	<b>.7525594</b> <b>.9136091</b>
LE8_TOTALSCORE		<b>.9985225</b>	.0003682	<b>-4.01</b>	<b>0.000</b>	<b>.9978012</b> <b>.9992444</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-49584.991**  
 Iteration 1: Log likelihood = **-49584.991**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,382</b>
	Wald chi2(7) =	<b>4313.83</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	zgsta1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.0417119</b>	.0144569	<b>2.89</b>	<b>0.004</b>	<b>.0133769</b> <b>.0700469</b>
AGE		<b>.0019476</b>	.0009446	<b>2.06</b>	<b>0.039</b>	<b>.0000963</b> <b>.003799</b>
SEX		<b>-.2101898</b>	.0100211	<b>-20.97</b>	<b>0.000</b>	<b>-.2298308</b> <b>-.1905487</b>
NonWhite		<b>.0880265</b>	.0239836	<b>3.67</b>	<b>0.000</b>	<b>.0410195</b> <b>.1350336</b>
householdszie		<b>.0036517</b>	.0045588	<b>0.80</b>	<b>0.423</b>	<b>-.0052835</b> <b>.0125868</b>
SES		<b>-.0065581</b>	.0075203	<b>-0.87</b>	<b>0.383</b>	<b>-.0212976</b> <b>.0081814</b>
LE8_TOTALSCORE		<b>-.0030991</b>	.0000534	<b>-58.00</b>	<b>0.000</b>	<b>-.0032038</b> <b>-.0029944</b>
_cons		<b>1.737201</b>	.0682573	<b>25.45</b>	<b>0.000</b>	<b>1.603419</b> <b>1.870983</b>
<b>sigma2</b>						
_cons		<b>.8939736</b>	.0066282	<b>134.87</b>	<b>0.000</b>	<b>.8809825</b> <b>.9069646</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.277981</b>	.1633518	7.82	<b>0.000</b>	.9578175 1.598145
ereri_cde	<b>1.271657</b>	.1611957	7.89	<b>0.000</b>	.9557193 1.587595
ereri_intref	<b>.0258739</b>	.028505	0.91	0.364	-.0299949 .0817427
ereri_intmed	<b>-.0110958</b>	.0075814	-1.46	0.143	-.025955 .0037634
ereri_pie	<b>-.008454</b>	.0034125	-2.48	0.013	-.0151424 -.0017656

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zgsta3
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04669 2.217 -.07551 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -8882.1967

Iteration 1: Log likelihood = -8783.9572

Iteration 2: Log likelihood = -8772.2668

Iteration 3: Log likelihood = -8772.1858

Iteration 4: Log likelihood = -8772.1858

Refining estimates:

Iteration 0: Log likelihood = -8772.1858

Cox regression with Breslow method for ties

No. of subjects = 35,573 Number of obs = 35,573

No. of failures = 951

Time at risk = 432,088.637

LR chi2(9) = 220.02

Log likelihood = -8772.1858

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.266226	.1645415	11.27	0.000	1.965626 2.612796
zgsta3	.8042344	.0349738	-5.01	0.000	.738527 .8757879
_infectionburXzgsta3_000	1.03862	.0804398	0.49	0.625	.8923436 1.208874
AGE	1.036647	.0131777	2.83	0.005	1.011139 1.062799
SEX	.7335794	.0483073	-4.70	0.000	.6447542 .8346417
NonWhite	1.097636	.1866931	0.55	0.584	.7864669 1.531921
householdsize	.9426535	.0394293	-1.41	0.158	.8684563 1.02319
SES	.8292489	.0412897	-3.76	0.000	.752146 .9142557
LE8_TOTALSCORE	.9987228	.0003689	-3.46	0.001	.998 .9994462

-> Model for the mediator

Iteration 0: Log likelihood = -48960.11  
 Iteration 1: Log likelihood = -48960.11

Linear regression (Maximum Likelihood)  
 Number of obs = 35,573  
 Wald chi2(7) = 3163.42  
 Log likelihood = -48960.11 Prob > chi2 = 0.0000

zgsta3	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	.0358671	.0148444	2.42	0.016	.0067726 .0649616
AGE	.0009961	.000968	1.03	0.303	-.0009011 .0028933
SEX	-.14441	.0102715	-14.06	0.000	-.1645418 -.1242781
NonWhite	.0111717	.024548	0.46	0.649	-.0369415 .0592849
householdsize	.0040726	.0046749	0.87	0.384	-.0050901 .0132353
SES	.0036877	.0077039	0.48	0.632	-.0114117 .0187872
LE8_TOTALSCORE	-.0028241	.0000547	-51.63	0.000	-.0029313 -.0027169
_cons	1.560695	.0699567	22.31	0.000	1.423583 1.697808
<b>sigma2</b>					
_cons	.9183089	.0068856	133.37	0.000	.9048133 .9318045

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.235692	.1620421	7.63	0.000	.9180949 1.553288
ereri_cde	1.237587	.1604208	7.71	0.000	.9231682 1.552006
ereri_intref	.0125825	.0262528	0.48	0.632	-.038872 .064037
ereri_intmed	-.0066945	.0062527	-1.07	0.284	-.0189495 .0055605
ereri_pie	-.0077837	.0035626	-2.18	0.029	-.0147663 -.0008011

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zgstp1  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.18 1.531 .04694 2.214 -.07473 500.4

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -8735.8324  
 Iteration 1: Log likelihood = -8650.745  
 Iteration 2: Log likelihood = -8642.9672  
 Iteration 3: Log likelihood = -8642.9445  
 Iteration 4: Log likelihood = -8642.9445  
 Refining estimates:  
 Iteration 0: Log likelihood = -8642.9445

Cox regression with Breslow method for ties

No. of subjects =	35,366	Number of obs =	35,366
No. of failures =	934		
Time at risk =	429,545.607	LR chi2(9) =	185.78
Log likelihood =	-8642.9445	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.206686	.1616367	10.81	0.000	1.911574 2.547357
zgstp1	.9489621	.0380675	-1.31	0.192	.8772088 1.026585
_infectionburXzgstp1_000	1.010673	.0749767	0.14	0.886	.8739057 1.168846
AGE	1.037209	.013267	2.86	0.004	1.011529 1.063541
SEX	.7464596	.0495605	-4.40	0.000	.6553776 .8501999
NonWhite	1.102062	.189938	0.56	0.573	.7861457 1.544929
householdsize	.9218338	.0404787	-1.85	0.064	.8458152 1.004685
SES	.814984	.0408909	-4.08	0.000	.7386539 .8992018
LE8_TOTALSCORE	.9991931	.0003621	-2.23	0.026	.9984838 .999903

-> Model for the mediator

Iteration 0: Log likelihood = -50162.626	Number of obs = 35,366
Iteration 1: Log likelihood = -50162.626	Wald chi2(7) = 38.13
Log likelihood = -50162.626	Prob > chi2 = 0.0000

	zgstp1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		-.0258267	.0155105	-1.67	0.096	-.0562266 .0045733
AGE		.0018373	.0010156	1.81	0.070	-.0001533 .003828
SEX		.0081409	.0107446	0.76	0.449	-.0129182 .0291999
NonWhite		-.0117755	.0256218	-0.46	0.646	-.0619932 .0384422
householdsize		-.0094885	.0050918	-1.86	0.062	-.0194684 .0004913
SES		.0025839	.0080734	0.32	0.749	-.0132398 .0184075
LE8_TOTALSCORE		.000273	.0000573	4.77	0.000	.0001608 .0003852
_cons		-.2342993	.0736119	-3.18	0.001	-.3785759 -.0900227
<b>sigma2</b>						
_cons		.9988948	.0075118	132.98	0.000	.984172 1.013618

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.208049	.1615716	7.48	0.000	.8913744 1.524724
ereri_cde	1.205259	.1614079	7.47	0.000	.8889056 1.521613
ereri_intref	.0004089	.0056029	0.07	0.942	-.0105725 .0113904
ereri_intmed	.0010268	.003761	0.27	0.785	-.0063447 .0083983
ereri_pie	.0013539	.0013184	1.03	0.304	-.0012302 .003938

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zguca2a
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04637 2.215 -.07488 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9052.4135**  
 Iteration 1: Log likelihood = **-8963.3292**  
 Iteration 2: Log likelihood = **-8949.0587**  
 Iteration 3: Log likelihood = **-8948.7256**  
 Iteration 4: Log likelihood = **-8948.7251**  
 Iteration 5: Log likelihood = **-8948.7251**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8948.7251**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,275</b>	Number of obs =	<b>36,275</b>
No. of failures =	<b>967</b>		
Time at risk =	<b>440,630.458</b>	LR chi2(9) =	<b>207.38</b>
Log likelihood =	<b>-8948.7251</b>	Prob > chi2 =	<b>0.0000</b>

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.208135</b>	<b>.1633924</b>	<b>10.71</b>	<b>0.000</b>	<b>1.910031</b> <b>2.552765</b>
zguca2a		<b>1.12858</b>	<b>.0430344</b>	<b>3.17</b>	<b>0.002</b>	<b>1.047309</b> <b>1.216158</b>
_infectionburXzguca2a_000		<b>.9962688</b>	<b>.0619174</b>	<b>-0.06</b>	<b>0.952</b>	<b>.8820129</b> <b>1.125325</b>
AGE		<b>1.030493</b>	<b>.0130214</b>	<b>2.38</b>	<b>0.017</b>	<b>1.005285</b> <b>1.056333</b>
SEX		<b>.7426461</b>	<b>.0484907</b>	<b>-4.56</b>	<b>0.000</b>	<b>.6534362</b> <b>.8440354</b>
NonWhite		<b>1.087429</b>	<b>.1849871</b>	<b>0.49</b>	<b>0.622</b>	<b>.7791113</b> <b>1.517758</b>
householdsize		<b>.9384968</b>	<b>.039502</b>	<b>-1.51</b>	<b>0.132</b>	<b>.8641818</b> <b>1.019203</b>
SES		<b>.8282627</b>	<b>.040835</b>	<b>-3.82</b>	<b>0.000</b>	<b>.7519728</b> <b>.9122924</b>
LE8_TOTALSCORE		<b>.9988964</b>	<b>.0003546</b>	<b>-3.11</b>	<b>0.002</b>	<b>.9982016</b> <b>.9995916</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50730.364**  
 Iteration 1: Log likelihood = **-50730.364**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,275</b>
	Wald chi2(7) =	<b>1512.96</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	zguca2a	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.1327525</b>	<b>.0150039</b>	<b>8.85</b>	<b>0.000</b>	<b>.1033455</b> <b>.1621596</b>
AGE		<b>.0274228</b>	<b>.0009824</b>	<b>27.91</b>	<b>0.000</b>	<b>.0254973</b> <b>.0293483</b>
SEX		<b>.1221983</b>	<b>.0104022</b>	<b>11.75</b>	<b>0.000</b>	<b>.1018103</b> <b>.1425863</b>
NonWhite		<b>.0171897</b>	<b>.0249387</b>	<b>0.69</b>	<b>0.491</b>	<b>-.0316892</b> <b>.0660685</b>
householdsize		<b>-.0225758</b>	<b>.0049399</b>	<b>-4.57</b>	<b>0.000</b>	<b>-.0322578</b> <b>-.0128938</b>
SES		<b>-.0217586</b>	<b>.0078144</b>	<b>-2.78</b>	<b>0.005</b>	<b>-.0370747</b> <b>-.0064426</b>
LE8_TOTALSCORE		<b>.0009841</b>	<b>.0000554</b>	<b>17.78</b>	<b>0.000</b>	<b>.0008756</b> <b>.0010926</b>
_cons		<b>-2.301096</b>	<b>.0712441</b>	<b>-32.30</b>	<b>0.000</b>	<b>-2.440732</b> <b>-2.16146</b>
<b>sigma2</b>						
_cons		<b>.9599353</b>	<b>.0071278</b>	<b>134.68</b>	<b>0.000</b>	<b>.9459651</b> <b>.9739054</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.241962</b>	.1613405	<b>7.70</b>	<b>0.000</b>	.9257402 1.558183
ereri_cde	<b>1.202363</b>	.1622278	<b>7.41</b>	<b>0.000</b>	.8844022 1.520323
ereri_intref	<b>.0049807</b>	.0107526	<b>0.46</b>	<b>0.643</b>	-.016094 .0260554
ereri_intmed	<b>.0184309</b>	.0154247	<b>1.19</b>	<b>0.232</b>	-.0118009 .0486626
ereri_pie	<b>.0161874</b>	.0054646	<b>2.96</b>	<b>0.003</b>	.005477 .0268978

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zgusb
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04657 2.216 -.07545 500.4

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9113.4963

Iteration 1: Log likelihood = -9015.794

Iteration 2: Log likelihood = -9006.8881

Iteration 3: Log likelihood = -9006.8579

Iteration 4: Log likelihood = -9006.8579

Refining estimates:

Iteration 0: Log likelihood = -9006.8579

Cox regression with Breslow method for ties

No. of subjects = 36,613 Number of obs = 36,613

No. of failures = 973

Time at risk = 444,777.535

LR chi2(9) = 213.28

Log likelihood = -9006.8579

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.257767</b>	.1612952	<b>11.40</b>	<b>0.000</b>	<b>1.962769</b> <b>2.597102</b>
zgusb	<b>.8527077</b>	.0361562	-3.76	0.000	<b>.7847076</b> .9266005
_infectionburXzgusb_000	<b>1.008303</b>	.071625	0.12	0.907	.8772548    1.158927
AGE	<b>1.033336</b>	.0130067	2.61	0.009	<b>1.008155</b> 1.059145
SEX	<b>.6914103</b>	.0465251	-5.48	0.000	.6059801    .7888842
NonWhite	<b>1.045122</b>	.1800111	0.26	0.798	.7456873    1.464797
householdsize	<b>.9379695</b>	.0392083	-1.53	0.126	.8641865    1.018052
SES	<b>.8106662</b>	.0398822	-4.27	0.000	.7361488    .8927266
LE8_TOTALSCORE	<b>.9985943</b>	.0003719	-3.78	0.000	.9978656    .9993234

-> Model for the mediator

Iteration 0: Log likelihood = **-48002.273**  
 Iteration 1: Log likelihood = **-48002.273**

Linear regression (Maximum Likelihood)                          Number of obs = **36,613**  
     Wald chi2(7) = **8814.13**  
 Log likelihood = **-48002.273**                                      Prob > chi2 = **0.0000**

	zgusb	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.062703</b>	.0136884	<b>4.58</b>	<b>0.000</b>	<b>.0358741</b> <b>.0895318</b>
AGE		<b>-.0030462</b>	.0008935	-3.41	0.001	-.0047975    -.0012949
SEX		<b>-.5276742</b>	.0094855	-55.63	0.000	-.5462655    -.5090829
NonWhite		<b>-.0239301</b>	.0226937	-1.05	0.292	-.0684089    .0205487
householdsize		<b>-.0031231</b>	.0043189	-0.72	0.470	-.011588    .0053419
SES		<b>-.0560091</b>	.0071175	-7.87	0.000	-.0699592    -.042059
LE8_TOTALSCORE		<b>-.0033791</b>	.0000505	-66.87	0.000	-.0034781    -.00328
_cons		<b>2.677307</b>	.0645889	41.45	0.000	2.550715    2.803899
<b>sigma2</b>						
_cons		<b>.8059501</b>	.0059567	<b>135.30</b>	<b>0.000</b>	<b>.7942752</b> <b>.8176251</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.234008</b>	.1601821	<b>7.70</b>	<b>0.000</b>	<b>.9200569</b> <b>1.547959</b>
ereri_cde	<b>1.243237</b>	.159449	<b>7.80</b>	<b>0.000</b>	<b>.9307225</b> <b>1.555751</b>
ereri_intref	<b>.0120335</b>	.018376	<b>0.65</b>	0.513	-.0239829    .0480499
ereri_intmed	<b>-.011321</b>	.0093086	-1.22	0.224	-.0295655    .0069235
ereri_pie	<b>-.0099412</b>	.0034047	-2.92	0.004	-.0166143    -.0032682

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zgys1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

Model for the outcome (yreg): cox
Model for the mediator (mreg): linear

Referent exposure level (a0):      0
Actual exposure level (a1):       1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c): 60.18 1.531 .04648 2.218 -.07459 500.6
```

-> Model for the outcome

```
Failure _d: dem_diag==1  
Analysis time _t: Age_dementia  
Enter on or after: time baselineage  
ID variable: n_eid
```

```
Iteration 0: Log likelihood = -8905.4114  
Iteration 1: Log likelihood = -8821.4965  
Iteration 2: Log likelihood = -8812.8474  
Iteration 3: Log likelihood = -8812.8063  
Iteration 4: Log likelihood = -8812.8063  
Refining estimates:  
Iteration 0: Log likelihood = -8812.8063
```

## Cox regression with Breslow method for ties

No. of subjects = 35,755 Number of obs = 35,755  
 No. of failures = 953  
 Time at risk = 434,342.674 LR chi2(9) = 185.21  
 Log likelihood = -8812.8063 Prob > chi2 = 0.0000

-> Model for the mediator

```
Iteration 0: Log likelihood = -50592.662  
Iteration 1: Log likelihood = -50592.662
```

Linear regression (Maximum Likelihood) Number of obs = 35,755  
Log likelihood = -50592.662 Wald chi2(7) = 283.09  
Prob > chi2 = 0.0000

	zgys1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		-.005799	.0153785	-0.38	0.706	-.0359403 .0243422
AGE		-.0028468	.0010038	-2.84	0.005	-.0048141 -.0008795
SEX		-.0204246	.0106492	-1.92	0.055	-.0412967 .0004475
NonWhite		.1253382	.0254997	4.92	0.000	.0753597 .1753166
householdsize		-.0020382	.0048562	-0.42	0.675	-.0115562 .0074798
SES		-.0416099	.0079965	-5.20	0.000	-.0572827 -.025937
LE8_TOTALSCORE		-.0007308	.0000567	-12.88	0.000	-.000842 -.0006196
_cons		.5648085	.0725717	7.78	0.000	.4225706 .7070463
<b>sigma2</b>						
_cons		.9921171	.0074201	133.71	0.000	.9775739 1.00666

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.197653	.159381	7.51	0.000	.8852717 1.510034
ereri_cde	1.186039	.1590795	7.46	0.000	.8742485 1.497829
ereri_intref	.0103393	.0134351	0.77	0.442	-.0159931 .0366717
ereri_intmed	.0011127	.0030648	0.36	0.717	-.0048943 .0071197
ereri_pie	.000162	.0004855	0.33	0.739	-.0007895 .0011135

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zgzma
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .0466 2.218 -.07544 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9166.3755  
 Iteration 1: Log likelihood = -9070.8565  
 Iteration 2: Log likelihood = -9059.713  
 Iteration 3: Log likelihood = -9059.639  
 Iteration 4: Log likelihood = -9059.639  
 Refining estimates:  
 Iteration 0: Log likelihood = -9059.639

Cox regression with Breslow method for ties

No. of subjects =	<b>36,824</b>	Number of obs =	<b>36,824</b>
No. of failures =	<b>978</b>		
Time at risk =	<b>447,356.911</b>	LR chi2(9) =	<b>213.47</b>
Log likelihood =	<b>-9059.639</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.28862</b>	.1626957	<b>11.65</b>	<b>0.000</b>	<b>1.99096</b> <b>2.630781</b>
zgzma		<b>.8780254</b>	.0349007	-3.27	<b>0.001</b>	<b>.812218</b> <b>.9491647</b>
_infectionburXzgzma_000		<b>1.026653</b>	.0713594	<b>0.38</b>	<b>0.705</b>	<b>.8959</b> <b>1.17649</b>
AGE		<b>1.036676</b>	.012989	<b>2.87</b>	<b>0.004</b>	<b>1.011528</b> <b>1.06245</b>
SEX		<b>.783007</b>	.0513655	-3.73	<b>0.000</b>	<b>.6885358</b> <b>.8904402</b>
NonWhite		<b>1.062415</b>	.1829163	<b>0.35</b>	<b>0.725</b>	<b>.7581281</b> <b>1.488832</b>
householdszie		<b>.940366</b>	.0391302	-1.48	<b>0.140</b>	<b>.8667163</b> <b>1.020274</b>
SES		<b>.8107778</b>	.0398159	-4.27	<b>0.000</b>	<b>.736378</b> <b>.8926945</b>
LE8_TOTALSCORE		<b>.9989143</b>	.000356	-3.05	<b>0.002</b>	<b>.9982168</b> <b>.9996122</b>

-> Model for the mediator

Iteration 0: Log likelihood = -51474.428  
 Iteration 1: Log likelihood = -51474.428

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,824</b>	
	Wald chi2(7) =	<b>1585.31</b>	
Log likelihood =	<b>-51474.428</b>	Prob > chi2 =	<b>0.0000</b>

	zgzma	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.0469677</b>	.014898	<b>3.15</b>	<b>0.002</b>	<b>.0177681</b> <b>.0761673</b>
AGE		<b>.0121683</b>	.0009717	<b>12.52</b>	<b>0.000</b>	<b>.0102638</b> <b>.0140728</b>
SEX		<b>.2785637</b>	.0103157	<b>27.00</b>	<b>0.000</b>	<b>.2583453</b> <b>.298782</b>
NonWhite		<b>.13314</b>	.0246765	<b>5.40</b>	<b>0.000</b>	<b>.084775</b> <b>.181505</b>
householdszie		<b>.0164774</b>	.0047029	<b>3.50</b>	<b>0.000</b>	<b>.0072599</b> <b>.025695</b>
SES		<b>-.0485195</b>	.0077354	-6.27	<b>0.000</b>	<b>-.0636807</b> <b>-.0333584</b>
LE8_TOTALSCORE		<b>-.0013238</b>	.0000549	-24.11	<b>0.000</b>	<b>-.0014314</b> <b>-.0012162</b>
_cons		<b>-.5490453</b>	.07024	-7.82	<b>0.000</b>	<b>-.6867132</b> <b>-.4113773</b>
<b>sigma2</b>						
_cons		<b>.9587</b>	.0070653	<b>135.69</b>	<b>0.000</b>	<b>.9448522</b> <b>.9725478</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.270397</b>	.1615274	7.86	<b>0.000</b>	.953809 1.586985
ereri_cde	<b>1.277127</b>	.1611455	7.93	<b>0.000</b>	.9612876 1.592966
ereri_intref	<b>.0043631</b>	.0148598	0.29	<b>0.769</b>	-.0247615 .0334878
ereri_intmed	<b>-.0050022</b>	.0067074	-0.75	<b>0.456</b>	-.0181485 .0081441
ereri_pie	<b>-.0060909</b>	.0026745	-2.28	<b>0.023</b>	-.0113329 -.000849

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zgzmb
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04646 2.216 -.07503 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9036.4379**

Iteration 1: Log likelihood = **-8946.1375**

Iteration 2: Log likelihood = **-8937.1848**

Iteration 3: Log likelihood = **-8937.1578**

Iteration 4: Log likelihood = **-8937.1578**

Refining estimates:

Iteration 0: Log likelihood = **-8937.1578**

Cox regression with Breslow method for ties

No. of subjects = 36,352 Number of obs = 36,352

No. of failures = 965

Time at risk = 441,650.762

Log likelihood = **-8937.1578**

LR chi2(9) = 198.56

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.244107</b>	.1610758	11.26	<b>0.000</b>	<b>1.949606</b> 2.583096
zgzmb	<b>.9190358</b>	.037995	-2.04	<b>0.041</b>	<b>.8475042</b> .9966049
_infectionburXzgzmb_000	<b>1.014774</b>	.0752005	0.20	<b>0.843</b>	<b>.8775874</b> 1.173405
AGE	<b>1.033325</b>	.0130213	2.60	<b>0.009</b>	<b>1.008116</b> 1.059164
SEX	<b>.741304</b>	.0488902	-4.54	<b>0.000</b>	<b>.6514157</b> .8435958
NonWhite	<b>1.062222</b>	.1830618	0.35	<b>0.726</b>	<b>.7577406</b> 1.489053
householdsize	<b>.934335</b>	.0397118	-1.60	<b>0.110</b>	<b>.8596551</b> 1.015503
SES	<b>.8228416</b>	.040675	-3.94	<b>0.000</b>	<b>.7468602</b> .906553
LE8_TOTALSCORE	<b>.9989867</b>	.0003555	-2.85	<b>0.004</b>	<b>.9982901</b> .9996838

-> Model for the mediator

Iteration 0: Log likelihood = **-50950.853**  
 Iteration 1: Log likelihood = **-50950.853**

Linear regression (Maximum Likelihood)                          Number of obs = **36,352**  
     Wald chi2(7) = **1281.88**  
 Log likelihood = **-50950.853**                                      Prob > chi2 = **0.0000**

zgzmb	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>-.0812563</b>	.0150558	-5.40	<b>0.000</b>	<b>-.1107652</b> -.0517475
AGE	<b>.0093476</b>	.0009828	9.51	<b>0.000</b>	<b>.0074214</b> .0112739
SEX	<b>-.3317435</b>	.0104205	-31.84	<b>0.000</b>	<b>-.3521672</b> -.3113197
NonWhite	<b>.0842448</b>	.024971	3.37	<b>0.001</b>	<b>.0353026</b> .1331869
householdsize	<b>.0004519</b>	.0048229	0.09	<b>0.925</b>	<b>-.0090008</b> .0099046
SES	<b>.0480854</b>	.0078159	6.15	<b>0.000</b>	<b>.0327666</b> .0634042
LE8_TOTALSCORE	<b>-.0003268</b>	.0000555	-5.89	<b>0.000</b>	<b>-.0004356</b> -.0002181
_cons	<b>.1189355</b>	.0710972	1.67	<b>0.094</b>	<b>-.0204125</b> .2582834
<b>sigma2</b>					
_cons	<b>.9659114</b>	.0071645	134.82	<b>0.000</b>	<b>.9518692</b> .9799537

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.254774</b>	.1617271	7.76	<b>0.000</b>	<b>.9377946</b> 1.571753
ereri_cde	<b>1.241011</b>	.1607015	7.72	<b>0.000</b>	<b>.9260421</b> 1.55598
ereri_intref	<b>.0010169</b>	.0082894	0.12	<b>0.902</b>	<b>-.0152301</b> .0172639
ereri_intmed	<b>.0058616</b>	.0118872	0.49	<b>0.622</b>	<b>-.0174369</b> .0291601
ereri_pie	<b>.0068841</b>	.0036165	1.90	<b>0.057</b>	<b>-.0002041</b> .0139723

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```

Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zgzmh
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

Model for the outcome (yreg): cox
Model for the mediator (mreg): linear

Referent exposure level (a0):          0
Actual exposure level (a1):           1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c):    60.18 1.531 .04648 2.218 -.07459 500.6

```

-> Model for the outcome

```

Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid

Iteration 0: Log likelihood = -8905.4114
Iteration 1: Log likelihood = -8816.8792
Iteration 2: Log likelihood = -8808.9892
Iteration 3: Log likelihood = -8808.9655
Iteration 4: Log likelihood = -8808.9655
Refining estimates:
Iteration 0: Log likelihood = -8808.9655

```

Cox regression with Breslow method for ties

No. of subjects =	35,755	Number of obs =	35,755
No. of failures =	953		
Time at risk =	434,342.674	LR chi2(9) =	192.89
Log likelihood =	-8808.9655	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.203032	.1599337	10.88	0.000	1.910848 2.539894
zgzmh	.8883762	.0376392	-2.79	0.005	.8175847 .9652972
_infectionburXzgzmh_000	1.016291	.076125	0.22	0.829	.8775238 1.177001
AGE	1.040094	.0132295	3.09	0.002	1.014485 1.066349
SEX	.7354959	.0485813	-4.65	0.000	.6461842 .8371518
NonWhite	1.175521	.2007314	0.95	0.344	.8411621 1.642787
householdsize	.942315	.0396123	-1.41	0.158	.8677887 1.023242
SES	.8303729	.0413235	-3.74	0.000	.7532048 .915447
LE8_TOTALSCORE	.9989045	.0003589	-3.05	0.002	.9982014 .9996081

-> Model for the mediator

Iteration 0: Log likelihood = -49886.211	Number of obs = 35,755
Iteration 1: Log likelihood = -49886.211	Wald chi2(7) = 1735.68
Linear regression (Maximum Likelihood)	Prob > chi2 = 0.0000
Log likelihood = -49886.211	

	zgzmh	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.0338031	.0150776	2.24	0.025	.0042515 .0633547
AGE		.021318	.0009841	21.66	0.000	.0193891 .0232468
SEX		-.2304023	.0104409	-22.07	0.000	-.250866 -.2099385
NonWhite		.5050567	.0250008	20.20	0.000	.456056 .5540574
householdsize		.0161249	.0047612	3.39	0.001	.0067931 .0254567
SES		-.0216919	.0078401	-2.77	0.006	-.0370582 -.0063257
LE8_TOTALSCORE		-.0006987	.0000556	-12.56	0.000	-.0008078 -.0005897
_cons		-.6459731	.0711519	-9.08	0.000	-.7854282 -.506518
<b>sigma2</b>						
_cons		.9536769	.0071326	133.71	0.000	.9396973 .9676565

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.19154	.1602785	7.43	0.000	.8774002 1.50568
ereri_cde	1.194359	.1589405	7.51	0.000	.8828413 1.505877
ereri_intref	.0047655	.014904	0.32	0.749	-.0244459 .0339768
ereri_intmed	-.0035913	.0051875	-0.69	0.489	-.0137586 .0065761
ereri_pie	-.0039929	.0022791	-1.75	0.080	-.0084598 .000474

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zhagh
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04667 2.218 -.0747 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9178.4359**  
 Iteration 1: Log likelihood = **-9094.7533**  
 Iteration 2: Log likelihood = **-9078.8279**  
 Iteration 3: Log likelihood = **-9078.5686**  
 Iteration 4: Log likelihood = **-9078.5684**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-9078.5684**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,616</b>	Number of obs =	<b>36,616</b>
No. of failures =	<b>980</b>		
Time at risk =	<b>444,808.265</b>	LR chi2(9) =	<b>199.73</b>
Log likelihood =	<b>-9078.5684</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.235595</b>	.1601954	<b>11.23</b>	<b>0.000</b>	<b>1.942669</b> <b>2.57269</b>
zhagh		<b>1.005562</b>	.0390196	<b>0.14</b>	<b>0.886</b>	<b>.9319207</b> <b>1.085022</b>
_infectionburXzhagh_000		<b>1.140155</b>	.079101	<b>1.89</b>	<b>0.059</b>	<b>.9951982</b> <b>1.306225</b>
AGE		<b>1.033547</b>	.0129724	<b>2.63</b>	<b>0.009</b>	<b>1.008432</b> <b>1.059288</b>
SEX		<b>.7716867</b>	.0507827	<b>-3.94</b>	<b>0.000</b>	<b>.678306</b> <b>.8779229</b>
NonWhite		<b>1.065197</b>	.1811668	<b>0.37</b>	<b>0.710</b>	<b>.7632363</b> <b>1.486622</b>
householdsize		<b>.9342839</b>	.0392464	<b>-1.62</b>	<b>0.106</b>	<b>.8604437</b> <b>1.014461</b>
SES		<b>.8178198</b>	.0401319	<b>-4.10</b>	<b>0.000</b>	<b>.7428268</b> <b>.9003838</b>
LE8_TOTALSCORE		<b>.9991172</b>	.0003539	<b>-2.49</b>	<b>0.013</b>	<b>.9984238</b> <b>.999811</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-51068.08**  
 Iteration 1: Log likelihood = **-51068.08**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,616</b>
	Wald chi2(7) =	<b>1818.25</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	zhagh	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>-.0317876</b>	.0149067	<b>-2.13</b>	<b>0.033</b>	<b>-.0610041</b> <b>-.002571</b>
AGE		<b>.005209</b>	.0009718	<b>5.36</b>	<b>0.000</b>	<b>.0033042</b> <b>.0071137</b>
SEX		<b>-.3983864</b>	.0103115	<b>-38.64</b>	<b>0.000</b>	<b>-.4185965</b> <b>-.3781763</b>
NonWhite		<b>.1616777</b>	.0246507	<b>6.56</b>	<b>0.000</b>	<b>.1133632</b> <b>.2099922</b>
householdsize		<b>-.0025852</b>	.0046926	<b>-0.55</b>	<b>0.582</b>	<b>-.0117826</b> <b>.0066121</b>
SES		<b>.032409</b>	.0077348	<b>4.19</b>	<b>0.000</b>	<b>.0172491</b> <b>.0475688</b>
LE8_TOTALSCORE		<b>-.0006163</b>	.0000549	<b>-11.22</b>	<b>0.000</b>	<b>-.0007239</b> <b>-.0005086</b>
_cons		<b>.6098527</b>	.0702762	<b>8.68</b>	<b>0.000</b>	<b>.4721138</b> <b>.7475916</b>
<b>sigma2</b>						
_cons		<b>.9526659</b>	.0070408	<b>135.31</b>	<b>0.000</b>	<b>.9388662</b> <b>.9664656</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.247069</b>	.1601037	7.79	<b>0.000</b>	.9332716 1.560867
ereri_cde	<b>1.235546</b>	.1601801	7.71	<b>0.000</b>	.9215993 1.549494
ereri_intref	<b>.021309</b>	.0176433	1.21	0.227	-.0132713 .0558893
ereri_intmed	<b>-.00961</b>	.0062681	-1.53	0.125	-.0218952 .0026751
ereri_pie	<b>-.0001763</b>	.001236	-0.14	0.887	-.0025988 .0022463

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zhao1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04659 2.218 -.07483 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9201.1117

Iteration 1: Log likelihood = -9106.1431

Iteration 2: Log likelihood = -9097.0408

Iteration 3: Log likelihood = -9097.0129

Iteration 4: Log likelihood = -9097.0129

Refining estimates:

Iteration 0: Log likelihood = -9097.0129

Cox regression with Breslow method for ties

No. of subjects = 36,726 Number of obs = 36,726

No. of failures = 982

Time at risk = 446,105.322

Log likelihood = -9097.0129

LR chi2(9) = 208.20

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.265273	.1617069	11.45	0.000	1.969506
zhaol		.8703854	.0362313	-3.33	0.001	.8021931
_infectionburXzhaol_000		1.045527	.0775878	0.60	0.549	.9039999
AGE		1.032057	.0129357	2.52	0.012	1.007012
SEX		.7294916	.047818	-4.81	0.000	.6415407
NonWhite		1.067543	.1814856	0.38	0.701	.7650302
householdsize		.9332079	.03916	-1.65	0.099	.8595272
SES		.8203149	.0402169	-4.04	0.000	.7451598
LE8_TOTALSCORE		.9988792	.0003582	-3.13	0.002	.9981774
						.9995814

### -> Model for the mediator

Iteration 0: Log likelihood = -50648.014  
Iteration 1: Log likelihood = -50648.014

Linear regression (Maximum Likelihood) Number of obs = 36,726  
Log likelihood = -50648.014 Wald chi2(7) = 3046.63  
Prob > chi2 = 0.0000

	zhaol	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0311668	.0146477	2.13	0.033	.0024578 .0598758
AGE		-.0088546	.0009553	-9.27	0.000	-.010727 -.0069822
SEX		-.3624024	.0101365	-35.75	0.000	-.3822696 -.3425352
NonWhite		-.0344094	.0242526	-1.42	0.156	-.0819436 .0131247
householdsiz		-.0076551	.0046153	-1.66	0.097	-.0167009 .0013907
SES		-.0135637	.0076027	-1.78	0.074	-.0284647 .0013373
LE8_TOTALSCORE		-.0020175	.000054	-37.37	0.000	-.0021233 -.0019117
_cons		2.110827	.0690861	30.55	0.000	1.975421 2.246233
sigma2						
_cons		.9233737	.0068141	135.51	0.000	.9100184 .936729

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.247396</b>	.1598207	7.80	<b>0.000</b>	.9341528 1.560639
ereri_cde	<b>1.253313</b>	.159906	7.84	<b>0.000</b>	.9399034 1.566723
ereri_intref	<b>.000697</b>	.0138486	0.05	<b>0.960</b>	-.0264457 .0278398
ereri_intmed	<b>-.0022975</b>	.004694	-0.49	<b>0.625</b>	-.0114976 .0069026
ereri_pie	<b>-.0043172</b>	.0024016	-1.80	<b>0.072</b>	-.0090243 .0003899

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intre to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
Warning: this analysis assumes a rare outcome.  
Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zhars1  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.19 1.531 .04638 2.215 -.07464 500.5

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9121.8147  
 Iteration 1: Log likelihood = -9030.4394  
 Iteration 2: Log likelihood = -9022.0842  
 Iteration 3: Log likelihood = -9022.0606  
 Iteration 4: Log likelihood = -9022.0606  
 Refining estimates:  
 Iteration 0: Log likelihood = -9022.0606

Cox regression with Breslow method for ties

No. of subjects =	36,459	Number of obs =	36,459
No. of failures =	974		
Time at risk =	442,828.345	LR chi2(9) =	199.51
Log likelihood =	-9022.0606	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.239974	.1604714	11.26	0.000	1.946538 2.577644
zhars1	.9066201	.0351303	-2.53	0.011	.8403155 .9781564
_infectionburXzhars1_000	1.040441	.0744674	0.55	0.580	.9042621 1.197127
AGE	1.035495	.0130072	2.78	0.005	1.010313 1.061305
SEX	.7533209	.0489429	-4.36	0.000	.663251 .8556224
NonWhite	1.090981	.18544	0.51	0.608	.7818685 1.522301
householdsize	.9387145	.0393449	-1.51	0.131	.8646824 1.019085
SES	.823056	.0404836	-3.96	0.000	.7474142 .906353
LE8_TOTALSCORE	.9989514	.0003549	-2.95	0.003	.9982561 .9996473

-> Model for the mediator

Iteration 0: Log likelihood = -51595.186	Number of obs = 36,459
Iteration 1: Log likelihood = -51595.186	Wald chi2(7) = 275.83
Log likelihood = -51595.186	Prob > chi2 = 0.0000

	zhars1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		-.0105129	.0152248	-0.69	0.490	-.040353 .0193273
AGE		-.0024688	.0009965	-2.48	0.013	-.0044219 -.0005158
SEX		-.0072549	.01055	-0.69	0.492	-.0279326 .0134227
NonWhite		.0550053	.0252936	2.17	0.030	.0054307 .1045798
householdsize		-.0005	.0050133	-0.10	0.921	-.010326 .0093259
SES		-.0213891	.0079241	-2.70	0.007	-.03692 -.0058583
LE8_TOTALSCORE		-.0008403	.0000562	-14.96	0.000	-.0009504 -.0007302
_cons		.5787337	.0722641	8.01	0.000	.4370988 .7203687
<b>sigma2</b>						
_cons		.9924642	.0073507	135.02	0.000	.9780571 1.006871

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.234592	.1595712	7.74	0.000	.9218382 1.547346
ereri_cde	1.234251	.1595538	7.74	0.000	.9215314 1.546971
ereri_intref	-.0010304	.0084385	-0.12	0.903	-.0175696 .0155088
ereri_intmed	.0003401	.001555	0.22	0.827	-.0027076 .0033878
ereri_pie	.0010311	.0015487	0.67	0.506	-.0020043 .0040665

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zhavcr1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04665 2.218 -.07501 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9189.9316**  
 Iteration 1: Log likelihood = **-9181.8815**  
 Iteration 2: Log likelihood = **-9091.0986**  
 Iteration 3: Log likelihood = **-9091.0141**  
 Iteration 4: Log likelihood = **-9091.0141**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-9091.0141**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,674</b>	Number of obs =	<b>36,674</b>
No. of failures =	<b>981</b>		
Time at risk =	<b>445,504.928</b>	LR chi2(9) =	<b>197.84</b>
Log likelihood =	<b>-9091.0141</b>	Prob > chi2 =	<b>0.0000</b>

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.253169</b>	.1716438	<b>10.66</b>	<b>0.000</b>	<b>1.940663</b> <b>2.615997</b>
zhavcr1	<b>1.060749</b>	.0430681	<b>1.45</b>	<b>0.146</b>	<b>.9796082</b> <b>1.14861</b>
_infectionburXzhavcr1_000	<b>.9853857</b>	.0672462	<b>-0.22</b>	<b>0.829</b>	<b>.8620198</b> <b>1.126407</b>
AGE	<b>1.03181</b>	.0130429	<b>2.48</b>	<b>0.013</b>	<b>1.006561</b> <b>1.057693</b>
SEX	<b>.7591554</b>	.0491223	<b>-4.26</b>	<b>0.000</b>	<b>.6687325</b> <b>.8618049</b>
NonWhite	<b>1.077974</b>	.1832701	<b>0.44</b>	<b>0.659</b>	<b>.7724893</b> <b>1.504264</b>
householdszie	<b>.9332707</b>	.0393173	<b>-1.64</b>	<b>0.101</b>	<b>.8593058</b> <b>1.013602</b>
SES	<b>.8230019</b>	.0403574	<b>-3.97</b>	<b>0.000</b>	<b>.747585</b> <b>.9060269</b>
LE8_TOTALSCORE	<b>.9992473</b>	.0003635	<b>-2.07</b>	<b>0.038</b>	<b>.9985351</b> <b>.99996</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-49075.19**  
 Iteration 1: Log likelihood = **-49075.19**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,674</b>
	Wald chi2(7) =	<b>6430.38</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.196068</b>	.0140729	<b>13.93</b>	<b>0.000</b>	<b>.1684856</b> <b>.2236504</b>
AGE	<b>.0465025</b>	.0009176	<b>50.68</b>	<b>0.000</b>	<b>.044704</b> <b>.048301</b>
SEX	<b>.021979</b>	.009737	<b>2.26</b>	<b>0.024</b>	<b>.0028949</b> <b>.0410631</b>
NonWhite	<b>.0111383</b>	.0232807	<b>0.48</b>	<b>0.632</b>	<b>-.0344911</b> <b>.0567677</b>
householdszie	<b>-.0082574</b>	.0044316	<b>-1.86</b>	<b>0.062</b>	<b>-.0169433</b> <b>.0004284</b>
SES	<b>-.0503632</b>	.0073031	<b>-6.90</b>	<b>0.000</b>	<b>-.0646771</b> <b>-.0360493</b>
LE8_TOTALSCORE	<b>-.0025712</b>	.0000519	<b>-49.58</b>	<b>0.000</b>	<b>-.0026729</b> <b>-.0024696</b>
_cons	<b>-1.558476</b>	.0663613	<b>-23.48</b>	<b>0.000</b>	<b>-1.688542</b> <b>-1.428411</b>
<b>sigma2</b>					
_cons	<b>.8507953</b>	.0062829	<b>135.41</b>	<b>0.000</b>	<b>.838481</b> <b>.8631095</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.272243</b>	.1659923	<b>7.66</b>	<b>0.000</b>	.9469042 1.597582
ereri_cde	<b>1.253322</b>	.1715119	<b>7.31</b>	<b>0.000</b>	.9171649 1.589479
ereri_intref	<b>-.000709</b>	.0016351	<b>-0.43</b>	<b>0.665</b>	-.0039137 .0024958
ereri_intmed	<b>.0079998</b>	.0256693	<b>0.31</b>	<b>0.755</b>	-.0423111 .0583107
ereri_pie	<b>.0116302</b>	.0080969	<b>1.44</b>	<b>0.151</b>	-.0042394 .0274999

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zhavcr2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04638 2.215 -.07464 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9121.8147**

Iteration 1: Log likelihood = **-9033.5241**

Iteration 2: Log likelihood = **-9023.3997**

Iteration 3: Log likelihood = **-9023.3167**

Iteration 4: Log likelihood = **-9023.3167**

Refining estimates:

Iteration 0: Log likelihood = **-9023.3167**

Cox regression with Breslow method for ties

No. of subjects = 36,459 Number of obs = 36,459

No. of failures = 974

Time at risk = 442,828.345

Log likelihood = **-9023.3167**

LR chi2(9) = 197.00

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.229324	.1681643	10.63	0.000	1.922935 2.584531
zhavcr2		1.083118	.0424066	2.04	0.041	1.003111 1.169505
_infectionburXzhavcr2_000		.9686454	.0635855	-0.49	0.627	.8517042 1.101643
AGE		1.032393	.013036	2.52	0.012	1.007157 1.058262
SEX		.7499734	.0487322	-4.43	0.000	.6602918 .8518355
NonWhite		1.097941	.1866978	0.55	0.583	.7867521 1.532218
householdsize		.9395442	.039286	-1.49	0.136	.8656159 1.019786
SES		.8344697	.0412843	-3.66	0.000	.7573531 .9194385
LE8_TOTALSCORE		.9991198	.0003569	-2.46	0.014	.9984205 .9998196

-> Model for the mediator

Iteration 0: Log likelihood = **-49886.925**  
 Iteration 1: Log likelihood = **-49886.925**

Linear regression (Maximum Likelihood) Number of obs = 36,459  
 Wald chi2(7) = 3884.64  
 Log likelihood = **-49886.925** Prob > chi2 = 0.0000

	zhavcr2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.2603791	.0145279	17.92	0.000	.2319048 .2888533
AGE		.0295865	.0009509	31.12	0.000	.0277229 .0314502
SEX		.0786744	.0100671	7.81	0.000	.0589432 .0984056
NonWhite		-.1189655	.0241358	-4.93	0.000	-.1662708 -.0716602
householdsize		.0030301	.0047839	0.63	0.526	-.0063461 .0124064
SES		-.1800931	.0075614	-23.82	0.000	-.1949131 -.1652731
LE8_TOTALSCORE		-.0015985	.0000536	-29.82	0.000	-.0017036 -.0014935
_cons		-1.151882	.0689563	-16.70	0.000	-1.287034 -1.016731
<b>sigma2</b>						
_cons		.9036863	.0066931	135.02	0.000	.890568 .9168047

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.255802	.1631042	7.70	0.000	.9361231 1.57548
ereri_cde	1.229333	.167967	7.32	0.000	.9001239 1.558542
ereri_intref	-.0015419	.0016712	-0.92	0.356	-.0048175 .0017336
ereri_intmed	.0070032	.0323489	0.22	0.829	-.0563994 .0704058
ereri_pie	.0210072	.0104758	2.01	0.045	.0004751 .0415394

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```

Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zhbegf
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

Model for the outcome (yreg): cox
Model for the mediator (mreg): linear

Referent exposure level (a0):          0
Actual exposure level (a1):           1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c):    60.18 1.531 .04667 2.218 -.0747 500.6

```

-> Model for the outcome

```

Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid

```

```

Iteration 0: Log likelihood = -9178.4359
Iteration 1: Log likelihood = -9087.7413
Iteration 2: Log likelihood = -9072.4728
Iteration 3: Log likelihood = -9072.2722
Iteration 4: Log likelihood = -9072.2722
Refining estimates:
Iteration 0: Log likelihood = -9072.2722

```

Cox regression with Breslow method for ties

No. of subjects =	<b>36,616</b>	Number of obs =	<b>36,616</b>
No. of failures =	<b>980</b>		
Time at risk =	<b>444,808.265</b>	LR chi2(9) =	<b>212.33</b>
Log likelihood =	<b>-9072.2722</b>	Prob > chi2 =	<b>0.0000</b>

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.23647</b>	.1606169	<b>11.21</b>	<b>0.000</b>	<b>1.942819</b> <b>2.574507</b>
zhbegf	<b>.8882127</b>	.0343557	<b>-3.06</b>	<b>0.002</b>	<b>.8233657</b> <b>.9581668</b>
_infectionburXzhbegf_000	<b>.9445671</b>	.0665781	<b>-0.81</b>	<b>0.418</b>	<b>.8226888</b> <b>1.084501</b>
AGE	<b>1.033231</b>	.0129565	<b>2.61</b>	<b>0.009</b>	<b>1.008146</b> <b>1.05894</b>
SEX	<b>.7643574</b>	.0494907	<b>-4.15</b>	<b>0.000</b>	<b>.67326</b> <b>.867781</b>
NonWhite	<b>1.05115</b>	.1789186	<b>0.29</b>	<b>0.769</b>	<b>.7529736</b> <b>1.467403</b>
householdsize	<b>.9314931</b>	.0394264	<b>-1.68</b>	<b>0.094</b>	<b>.8573372</b> <b>1.012063</b>
SES	<b>.8207591</b>	.0402231	<b>-4.03</b>	<b>0.000</b>	<b>.7455912</b> <b>.9035052</b>
LE8_TOTALSCORE	<b>.998901</b>	.000356	<b>-3.09</b>	<b>0.002</b>	<b>.9982034</b> <b>.9995991</b>

-> Model for the mediator

Iteration 0: Log likelihood =	<b>-51552.028</b>	Number of obs =	<b>36,616</b>
Iteration 1: Log likelihood =	<b>-51552.028</b>	Wald chi2(7) =	<b>815.60</b>
Linear regression (Maximum Likelihood)		Prob > chi2 =	<b>0.0000</b>
Log likelihood =	<b>-51552.028</b>		

	zhbegf	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		-.0268403	.015105	-1.78	0.076	-.0564456 .002765
AGE		-.002225	.0009848	-2.26	0.024	-.0041551 -.000295
SEX		-.0495238	.0104487	-4.74	0.000	-.0700028 -.0290448
NonWhite		-.259181	.0249787	-10.38	0.000	-.3081383 -.2102237
householdsize		-.0067308	.004755	-1.42	0.157	-.0160505 .0025889
SES		.0061566	.0078377	0.79	0.432	-.009205 .0215182
LE8_TOTALSCORE		-.0014265	.0000557	-25.63	0.000	-.0015356 -.0013174
_cons		.9549656	.0712112	13.41	0.000	.8153941 1.094537
<b>sigma2</b>						
	_cons	.9781842	.0072294	135.31	0.000	.9640149 .9923534

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.265064	.1613059	7.84	0.000	.9489101 1.581218
ereri_cde	1.228542	.1594361	7.71	0.000	.9160532 1.541031
ereri_intref	.0258727	.0226947	1.14	0.254	-.0186081 .0703535
ereri_intmed	.007462	.0056881	1.31	0.190	-.0036864 .0186104
ereri_pie	.0031868	.0020764	1.53	0.125	-.0008828 .0072565

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zhbq1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04659 2.218 -.07483 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9201.1117**  
 Iteration 1: Log likelihood = **-9115.0952**  
 Iteration 2: Log likelihood = **-9101.5347**  
 Iteration 3: Log likelihood = **-9101.3265**  
 Iteration 4: Log likelihood = **-9101.3263**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-9101.3263**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,726</b>	Number of obs =	<b>36,726</b>
No. of failures =	<b>982</b>		
Time at risk =	<b>446,105.322</b>	LR chi2(9) =	<b>199.57</b>
Log likelihood =	<b>-9101.3263</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.24893</b>	.1602016	<b>11.38</b>	<b>0.000</b>	<b>1.955874</b> 2.585895
zhbq1		<b>1.001848</b>	.038486	<b>0.05</b>	<b>0.962</b>	<b>.9291868</b> 1.080192
_infectionburXzhbq1_000		<b>1.13117</b>	.0767597	<b>1.82</b>	<b>0.069</b>	<b>.9902993</b> 1.29208
AGE		<b>1.033733</b>	.0129458	<b>2.65</b>	<b>0.008</b>	<b>1.008668</b> 1.05942
SEX		<b>.7630868</b>	.0498242	<b>-4.14</b>	<b>0.000</b>	<b>.6714233</b> .8672643
NonWhite		<b>1.061363</b>	.1806288	<b>0.35</b>	<b>0.726</b>	<b>.7603287</b> 1.481584
householdszie		<b>.9329668</b>	.0393094	<b>-1.65</b>	<b>0.100</b>	<b>.8590172</b> 1.013282
SES		<b>.8177268</b>	.0401526	<b>-4.10</b>	<b>0.000</b>	<b>.7426975</b> .9003358
LE8_TOTALSCORE		<b>.9990859</b>	.0003529	<b>-2.59</b>	<b>0.010</b>	<b>.9983946</b> .9997778

-> Model for the mediator

Iteration 0: Log likelihood = **-51587.182**  
 Iteration 1: Log likelihood = **-51587.182**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,726</b>
	Wald chi2(7) =	<b>1063.62</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	zhbq1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>-.0166835</b>	.0150271	<b>-1.11</b>	<b>0.267</b>	<b>-.0461361</b> .0127692
AGE		<b>-.0007037</b>	.0009801	<b>-0.72</b>	<b>0.473</b>	<b>-.0026246</b> .0012172
SEX		<b>-.3123784</b>	.0103991	<b>-30.04</b>	<b>0.000</b>	<b>-.3327602</b> -.2919966
NonWhite		<b>.2102027</b>	.0248808	<b>8.45</b>	<b>0.000</b>	<b>.1614373</b> .2589681
householdszie		<b>-.0021651</b>	.0047348	<b>-0.46</b>	<b>0.647</b>	<b>-.0114451</b> .007115
SES		<b>.0647855</b>	.0077996	<b>8.31</b>	<b>0.000</b>	<b>.0494986</b> .0800725
LE8_TOTALSCORE		<b>.0000786</b>	.0000554	<b>1.42</b>	<b>0.156</b>	<b>-.0000299</b> .0001872
_cons		<b>.4833995</b>	.0708756	<b>6.82</b>	<b>0.000</b>	<b>.3444858</b> .6223131
<b>sigma2</b>						
_cons		<b>.9718277</b>	.0071716	<b>135.51</b>	<b>0.000</b>	<b>.9577716</b> .9858839

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.262013</b>	.1607158	7.85	<b>0.000</b>	<b>.9470158</b> <b>1.57701</b>
ereri_cde	<b>1.248922</b>	.1602019	7.80	<b>0.000</b>	<b>.9349324</b> <b>1.562912</b>
ereri_intref	<b>.0178167</b>	.015844	1.12	<b>0.261</b>	<b>-.013237</b> <b>.0488703</b>
ereri_intmed	<b>-.0046951</b>	.0047858	-0.98	<b>0.327</b>	<b>-.0140751</b> <b>.0046848</b>
ereri_pie	<b>-.0000308</b>	.0006415	-0.05	<b>0.962</b>	<b>-.0012881</b> <b>.0012265</b>

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zhcls1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): **cox**

Model for the mediator (mreg): **linear**

Referent exposure level (a0): **0**

Actual exposure level (a1): **1**

Mediator level for the decomposition (m): **0**

Fixed values of the covariates (c): **60.18 1.531 .0466 2.218 -.07544 500.5**

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9166.3755**

Iteration 1: Log likelihood = **-9073.0335**

Iteration 2: Log likelihood = **-9062.9814**

Iteration 3: Log likelihood = **-9062.9354**

Iteration 4: Log likelihood = **-9062.9354**

Refining estimates:

Iteration 0: Log likelihood = **-9062.9354**

Cox regression with Breslow method for ties

No. of subjects = **36,824**                          Number of obs = **36,824**

No. of failures = **978**

Time at risk = **447,356.911**

LR chi2(9) = **206.88**

Log likelihood = **-9062.9354**                          Prob > chi2 = **0.0000**

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.275736	.1621893	11.54	0.000	1.979054 2.616894
zhcls1	.9182547	.0354437	-2.21	0.027	.8513491 .9904183
_infectionburXzhcls1_000	.9924299	.0700255	-0.11	0.914	.8642499 1.139621
AGE	1.036257	.0129908	2.84	0.004	1.011106 1.062034
SEX	.7500896	.0486347	-4.44	0.000	.6605755 .8517337
NonWhite	1.060508	.1826964	0.34	0.733	.7566161 1.486458
householdsize	.936233	.0392881	-1.57	0.116	.8623114 1.016492
SES	.816647	.0400792	-4.13	0.000	.7417529 .899103
LE8_TOTALSCORE	.9989808	.0003549	-2.87	0.004	.9982855 .9996766

-> Model for the mediator

Iteration 0: Log likelihood = -51966.67  
 Iteration 1: Log likelihood = -51966.67

Linear regression (Maximum Likelihood)  
 Number of obs = 36,824  
 Wald chi2(7) = 572.04  
 Log likelihood = -51966.67 Prob > chi2 = 0.0000

zhcls1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	-.0044591	.0150985	-0.30	0.768	-.0340517 .0251334
AGE	-.0015336	.0009848	-1.56	0.119	-.0034638 .0003965
SEX	-.0571379	.0104545	-5.47	0.000	-.0776283 -.0366475
NonWhite	.1149393	.0250086	4.60	0.000	.0659234 .1639551
householdsize	-.0015	.0047662	-0.31	0.753	-.0108415 .0078416
SES	-.0245203	.0078395	-3.13	0.002	-.0398854 -.0091551
LE8_TOTALSCORE	-.0011504	.0000557	-20.67	0.000	-.0012595 -.0010413
_cons	.7522831	.0711853	10.57	0.000	.6127625 .8918036
<b>sigma2</b>					
_cons	.9846764	.0072568	135.69	0.000	.9704534 .9988994

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.278186	.1618468	7.90	0.000	.9609721 1.5954
ereri_cde	1.271243	.1615145	7.87	0.000	.9546807 1.587806
ereri_intref	.0059994	.012656	0.47	0.635	-.0188059 .0308047
ereri_intmed	.000563	.0020079	0.28	0.779	-.0033725 .0044985
ereri_pie	.0003803	.0012996	0.29	0.770	-.0021667 .0029274

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```

Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zhdgf
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

Model for the outcome (yreg): cox
Model for the mediator (mreg): linear

Referent exposure level (a0):          0
Actual exposure level (a1):           1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c):    60.18 1.531 .04658 2.218 -.07514 500.6

```

-> Model for the outcome

```

Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid

Iteration 0: Log likelihood = -9170.785
Iteration 1: Log likelihood = -9082.5491
Iteration 2: Log likelihood = -9073.9035
Iteration 3: Log likelihood = -9073.8838
Iteration 4: Log likelihood = -9073.8838
Refining estimates:
Iteration 0: Log likelihood = -9073.8838

```

Cox regression with Breslow method for ties

No. of subjects =	36,668	Number of obs =	36,668
No. of failures =	979		
Time at risk =	445,425.689	LR chi2(9) =	193.80
Log likelihood =	-9073.8838	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.257157	.160658	11.44	0.000	1.963251 2.595063
zhdgf	.9859896	.0378945	-0.37	0.714	.9144462 1.06313
_infectionburXzhdgf_000	.9784096	.0698959	-0.31	0.760	.8505746 1.125457
AGE	1.033697	.0129643	2.64	0.008	1.008597 1.059421
SEX	.7565167	.0490971	-4.30	0.000	.6661569 .8591332
NonWhite	1.07471	.1829136	0.42	0.672	.7698721 1.500252
householdsize	.9332748	.039343	-1.64	0.101	.8592635 1.013661
SES	.8243574	.0404608	-3.94	0.000	.7487506 .9075986
LE8_TOTALSCORE	.9990629	.0003543	-2.64	0.008	.9983687 .9997575

-> Model for the mediator

Iteration 0: Log likelihood = -51826.855	Number of obs = 36,668
Iteration 1: Log likelihood = -51826.855	Wald chi2(7) = 406.81
Log likelihood = -51826.855	Prob > chi2 = 0.0000

	zhdgf	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.006228	.0151676	0.41	0.681	-.0235 .0359559
AGE		.0005119	.0009894	0.52	0.605	-.0014272 .0024509
SEX		-.1165677	.010499	-11.10	0.000	-.1371454 -.09599
NonWhite		-.2598111	.025118	-10.34	0.000	-.3090414 -.2105808
householdsize		-.0006052	.0047794	-0.13	0.899	-.0099727 .0087622
SES		-.0045658	.0078767	-0.58	0.562	-.0200039 .0108723
LE8_TOTALSCORE		-.0006739	.0000559	-12.05	0.000	-.0007835 -.0005643
_cons		.4972428	.0715422	6.95	0.000	.3570227 .6374629
<b>sigma2</b>						
_cons		.9890005	.0073041	135.40	0.000	.9746846 1.003316

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.257914	.1607335	7.83	0.000	.9428821 1.572946
ereri_cde	1.257018	.1606421	7.82	0.000	.9421656 1.571871
ereri_intref	.0014012	.0050108	0.28	0.780	-.0084198 .0112222
ereri_intmed	-.0004175	.0013466	-0.31	0.757	-.0030569 .0022218
ereri_pie	-.0000879	.0003211	-0.27	0.784	-.0007171 .0005414

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zhebp1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

```
Model for the outcome (yreg): cox
Model for the mediator (mreg): linear
```

```
Referent exposure level (a0): 0
Actual exposure level (a1): 1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c): 60.18 1.531 .04648 2.218 -.07459 500.6
```

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8905.4114**  
 Iteration 1: Log likelihood = **-8818.5807**  
 Iteration 2: Log likelihood = **-8811.1871**  
 Iteration 3: Log likelihood = **-8811.1708**  
 Iteration 4: Log likelihood = **-8811.1708**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8811.1708**

Cox regression with Breslow method for ties

No. of subjects =	<b>35,755</b>	Number of obs =	<b>35,755</b>
No. of failures =	<b>953</b>		
Time at risk =	<b>434,342.674</b>	LR chi2(9) =	<b>188.48</b>
Log likelihood =	<b>-8811.1708</b>	Prob > chi2 =	<b>0.0000</b>

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.202357</b>	.1600446	<b>10.86</b>	<b>0.000</b>	<b>1.90999</b> <b>2.539477</b>
zhebp1	<b>.903166</b>	.0375168	<b>-2.45</b>	<b>0.014</b>	<b>.8325482</b> <b>.9797737</b>
_infectionburXzhebp1_000	<b>1.127725</b>	.0824362	<b>1.64</b>	<b>0.100</b>	<b>.9771935</b> <b>1.301444</b>
AGE	<b>1.037737</b>	.01319	<b>2.91</b>	<b>0.004</b>	<b>1.012205</b> <b>1.063914</b>
SEX	<b>.7496937</b>	.0492625	<b>-4.38</b>	<b>0.000</b>	<b>.6591</b> <b>.8527397</b>
NonWhite	<b>1.116098</b>	.1898598	<b>0.65</b>	<b>0.518</b>	<b>.7996577</b> <b>1.55776</b>
householdszie	<b>.9386453</b>	.0396357	<b>-1.50</b>	<b>0.134</b>	<b>.8640885</b> <b>1.019635</b>
SES	<b>.8347593</b>	.0415071	<b>-3.63</b>	<b>0.000</b>	<b>.7572453</b> <b>.9202078</b>
LE8_TOTALSCORE	<b>.9989886</b>	.0003581	<b>-2.82</b>	<b>0.005</b>	<b>.998287</b> <b>.9996908</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50709.014**  
 Iteration 1: Log likelihood = **-50709.014**

Linear regression (Maximum Likelihood)	Number of obs =	<b>35,755</b>	
	Wald chi2(7) =	<b>49.30</b>	
Log likelihood =	<b>-50709.014</b>	Prob > chi2 =	<b>0.0000</b>

<u>zhebp1</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.0003828</b>	.0154286	<b>0.02</b>	<b>0.980</b>	<b>-.0298567</b> <b>.0306223</b>
AGE	<b>.0031915</b>	.001007	<b>3.17</b>	<b>0.002</b>	<b>.0012178</b> <b>.0051652</b>
SEX	<b>-.043314</b>	.0106839	<b>-4.05</b>	<b>0.000</b>	<b>-.0642541</b> <b>-.0223739</b>
NonWhite	<b>-.0099539</b>	.0255828	<b>-0.39</b>	<b>0.697</b>	<b>-.0600952</b> <b>.0401875</b>
householdszie	<b>-.002076</b>	.004872	<b>-0.43</b>	<b>0.670</b>	<b>-.011625</b> <b>.0074731</b>
SES	<b>-.0043972</b>	.0080226	<b>-0.55</b>	<b>0.584</b>	<b>-.0201212</b> <b>.0113267</b>
LE8_TOTALSCORE	<b>-.0002043</b>	.0000569	<b>-3.59</b>	<b>0.000</b>	<b>-.0003159</b> <b>-.0000928</b>
_cons	<b>-.0187846</b>	.0728082	<b>-0.26</b>	<b>0.796</b>	<b>-.1614861</b> <b>.1239169</b>
<b>sigma2</b>					
_cons	<b>.9985952</b>	.0074685	<b>133.71</b>	<b>0.000</b>	<b>.9839571</b> <b>1.013233</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.19135</b>	.159024	<b>7.49</b>	<b>0.000</b>	.8796686 1.503031
ereri_cde	<b>1.196139</b>	.1590764	<b>7.52</b>	<b>0.000</b>	.8843554 1.507923
ereri_intref	<b>-.0048049</b>	.0049128	<b>-0.98</b>	<b>0.328</b>	-.0144338 .0048239
ereri_intmed	<b>.0000544</b>	.0021923	<b>0.02</b>	<b>0.980</b>	-.0042425 .0043513
ereri_pie	<b>-.000039</b>	.0015714	<b>-0.02</b>	<b>0.980</b>	-.0031189 .0030409

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zhexim1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04646 2.216 -.07503 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9036.4379**

Iteration 1: Log likelihood = **-8948.1548**

Iteration 2: Log likelihood = **-8939.6495**

Iteration 3: Log likelihood = **-8939.6304**

Iteration 4: Log likelihood = **-8939.6304**

Refining estimates:

Iteration 0: Log likelihood = **-8939.6304**

Cox regression with Breslow method for ties

No. of subjects = 36,352 Number of obs = 36,352

No. of failures = 965

Time at risk = 441,650.762

Log likelihood = -8939.6304 LR chi2(9) = 193.61

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.258667	.1617514	11.38	0.000	1.962884 2.599022
zhexim1		.9696761	.0378183	-0.79	0.430	.8983158 1.046705
_infectionburXzhexim1_000		1.021622	.0730989	0.30	0.765	.8879433 1.175426
AGE		1.032628	.013014	2.55	0.011	1.007434 1.058453
SEX		.7575275	.0494414	-4.25	0.000	.6665661 .8609018
NonWhite		1.060746	.1828872	0.34	0.732	.7565756 1.487203
householdsize		.9331107	.0396992	-1.63	0.104	.8584575 1.014256
SES		.8188793	.0404471	-4.05	0.000	.7433208 .9021183
LE8_TOTALSCORE		.998993	.0003572	-2.82	0.005	.9982932 .9996934

-> Model for the mediator

Iteration 0: Log likelihood = -51239.799  
 Iteration 1: Log likelihood = -51239.799

Linear regression (Maximum Likelihood)  
 Number of obs = 36,352  
 Wald chi2(7) = 688.35  
 Prob > chi2 = 0.0000  
 Log likelihood = -51239.799

	zhexim1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.0227528	.0151759	1.50	0.134	-.0069915 .0524971
AGE		-.0019983	.0009906	-2.02	0.044	-.00394 -.0000567
SEX		-.0887563	.0105036	-8.45	0.000	-.109343 -.0681695
NonWhite		.1707756	.0251702	6.78	0.000	.1214428 .2201083
householdsize		-.0064382	.0048614	-1.32	0.185	-.0159664 .0030899
SES		-.0298876	.0078782	-3.79	0.000	-.0453287 -.0144465
LE8_TOTALSCORE		-.0011678	.0000559	-20.88	0.000	-.0012774 -.0010582
_cons		.8417485	.0716646	11.75	0.000	.7012885 .9822084
<b>sigma2</b>						
_cons		.9813893	.0072793	134.82	0.000	.9671221 .9956566

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.257079	.1616217	7.78	0.000	.9403068 1.573852
ereri_cde	1.25796	.1616397	7.78	0.000	.9411516 1.574768
ereri_intref	-.0003974	.0021215	-0.19	0.851	-.0045555 .0037607
ereri_intmed	.0002175	.003218	0.07	0.946	-.0060897 .0065247
ereri_pie	-.0007004	.0010022	-0.70	0.485	-.0026647 .0012639

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```

Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zhgf
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

Model for the outcome (yreg): cox
Model for the mediator (mreg): linear

Referent exposure level (a0):          0
Actual exposure level (a1):           1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c):    60.18 1.531 .0466 2.218 -.07544 500.5

```

-> Model for the outcome

```

Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid

Iteration 0: Log likelihood = -9166.3755
Iteration 1: Log likelihood = -9078.0899
Iteration 2: Log likelihood = -9066.2805
Iteration 3: Log likelihood = -9066.1716
Iteration 4: Log likelihood = -9066.1716
Refining estimates:
Iteration 0: Log likelihood = -9066.1716

```

Cox regression with Breslow method for ties

No. of subjects =	<b>36,824</b>	Number of obs =	<b>36,824</b>
No. of failures =	<b>978</b>		
Time at risk =	<b>447,356.911</b>	LR chi2(9) =	<b>200.41</b>
Log likelihood =	<b>-9066.1716</b>	Prob > chi2 =	<b>0.0000</b>

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.270899</b>	.1678624	<b>11.10</b>	<b>0.000</b>	<b>1.964617</b> <b>2.62493</b>
zhgf	<b>1.033396</b>	.0438589	<b>0.77</b>	<b>0.439</b>	<b>.950912</b> <b>1.123034</b>
_infectionburXzhgf_000	<b>.9970841</b>	.0714252	<b>-0.04</b>	<b>0.967</b>	<b>.8664764</b> <b>1.147379</b>
AGE	<b>1.034731</b>	.0130098	<b>2.72</b>	<b>0.007</b>	<b>1.009544</b> <b>1.060547</b>
SEX	<b>.7591282</b>	.0496178	<b>-4.22</b>	<b>0.000</b>	<b>.6678505</b> <b>.8628812</b>
NonWhite	<b>1.052314</b>	.1813247	<b>0.30</b>	<b>0.767</b>	<b>.7507141</b> <b>1.475083</b>
householdsize	<b>.9365195</b>	.0392811	<b>-1.56</b>	<b>0.118</b>	<b>.8626096</b> <b>1.016762</b>
SES	<b>.8214229</b>	.0404426	<b>-4.00</b>	<b>0.000</b>	<b>.7458613</b> <b>.9046395</b>
LE8_TOTALSCORE	<b>.9991918</b>	.0003761	<b>-2.15</b>	<b>0.032</b>	<b>.9984551</b> <b>.9999292</b>

-> Model for the mediator

Iteration 0: Log likelihood =	<b>-48323.788</b>	Number of obs =	<b>36,824</b>
Iteration 1: Log likelihood =	<b>-48323.788</b>	Wald chi2(7) =	<b>8753.70</b>
Log likelihood =	<b>-48323.788</b>	Prob > chi2 =	<b>0.0000</b>

	zhgf	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.1672698	.0136764	12.23	0.000	.1404646 .1940749
AGE		.0172691	.000892	19.36	0.000	.0155208 .0190175
SEX		-.2586644	.0094698	-27.31	0.000	-.2772248 -.240104
NonWhite		-.0763597	.022653	-3.37	0.001	-.1207588 -.0319607
householdsize		-.0064041	.0043173	-1.48	0.138	-.0148658 .0020575
SES		-.1247379	.0071011	-17.57	0.000	-.1386558 -.11082
LE8_TOTALSCORE		-.0036893	.0000504	-73.18	0.000	-.0037881 -.0035905
_cons		1.18837	.0644803	18.43	0.000	1.061991 1.314749
<b>sigma2</b>						
_cons		.807917	.0059541	135.69	0.000	.7962472 .8195868

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.282282	.1642688	7.81	0.000	.9603214 1.604243
ereri_cde	1.271314	.1679018	7.57	0.000	.9422328 1.600396
ereri_intref	-.0004292	.0002741	-1.57	0.117	-.0009665 .0001081
ereri_intmed	.0058875	.0236537	0.25	0.803	-.0404729 .0522478
ereri_pie	.00551	.0071526	0.77	0.441	-.0085088 .0195288

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zhgs
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

```
Model for the outcome (yreg): cox
Model for the mediator (mreg): linear
```

```
Referent exposure level (a0): 0
Actual exposure level (a1): 1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c): 60.19 1.531 .04669 2.217 -.07551 500.6
```

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8882.1967**  
 Iteration 1: Log likelihood = **-8794.7475**  
 Iteration 2: Log likelihood = **-8786.691**  
 Iteration 3: Log likelihood = **-8786.673**  
 Iteration 4: Log likelihood = **-8786.673**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8786.673**

Cox regression with Breslow method for ties

No. of subjects =	<b>35,573</b>	Number of obs =	<b>35,573</b>
No. of failures =	<b>951</b>		
Time at risk =	<b>432,088.637</b>	LR chi2(9) =	<b>191.05</b>
Log likelihood =	<b>-8786.673</b>	Prob > chi2 =	<b>0.0000</b>

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.25591</b>	.1633817	11.23	<b>0.000</b>	<b>1.957377</b> <b>2.599975</b>
zhgs	<b>.9214281</b>	.0367694	-2.05	<b>0.040</b>	<b>.8521076</b> <b>.996388</b>
_infectionburXzhgs_000	<b>1.046416</b>	.075788	0.63	<b>0.531</b>	<b>.9079359</b> <b>1.206018</b>
AGE	<b>1.037671</b>	.0131919	2.91	<b>0.004</b>	<b>1.012135</b> <b>1.063852</b>
SEX	<b>.7452845</b>	.0490253	-4.47	<b>0.000</b>	<b>.655133</b> <b>.8478416</b>
NonWhite	<b>1.111467</b>	.1891093	0.62	<b>0.535</b>	<b>.7962876</b> <b>1.551398</b>
householdszie	<b>.9397308</b>	.0396624	-1.47	<b>0.141</b>	<b>.8651224</b> <b>1.020774</b>
SES	<b>.8276693</b>	.0412774	-3.79	<b>0.000</b>	<b>.7505952</b> <b>.9126576</b>
LE8_TOTALSCORE	<b>.9991644</b>	.0003599	-2.32	<b>0.020</b>	<b>.9984592</b> <b>.9998701</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50311.531**  
 Iteration 1: Log likelihood = **-50311.531**

Linear regression (Maximum Likelihood)	Number of obs =	<b>35,573</b>
	Wald chi2(7) =	<b>329.25</b>
Log likelihood =	<b>-50311.531</b>	Prob > chi2 = <b>0.0000</b>

<u>zhgs</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>-.0209261</b>	.0154192	-1.36	<b>0.175</b>	<b>-.0511471</b> <b>.009295</b>
AGE	<b>-.0048564</b>	.0010054	-4.83	<b>0.000</b>	<b>-.006827</b> <b>-.0028858</b>
SEX	<b>-.0263457</b>	.0106693	-2.47	<b>0.014</b>	<b>-.047257</b> <b>-.0054343</b>
NonWhite	<b>.0523228</b>	.0254985	2.05	<b>0.040</b>	<b>.0023465</b> <b>.102299</b>
householdszie	<b>.0049979</b>	.004856	1.03	<b>0.303</b>	<b>-.0045195</b> <b>.0145154</b>
SES	<b>-.0273709</b>	.0080022	-3.42	<b>0.001</b>	<b>-.043055</b> <b>-.0116868</b>
LE8_TOTALSCORE	<b>-.0008827</b>	.0000568	-15.54	<b>0.000</b>	<b>-.0009941</b> <b>-.0007714</b>
_cons	<b>.7618635</b>	.0726655	10.48	<b>0.000</b>	<b>.6194417</b> <b>.9042854</b>
<b>sigma2</b>					
_cons	<b>.9908013</b>	.0074292	133.37	<b>0.000</b>	<b>.9762404</b> <b>1.005362</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.251934	.1626369	7.70	0.000	.9331715 1.570696
ereri_cde	1.252048	.1627305	7.69	0.000	.9331023 1.570994
ereri_intref	-.0018317	.0054809	-0.33	0.738	-.0125741 .0089107
ereri_intmed	3.59e-06	.0029738	0.00	0.999	-.005825 .0058321
ereri_pie	.0017139	.0015157	1.13	0.258	-.0012568 .0046845

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zhk2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04648 2.218 -.07459 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -8905.4114

Iteration 1: Log likelihood = -8821.3014

Iteration 2: Log likelihood = -8813.3269

Iteration 3: Log likelihood = -8813.298

Iteration 4: Log likelihood = -8813.298

Refining estimates:

Iteration 0: Log likelihood = -8813.298

Cox regression with Breslow method for ties

No. of subjects = 35,755 Number of obs = 35,755

No. of failures = 953

Time at risk = 434,342.674

Log likelihood = -8813.298

LR chi2(9) = 184.23

Prob > chi2 = 0.0000

-> Model for the mediator

Iteration 0: Log likelihood = -50730.566  
Iteration 1: Log likelihood = -50730.566

Linear regression (Maximum Likelihood)  
Number of obs = 35,755  
Log likelihood = -50730.566 Wald chi2(7) = 6.16  
Prob > chi2 = 0.5209

	zhk2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0155043	.0154379	-1.00	0.315	-.0457621
AGE		.0012236	.0010076	1.21	0.225	-.0007513
SEX		-.0113215	.0106904	-1.06	0.290	-.0322742
NonWhite		.0023657	.0255982	0.09	0.926	-.047806
householdsiz		.0078316	.004875	1.61	0.108	-.0017232
SES		-.00105	.0080274	-0.13	0.896	-.0167835
LE8_TOTALSCORE		-.0000299	.000057	-0.52	0.600	-.0001415
_cons		-.0567614	.0728521	-0.78	0.436	-.1995489
sigma2						
	_cons	.9997997	.0074776	133.71	0.000	.985144
						1.014455

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.199915</b>	.1595715	7.52	<b>0.000</b>	.8871606 1.51267
ereri_cde	<b>1.19494</b>	.1592935	7.50	<b>0.000</b>	.8827309 1.50715
ereri_intref	<b>.002919</b>	.0078447	0.37	<b>0.710</b>	-.0124564 .0182944
ereri_intmed	<b>.0014058</b>	.0025606	0.55	<b>0.583</b>	-.0036129 .0064245
ereri_pie	<b>.0006498</b>	.0008876	0.73	<b>0.464</b>	-.0010898 .0023894

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intre to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
Warning: this analysis assumes a rare outcome.  
Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```

Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zhla_dra
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

Model for the outcome (yreg): cox
Model for the mediator (mreg): linear

Referent exposure level (a0):          0
Actual exposure level (a1):           1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c):    60.19 1.531 .0465 2.216 -.07484 500.7

```

-> Model for the outcome

```

Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid

Iteration 0: Log likelihood = -8975.8077
Iteration 1: Log likelihood = -8888.8679
Iteration 2: Log likelihood = -8879.9002
Iteration 3: Log likelihood = -8879.8668
Iteration 4: Log likelihood = -8879.8668
Refining estimates:
Iteration 0: Log likelihood = -8879.8668

Cox regression with Breslow method for ties

No. of subjects =      36,233                               Number of obs = 36,233
No. of failures =       959
Time at risk      = 440,217.412
Log likelihood = -8879.8668
                                         LR chi2(9)      = 191.88
                                         Prob > chi2    = 0.0000

```

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.259547	.1628155	11.31	0.000	1.961944 2.602293
zhla_dra	1.008778	.0384908	0.23	0.819	.9360892 1.087111
_infectionburXzhla_dra_000	.9304924	.0660373	-1.02	0.310	.8096603 1.069357
AGE	1.033552	.0130885	2.61	0.009	1.008215 1.059526
SEX	.7576513	.0495756	-4.24	0.000	.6664575 .8613234
NonWhite	1.063025	.1832693	0.35	0.723	.7582166 1.490368
householdsize	.9301007	.0398935	-1.69	0.091	.8551073 1.011671
SES	.8209823	.0407166	-3.98	0.000	.7449351 .9047928
LE8_TOTALSCORE	.9990103	.0003567	-2.77	0.006	.9983113 .9997097

-> Model for the mediator

```

Iteration 0: Log likelihood = -51229.661
Iteration 1: Log likelihood = -51229.661

Linear regression (Maximum Likelihood)
Number of obs = 36,233
Wald chi2(7) = 366.32
Prob > chi2 = 0.0000
Log likelihood = -51229.661

```

zhla_dra	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	.0592787	.01527	3.88	0.000	.02935 .0892073
AGE	.0137633	.0009969	13.81	0.000	.0118095 .0157171
SEX	.035134	.010566	3.33	0.001	.0144251 .055843
NonWhite	.0893821	.0253105	3.53	0.000	.0397744 .1389897
householdsize	-.0060226	.0048872	-1.23	0.218	-.0156013 .0035561
SES	-.0548072	.0079261	-6.91	0.000	-.0703421 -.0392723
LE8_TOTALSCORE	-.000074	.0000563	-1.31	0.189	-.0001842 .0000363
_cons	-.8482871	.0721197	-11.76	0.000	-.9896391 -.7069351
<b>sigma2</b>					
_cons	.9899638	.007355	134.60	0.000	.9755483 1.004379

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.256803	.1627145	7.72	0.000	.9378883 1.575717
ereri_cde	1.25959	.1628201	7.74	0.000	.940468 1.578711
ereri_intref	.0056976	.0096872	0.59	0.556	-.0132888 .0246841
ereri_intmed	-.0090026	.0087309	-1.03	0.302	-.0261149 .0081096
ereri_pie	.0005182	.0022669	0.23	0.819	-.0039249 .0049613

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zhla_e
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04646 2.216 -.07503 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9036.4379**  
 Iteration 1: Log likelihood = **-8946.8065**  
 Iteration 2: Log likelihood = **-8937.5883**  
 Iteration 3: Log likelihood = **-8937.5422**  
 Iteration 4: Log likelihood = **-8937.5422**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8937.5422**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,352</b>	Number of obs =	<b>36,352</b>
No. of failures =	<b>965</b>		
Time at risk =	<b>441,650.762</b>	LR chi2(9) =	<b>197.79</b>
Log likelihood =	<b>-8937.5422</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.268739</b>	.1685627	<b>11.03</b>	<b>0.000</b>	<b>1.96129</b> <b>2.624382</b>
zhla_e		<b>1.086656</b>	.0416281	<b>2.17</b>	<b>0.030</b>	<b>1.008054</b> <b>1.171387</b>
_infectionburXzhla_e_000		<b>.9448505</b>	.0611704	<b>-0.88</b>	<b>0.381</b>	<b>.8322534</b> <b>1.072681</b>
AGE		<b>1.030398</b>	.0130199	<b>2.37</b>	<b>0.018</b>	<b>1.005193</b> <b>1.056235</b>
SEX		<b>.7622734</b>	.049735	<b>-4.16</b>	<b>0.000</b>	<b>.6707699</b> <b>.8662593</b>
NonWhite		<b>1.079134</b>	.1862868	<b>0.44</b>	<b>0.659</b>	<b>.7693707</b> <b>1.513614</b>
householdszie		<b>.9334274</b>	.0396677	<b>-1.62</b>	<b>0.105</b>	<b>.8588299</b> <b>1.014504</b>
SES		<b>.8250144</b>	.0408419	<b>-3.89</b>	<b>0.000</b>	<b>.7487265</b> <b>.9090753</b>
LE8_TOTALSCORE		<b>.9990565</b>	.000356	<b>-2.65</b>	<b>0.008</b>	<b>.998359</b> <b>.9997545</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50604.261**  
 Iteration 1: Log likelihood = **-50604.261**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,352</b>
	Wald chi2(7) =	<b>2006.40</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	<u>zhla_e</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.2358778</b>	.0149129	<b>15.82</b>	<b>0.000</b>	<b>.206649</b> <b>.2651066</b>
AGE		<b>.0257525</b>	.0009735	<b>26.45</b>	<b>0.000</b>	<b>.0238446</b> <b>.0276605</b>
SEX		<b>-.0713542</b>	.0103216	<b>-6.91</b>	<b>0.000</b>	<b>-.0915842</b> <b>-.0511242</b>
NonWhite		<b>-.351619</b>	.024734	<b>-14.22</b>	<b>0.000</b>	<b>-.4000967</b> <b>-.3031412</b>
householdszie		<b>.0018983</b>	.0047771	<b>0.40</b>	<b>0.691</b>	<b>-.0074648</b> <b>.0112613</b>
SES		<b>-.0963527</b>	.0077417	<b>-12.45</b>	<b>0.000</b>	<b>-.1115262</b> <b>-.0811792</b>
LE8_TOTALSCORE		<b>-.000693</b>	.000055	<b>-12.61</b>	<b>0.000</b>	<b>-.0008007</b> <b>-.0005853</b>
_cons		<b>-1.12153</b>	.0704226	<b>-15.93</b>	<b>0.000</b>	<b>-1.259556</b> <b>-.9835047</b>
<b>sigma2</b>						
_cons		<b>.9476673</b>	.0070292	<b>134.82</b>	<b>0.000</b>	<b>.9338903</b> <b>.9614443</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.280415</b>	.1644498	7.79	<b>0.000</b>	.9580996 1.602731
ereri_cde	<b>1.268034</b>	.1682521	7.54	<b>0.000</b>	.9382662 1.597802
ereri_intref	<b>-.0017628</b>	.0019985	-0.88	0.378	-.0056799 .0021542
ereri_intmed	<b>-.0056521</b>	.0293981	-0.19	0.848	-.0632713 .051967
ereri_pie	<b>.0197961</b>	.0093013	2.13	0.033	.0015659 .0380262

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zhmbs
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04659 2.218 -.07483 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9201.1117

Iteration 1: Log likelihood = -9116.5077

Iteration 2: Log likelihood = -9100.0785

Iteration 3: Log likelihood = -9099.846

Iteration 4: Log likelihood = -9099.8459

Refining estimates:

Iteration 0: Log likelihood = -9099.8459

Cox regression with Breslow method for ties

No. of subjects = 36,726 Number of obs = 36,726

No. of failures = 982

Time at risk = 446,105.322

Log likelihood = -9099.8459

LR chi2(9) = 202.53

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.225642</b>	.1596858	<b>11.15</b>	<b>0.000</b>	<b>1.933673</b> 2.561695
zhmbs	<b>.9903497</b>	.0386401	-0.25	0.804	.9174398    1.069054
_infectionburXzhmbs_000	<b>1.189279</b>	.084044	<b>2.45</b>	<b>0.014</b>	<b>1.035454</b> 1.365955
AGE	<b>1.033643</b>	.0129482	<b>2.64</b>	<b>0.008</b>	<b>1.008574</b> 1.059335
SEX	<b>.7649057</b>	.0500992	-4.09	0.000	.6727545    .8696794
NonWhite	<b>1.067154</b>	.1814028	<b>0.38</b>	<b>0.702</b>	<b>.7647746</b> 1.489089
householdsize	<b>.9331905</b>	.0392679	-1.64	0.100	.8593152    1.013417
SES	<b>.8184064</b>	.0401034	-4.09	0.000	.7434617    .900906
LE8_TOTALSCORE	<b>.999112</b>	.0003532	-2.51	0.012	.99842    .9998045

-> Model for the mediator

Iteration 0: Log likelihood = **-51418.159**  
 Iteration 1: Log likelihood = **-51418.159**

Linear regression (Maximum Likelihood)                          Number of obs = **36,726**  
     Wald chi2(7) = **1413.06**  
 Log likelihood = **-51418.159**                                      Prob > chi2 = **0.0000**

zhmbs	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>-.0185427</b>	.0149581	-1.24	0.215	-.0478601    .0107747
AGE	<b>.0040747</b>	.0009756	<b>4.18</b>	<b>0.000</b>	<b>.0021626</b> .0059868
SEX	<b>-.348704</b>	.0103513	-33.69	0.000	-.3689923    -.3284158
NonWhite	<b>-.0111767</b>	.0247665	-0.45	0.652	-.0597182    .0373648
householdsize	<b>-.006076</b>	.0047131	-1.29	0.197	-.0153135    .0031615
SES	<b>.0521474</b>	.0077638	<b>6.72</b>	<b>0.000</b>	<b>.0369306</b> .0673641
LE8_TOTALSCORE	<b>-.0006339</b>	.0000551	-11.50	0.000	-.000742    -.0005259
_cons	<b>.626384</b>	.0705502	<b>8.88</b>	<b>0.000</b>	<b>.4881082</b> .7646598
<b>sigma2</b>					
_cons	<b>.9629235</b>	.0071059	<b>135.51</b>	<b>0.000</b>	<b>.9489962</b> .9768508

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.248594</b>	.1599204	<b>7.81</b>	<b>0.000</b>	<b>.9351559</b> 1.562033
ereri_cde	<b>1.225617</b>	.1596869	<b>7.68</b>	<b>0.000</b>	<b>.9126362</b> 1.538597
ereri_intref	<b>.0298113</b>	.0213691	<b>1.40</b>	<b>0.163</b>	-.0120714    .071694
ereri_intmed	<b>-.0070136</b>	.0062262	-1.13	0.260	-.0192168    .0051896
ereri_pie	<b>.0001798</b>	.000738	<b>0.24</b>	<b>0.807</b>	-.0012666    .0016263

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```

Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zhmox1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

Model for the outcome (yreg): cox
Model for the mediator (mreg): linear

Referent exposure level (a0):          0
Actual exposure level (a1):           1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c):    60.18 1.531 .04648 2.218 -.07575 500.4

```

-> Model for the outcome

```

Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid

Iteration 0: Log likelihood = -8939.1302
Iteration 1: Log likelihood = -8848.8618
Iteration 2: Log likelihood = -8840.1311
Iteration 3: Log likelihood = -8840.1106
Iteration 4: Log likelihood = -8840.1106
Refining estimates:
Iteration 0: Log likelihood = -8840.1106

```

Cox regression with Breslow method for ties

No. of subjects =	<b>36,034</b>	Number of obs =	<b>36,034</b>
No. of failures =	<b>956</b>		
Time at risk =	<b>437,801.382</b>	LR chi2(9) =	<b>198.04</b>
Log likelihood =	<b>-8840.1106</b>	Prob > chi2 =	<b>0.0000</b>

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.279363</b>	.1639561	<b>11.45</b>	<b>0.000</b>	<b>1.979639</b> <b>2.624466</b>
zhmox1	<b>1.041305</b>	.0403008	<b>1.05</b>	<b>0.296</b>	<b>.9652383</b> <b>1.123366</b>
_infectionburXzhmox1_000	<b>.9388019</b>	.0648988	<b>-0.91</b>	<b>0.361</b>	<b>.8198434</b> <b>1.075021</b>
AGE	<b>1.034807</b>	.0131471	<b>2.69</b>	<b>0.007</b>	<b>1.009358</b> <b>1.060899</b>
SEX	<b>.7422983</b>	.0489818	<b>-4.52</b>	<b>0.000</b>	<b>.6522447</b> <b>.8447855</b>
NonWhite	<b>.9620049</b>	.1754181	<b>-0.21</b>	<b>0.832</b>	<b>.6729205</b> <b>1.375279</b>
householdsize	<b>.9244073</b>	.040354	<b>-1.80</b>	<b>0.072</b>	<b>.848604</b> <b>1.006982</b>
SES	<b>.824426</b>	.0410509	<b>-3.88</b>	<b>0.000</b>	<b>.7477692</b> <b>.9089412</b>
LE8_TOTALSCORE	<b>.9990301</b>	.0003587	<b>-2.70</b>	<b>0.007</b>	<b>.9983274</b> <b>.9997333</b>

-> Model for the mediator

Iteration 0: Log likelihood =	<b>-50616.281</b>	Number of obs =	<b>36,034</b>
Iteration 1: Log likelihood =	<b>-50616.281</b>	Wald chi2(7) =	<b>1041.26</b>
Linear regression (Maximum Likelihood)		Prob > chi2 =	<b>0.0000</b>
Log likelihood =	<b>-50616.281</b>		

	zhmox1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.0161583	.015143	1.07	0.286	-.0135214 .0458381
AGE		.0108827	.0009898	10.99	0.000	.0089427 .0128227
SEX		-.2772355	.0104994	-26.40	0.000	-.2978139 -.2566571
NonWhite		-.243379	.0251366	-9.68	0.000	-.2926459 -.1941121
householdsize		-.0103577	.0047701	-2.17	0.030	-.019707 -.0010084
SES		.0337321	.0078825	4.28	0.000	.0182826 .0491816
LE8_TOTALSCORE		.0002371	.000056	4.23	0.000	.0001274 .0003468
_cons		-.3145015	.071538	-4.40	0.000	-.4547134 -.1742897
<b>sigma2</b>						
_cons		.971888	.0072406	134.23	0.000	.9576967 .9860793

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.277607	.1637255	7.80	0.000	.9567108 1.598503
ereri_cde	1.278461	.1637597	7.81	0.000	.9574978 1.599424
ereri_intref	-.0000195	.0035458	-0.01	0.996	-.0069691 .0069301
ereri_intmed	-.0014889	.002613	-0.57	0.569	-.0066103 .0036325
ereri_pie	.0006542	.0008762	0.75	0.455	-.0010631 .0023716

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zhmox2
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04688 2.215 -.07424 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8819.5642**  
 Iteration 1: Log likelihood = **-8734.755**  
 Iteration 2: Log likelihood = **-8726.5451**  
 Iteration 3: Log likelihood = **-8726.5054**  
 Iteration 4: Log likelihood = **-8726.5054**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8726.5054**

Cox regression with Breslow method for ties

No. of subjects =	<b>35,601</b>	Number of obs =	<b>35,601</b>
No. of failures =	<b>943</b>		
Time at risk =	<b>432,443.367</b>	LR chi2(9) =	<b>186.12</b>
Log likelihood =	<b>-8726.5054</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.211918</b>	.1612419	<b>10.89</b>	<b>0.000</b>	<b>1.917429</b>	<b>2.551638</b>
zhmox2	<b>.9526399</b>	.0396837	<b>-1.16</b>	<b>0.244</b>	<b>.8779517</b>	<b>1.033682</b>
_infectionburXzhmox2_000	<b>1.091241</b>	.0812248	<b>1.17</b>	<b>0.241</b>	<b>.9431109</b>	<b>1.262637</b>
AGE	<b>1.037543</b>	.0132113	<b>2.89</b>	<b>0.004</b>	<b>1.01197</b>	<b>1.063763</b>
SEX	<b>.7477603</b>	.0494011	<b>-4.40</b>	<b>0.000</b>	<b>.6569426</b>	<b>.8511328</b>
NonWhite	<b>1.089286</b>	.1877084	<b>0.50</b>	<b>0.620</b>	<b>.7770712</b>	<b>1.526944</b>
householdszie	<b>.9299747</b>	.0401515	<b>-1.68</b>	<b>0.093</b>	<b>.8545169</b>	<b>1.012096</b>
SES	<b>.8156439</b>	.0407174	<b>-4.08</b>	<b>0.000</b>	<b>.7396191</b>	<b>.8994833</b>
LE8_TOTALSCORE	<b>.9991714</b>	.0003617	<b>-2.29</b>	<b>0.022</b>	<b>.9984628</b>	<b>.9998805</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50218.432**  
 Iteration 1: Log likelihood = **-50218.432**

Linear regression (Maximum Likelihood)	Number of obs =	<b>35,601</b>	
	Wald chi2(7) =	<b>598.37</b>	
Log likelihood =	<b>-50218.432</b>	Prob > chi2 =	<b>0.0000</b>

	zhmox2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr	<b>.0467228</b>	.0153374	<b>3.05</b>	<b>0.002</b>	<b>.0166621</b>	<b>.0767835</b>
AGE	<b>-.0009371</b>	.0010042	<b>-0.93</b>	<b>0.351</b>	<b>-.0029052</b>	<b>.0010311</b>
SEX	<b>-.0978596</b>	.0106251	<b>-9.21</b>	<b>0.000</b>	<b>-.1186845</b>	<b>-.0770348</b>
NonWhite	<b>-.0238128</b>	.0253526	<b>-0.94</b>	<b>0.348</b>	<b>-.0735031</b>	<b>.0258774</b>
householdszie	<b>-.0041945</b>	.0050406	<b>-0.83</b>	<b>0.405</b>	<b>-.0140739</b>	<b>.0056849</b>
SES	<b>-.0217514</b>	.0079818	<b>-2.73</b>	<b>0.006</b>	<b>-.0373954</b>	<b>-.0061075</b>
LE8_TOTALSCORE	<b>-.0011431</b>	.0000566	<b>-20.18</b>	<b>0.000</b>	<b>-.0012541</b>	<b>-.0010321</b>
_cons	<b>.7805672</b>	.0728006	<b>10.72</b>	<b>0.000</b>	<b>.6378807</b>	<b>.9232537</b>
<b>sigma2</b>						
_cons	<b>.9834425</b>	.0073711	<b>133.42</b>	<b>0.000</b>	<b>.9689954</b>	<b>.9978896</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.213752</b>	.1612242	7.53	<b>0.000</b>	.8977588 1.529746
ereri_cde	<b>1.210135</b>	.160971	7.52	<b>0.000</b>	.8946381 1.525633
ereri_intref	<b>-.0003922</b>	.0049442	-0.08	0.937	-.0100826 .0092981
ereri_intmed	<b>.0062736</b>	.0069885	0.90	0.369	-.0074236 .0199708
ereri_pie	<b>-.0022643</b>	.002079	-1.09	0.276	-.0063391 .0018104

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zhnmt
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.17 1.531 .04637 2.216 -.07404 500.7

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8924.4324**

Iteration 1: Log likelihood = **-8832.0594**

Iteration 2: Log likelihood = **-8824.1854**

Iteration 3: Log likelihood = **-8824.1689**

Iteration 4: Log likelihood = **-8824.1689**

Refining estimates:

Iteration 0: Log likelihood = **-8824.1689**

Cox regression with Breslow method for ties

No. of subjects = 35,993

Number of obs = 35,993

No. of failures = 954

Time at risk = 437,359.54

LR chi2(9) = 200.53

Log likelihood = **-8824.1689** Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.228301</b>	.1637932	<b>10.90</b>	<b>0.000</b>	<b>1.929325</b> 2.573606
zhnmt	<b>.9145009</b>	.0366432	-2.23	0.026	<b>.8454292</b> .9892157
_infectionburXzhnmt_000	<b>1.034369</b>	.0742674	<b>0.47</b>	<b>0.638</b>	<b>.8985856</b> 1.19067
AGE	<b>1.040573</b>	.0132311	3.13	0.002	<b>1.014961</b> 1.066831
SEX	<b>.7330971</b>	.0481746	-4.72	0.000	<b>.6445043</b> .8338678
NonWhite	<b>1.007383</b>	.1760544	<b>0.04</b>	<b>0.966</b>	<b>.7152122</b> 1.418907
householdsize	<b>.9439357</b>	.0394641	-1.38	0.168	<b>.8696717</b> 1.024541
SES	<b>.8075919</b>	.0401594	-4.30	0.000	<b>.7325951</b> .8902663
LE8_TOTALSCORE	<b>.9988332</b>	.0003648	-3.20	0.001	<b>.9981184</b> .9995486

-> Model for the mediator

Iteration 0: Log likelihood = **-49268.08**  
 Iteration 1: Log likelihood = **-49268.08**

Linear regression (Maximum Likelihood)                          Number of obs = 35,993  
     Wald chi2(7) = 3793.43  
 Log likelihood = **-49268.08**                                      Prob > chi2 = 0.0000

zhnmt	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.1466751</b>	.0146379	<b>10.02</b>	<b>0.000</b>	<b>.1179854</b> .1753648
AGE	<b>.0229941</b>	.0009581	<b>24.00</b>	<b>0.000</b>	<b>.0211163</b> .0248719
SEX	<b>-.1400616</b>	.0101355	-13.82	0.000	<b>-.1599268</b> -.1201964
NonWhite	<b>-.1771687</b>	.0243131	-7.29	0.000	<b>-.2248216</b> -.1295159
householdsize	<b>-.0033928</b>	.00481	-0.71	0.481	<b>-.0128201</b> .0060346
SES	<b>-.0585891</b>	.0076215	-7.69	0.000	<b>-.0735269</b> -.0436513
LE8_TOTALSCORE	<b>-.0024379</b>	.0000539	-45.20	0.000	<b>-.0025436</b> -.0023322
_cons	<b>.0425802</b>	.0694452	0.61	0.540	<b>-.0935299</b> .1786902
<b>sigma2</b>					
_cons	<b>.90463</b>	.0067434	<b>134.15</b>	<b>0.000</b>	<b>.8914133</b> .9178468

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.203799</b>	.1611061	<b>7.47</b>	<b>0.000</b>	<b>.8880367</b> 1.519561
ereri_cde	<b>1.221646</b>	.1631914	<b>7.49</b>	<b>0.000</b>	<b>.9017962</b> 1.541495
ereri_intref	<b>.0001943</b>	.0103345	<b>0.02</b>	<b>0.985</b>	<b>-.0200609</b> .0204495
ereri_intmed	<b>-.0050172</b>	.0206863	-0.24	0.808	<b>-.0455616</b> .0355273
ereri_pie	<b>-.0130238</b>	.0059426	-2.19	0.028	<b>-.024671</b> -.0013766

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zhnrnlpk  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.18 1.531 .04649 2.218 -.07434 500.6

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -8892.848  
 Iteration 1: Log likelihood = -8806.5293  
 Iteration 2: Log likelihood = -8799.2388  
 Iteration 3: Log likelihood = -8799.2235  
 Iteration 4: Log likelihood = -8799.2235  
 Refining estimates:  
 Iteration 0: Log likelihood = -8799.2235

Cox regression with Breslow method for ties

No. of subjects =	35,642	Number of obs =	35,642
No. of failures =	952		
Time at risk =	432,969.858	LR chi2(9) =	187.25
Log likelihood =	-8799.2235	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.203461	.1601574	10.87	0.000	1.910892 2.540823
zhnrnlpk	.9111194	.0366924	-2.31	0.021	.8419685 .9859496
_infectionburXzhnrnlpk_000	1.05655	.0762757	0.76	0.446	.9171477 1.217142
AGE	1.036963	.0131795	2.86	0.004	1.01145 1.063118
SEX	.7486409	.0492537	-4.40	0.000	.6580704 .8516767
NonWhite	1.12611	.1916111	0.70	0.485	.8067634 1.571866
householdsize	.9378918	.0397068	-1.51	0.130	.8632094 1.019036
SES	.8315806	.0414265	-3.70	0.000	.754224 .9168711
LE8_TOTALSCORE	.9989291	.0003594	-2.98	0.003	.998225 .9996338

-> Model for the mediator

Iteration 0: Log likelihood = -50303.841  
 Iteration 1: Log likelihood = -50303.841

Linear regression (Maximum Likelihood)  
 Number of obs = 35,642  
 Wald chi2(7) = 543.03  
 Log likelihood = -50303.841 Prob > chi2 = 0.0000

	z <hr/> hnrnpk	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.0034993	.015342	0.23	0.820	-.0265704 .0335691
AGE		-.0028494	.0010016	-2.84	0.004	-.0048125 -.0008864
SEX		-.1055096	.0106274	-9.93	0.000	-.126339 -.0846802
NonWhite		.147725	.0254434	5.81	0.000	.0978569 .1975932
householdsize		.00192	.0048455	0.40	0.692	-.0075769 .011417
SES		-.0439004	.0079806	-5.50	0.000	-.0595421 -.0282587
LE8_TOTALSCORE		-.0009392	.0000566	-16.59	0.000	-.0010502 -.0008282
_cons		.7882487	.0724075	10.89	0.000	.6463326 .9301648
<b>sigma2</b>						
_cons		.9849654	.0073783	133.50	0.000	.9705043 .9994266

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.195294	.1593201	7.50	0.000	.8830324 1.507556
ereri_cde	1.198282	.1593349	7.52	0.000	.8859914 1.510573
ereri_intref	-.0026955	.0062119	-0.43	0.664	-.0148707 .0094796
ereri_intmed	.0000332	.0005042	0.07	0.948	-.0009551 .0010214
ereri_pie	-.0003257	.0014345	-0.23	0.820	-.0031373 .0024859

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zhpcall1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .0466 2.218 -.07544 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9166.3755**  
 Iteration 1: Log likelihood = **-9074.3433**  
 Iteration 2: Log likelihood = **-9064.8701**  
 Iteration 3: Log likelihood = **-9064.8381**  
 Iteration 4: Log likelihood = **-9064.8381**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-9064.8381**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,824</b>	Number of obs =	<b>36,824</b>
No. of failures =	<b>978</b>		
Time at risk =	<b>447,356.911</b>	LR chi2(9) =	<b>203.07</b>
Log likelihood =	<b>-9064.8381</b>	Prob > chi2 =	<b>0.0000</b>

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.27728</b>	<b>.1621316</b>	<b>11.56</b>	<b>0.000</b>	<b>1.980682</b> <b>2.618291</b>
zhpcal1	<b>.9442036</b>	<b>.0357272</b>	<b>-1.52</b>	<b>0.129</b>	<b>.8767131</b> <b>1.016889</b>
_infectionburXzhpcal1_000	<b>.9927753</b>	<b>.0699162</b>	<b>-0.10</b>	<b>0.918</b>	<b>.8647789</b> <b>1.139717</b>
AGE	<b>1.035566</b>	<b>.0129845</b>	<b>2.79</b>	<b>0.005</b>	<b>1.010427</b> <b>1.06133</b>
SEX	<b>.7522077</b>	<b>.0487651</b>	<b>-4.39</b>	<b>0.000</b>	<b>.6624528</b> <b>.8541233</b>
NonWhite	<b>1.055686</b>	<b>.1818576</b>	<b>0.31</b>	<b>0.753</b>	<b>.7531868</b> <b>1.479677</b>
householdszie	<b>.9360808</b>	<b>.0392972</b>	<b>-1.57</b>	<b>0.116</b>	<b>.8621432</b> <b>1.016359</b>
SES	<b>.8163198</b>	<b>.0400759</b>	<b>-4.13</b>	<b>0.000</b>	<b>.7414331</b> <b>.8987702</b>
LE8_TOTALSCORE	<b>.9990479</b>	<b>.0003536</b>	<b>-2.69</b>	<b>0.007</b>	<b>.998355</b> <b>.9997413</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-52157.464**  
 Iteration 1: Log likelihood = **-52157.464**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,824</b>
	Wald chi2(7) =	<b>186.53</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

<u>zhpcall1</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>-.004927</b>	<b>.0151769</b>	<b>-0.32</b>	<b>0.745</b>	<b>-.0346733</b> <b>.0248193</b>
AGE	<b>-.004176</b>	<b>.0009899</b>	<b>-4.22</b>	<b>0.000</b>	<b>-.0061162</b> <b>-.0022359</b>
SEX	<b>-.0243283</b>	<b>.0105088</b>	<b>-2.32</b>	<b>0.021</b>	<b>-.0449251</b> <b>-.0037314</b>
NonWhite	<b>.091635</b>	<b>.0251385</b>	<b>3.65</b>	<b>0.000</b>	<b>.0423645</b> <b>.1409055</b>
householdszie	<b>-.000728</b>	<b>.0047909</b>	<b>-0.15</b>	<b>0.879</b>	<b>-.0101181</b> <b>.0086621</b>
SES	<b>-.0429061</b>	<b>.0078802</b>	<b>-5.44</b>	<b>0.000</b>	<b>-.0583511</b> <b>-.0274612</b>
LE8_TOTALSCORE	<b>-.000517</b>	<b>.0000559</b>	<b>-9.24</b>	<b>0.000</b>	<b>-.0006267</b> <b>-.0004074</b>
_cons	<b>.5421198</b>	<b>.0715551</b>	<b>7.58</b>	<b>0.000</b>	<b>.4018745</b> <b>.6823651</b>
<b>sigma2</b>					
_cons	<b>.9949331</b>	<b>.0073324</b>	<b>135.69</b>	<b>0.000</b>	<b>.980562</b> <b>1.009304</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.278997</b>	.1618898	7.90	<b>0.000</b>	.9616992 1.596295
ereri_cde	<b>1.275237</b>	.161805	7.88	<b>0.000</b>	.958105 1.592369
ereri_intref	<b>.0030344</b>	.0088815	0.34	0.733	-.014373 .0204419
ereri_intmed	<b>.0004431</b>	.0015315	0.29	0.772	-.0025587 .0034448
ereri_pie	<b>.0002829</b>	.0008913	0.32	0.751	-.0014641 .0020299

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zhpgds
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04669 2.217 -.07551 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -8882.1967

Iteration 1: Log likelihood = -8787.1939

Iteration 2: Log likelihood = -8764.3285

Iteration 3: Log likelihood = -8763.6733

Iteration 4: Log likelihood = -8763.6723

Iteration 5: Log likelihood = -8763.6723

Refining estimates:

Iteration 0: Log likelihood = -8763.6723

Cox regression with Breslow method for ties

No. of subjects = 35,573 Number of obs = 35,573

No. of failures = 951

Time at risk = 432,088.637

LR chi2(9) = 237.05

Log likelihood = -8763.6723 Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.187225	.166939	10.25	0.000	1.883328 2.54016
zhpgds	.7882309	.031458	-5.96	0.000	.7289241 .8523629
_infectionburXzhpgds_000	1.010701	.0712845	0.15	0.880	.8802127 1.160534
AGE	1.034525	.0131574	2.67	0.008	1.009056 1.060637
SEX	.7623599	.0501975	-4.12	0.000	.6700586 .8673757
NonWhite	1.098366	.1867844	0.55	0.581	.7870364 1.53285
householdsize	.9399687	.0395023	-1.47	0.141	.8656485 1.02067
SES	.8481124	.0422688	-3.31	0.001	.7691847 .9351389
LE8_TOTALSCORE	.9993311	.0003582	-1.87	0.062	.9986293 1.000034

-> Model for the mediator

Iteration 0: Log likelihood = -50258.709  
 Iteration 1: Log likelihood = -50258.709

Linear regression (Maximum Likelihood)  
 Number of obs = 35,573  
 Wald chi2(7) = 436.03  
 Log likelihood = -50258.709 Prob > chi2 = 0.0000

	zhpgds	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr	-.1562758	.0153963	-10.15	0.000	-.186452	-.1260995
AGE	-.0033483	.001004	-3.34	0.001	-.005316	-.0013806
SEX	.0862301	.0106534	8.09	0.000	.0653498	.1071104
NonWhite	-.0378759	.0254607	-1.49	0.137	-.087778	.0120261
householdsize	.0029012	.0048487	0.60	0.550	-.0066022	.0124045
SES	.0749215	.0079904	9.38	0.000	.0592607	.0905823
LE8_TOTALSCORE	.0003986	.0000567	7.03	0.000	.0002874	.0005098
_cons	-.1073541	.0725577	-1.48	0.139	-.2495646	.0348564
<b>sigma2</b>						
_cons	.9878632	.0074072	133.37	0.000	.9733454	1.002381

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.261306	.1636269	7.71	0.000	.9406036 1.582009
ereri_cde	1.160447	.1622156	7.15	0.000	.8425098 1.478383
ereri_intref	.021938	.0263791	0.83	0.406	-.0297641 .0736402
ereri_intmed	.0410338	.0219078	1.87	0.061	-.0019047 .0839722
ereri_pie	.0378882	.0075075	5.05	0.000	.0231738 .0526025

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```

Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zhs3st3b1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

Model for the outcome (yreg): cox
Model for the mediator (mreg): linear

Referent exposure level (a0):          0
Actual exposure level (a1):           1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c):    60.18 1.531 .04658 2.216 -.07524 500.8

```

-> Model for the outcome

```

Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid

Iteration 0: Log likelihood = -9057.6167
Iteration 1: Log likelihood = -8968.4716
Iteration 2: Log likelihood = -8960.0027
Iteration 3: Log likelihood = -8959.9832
Iteration 4: Log likelihood = -8959.9832
Refining estimates:
Iteration 0: Log likelihood = -8959.9832

```

Cox regression with Breslow method for ties

No. of subjects =	<b>36,264</b>	Number of obs =	<b>36,264</b>
No. of failures =	<b>968</b>		
Time at risk =	<b>440,524.906</b>	LR chi2(9) =	<b>195.27</b>
Log likelihood =	<b>-8959.9832</b>	Prob > chi2 =	<b>0.0000</b>

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.260419</b>	.1618585	<b>11.39</b>	<b>0.000</b>	<b>1.964437</b> <b>2.600996</b>
zhs3st3b1	<b>.9503443</b>	.0367505	<b>-1.32</b>	<b>0.188</b>	<b>.8809766</b> <b>1.025174</b>
_infectionburXzhs3st3b1_000	<b>1.026387</b>	.0713591	<b>0.37</b>	<b>0.708</b>	<b>.8956362</b> <b>1.176225</b>
AGE	<b>1.031737</b>	.0129933	<b>2.48</b>	<b>0.013</b>	<b>1.006582</b> <b>1.05752</b>
SEX	<b>.7561262</b>	.04938	<b>-4.28</b>	<b>0.000</b>	<b>.6652812</b> <b>.8593762</b>
NonWhite	<b>1.082473</b>	.1841411	<b>0.47</b>	<b>0.641</b>	<b>.7755642</b> <b>1.510832</b>
householdsize	<b>.9366395</b>	.0393308	<b>-1.56</b>	<b>0.119</b>	<b>.8626395</b> <b>1.016987</b>
SES	<b>.8167591</b>	.040293	<b>-4.10</b>	<b>0.000</b>	<b>.741484</b> <b>.899676</b>
LE8_TOTALSCORE	<b>.9990126</b>	.0003568	<b>-2.77</b>	<b>0.006</b>	<b>.9983135</b> <b>.9997122</b>

-> Model for the mediator

Iteration 0: Log likelihood =	<b>-51181.242</b>	Number of obs =	<b>36,264</b>
Iteration 1: Log likelihood =	<b>-51181.242</b>	Wald chi2(7) =	<b>553.47</b>
Linear regression (Maximum Likelihood)		Prob > chi2 =	<b>0.0000</b>
Log likelihood =	<b>-51181.242</b>		

	zhs3st3b1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.0519431	.0152094	3.42	0.001	.0221333 .081753
AGE		-.0033581	.0009931	-3.38	0.001	-.0053046 -.0014115
SEX		.1381501	.0105354	13.11	0.000	.1175012 .158799
NonWhite		-.1181611	.0252095	-4.69	0.000	-.1675707 -.0687514
householdsize		-.0113013	.0047914	-2.36	0.018	-.0206922 -.0019104
SES		.0112988	.0079014	1.43	0.153	-.0041876 .0267853
LE8_TOTALSCORE		-.0010522	.0000561	-18.75	0.000	-.0011622 -.0009422
_cons		.5415961	.0717756	7.55	0.000	.4009186 .6822736
<b>sigma2</b>						
_cons		.98494	.0073145	134.66	0.000	.9706038 .9992762

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.254881	.1613623	7.78	0.000	.9386167 1.571145
ereri_cde	1.258347	.1615284	7.79	0.000	.9417577 1.574937
ereri_intref	-.0005498	.0047004	-0.12	0.907	-.0097624 .0086628
ereri_intmed	-.0002747	.0070908	-0.04	0.969	-.0141724 .013623
ereri_pie	-.002642	.0021472	-1.23	0.219	-.0068504 .0015664

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zhs6st1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04659 2.218 -.07483 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9201.1117**  
 Iteration 1: Log likelihood = **-9110.2175**  
 Iteration 2: Log likelihood = **-9100.659**  
 Iteration 3: Log likelihood = **-9100.6177**  
 Iteration 4: Log likelihood = **-9100.6177**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-9100.6177**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,726</b>	Number of obs =	<b>36,726</b>
No. of failures =	<b>982</b>		
Time at risk =	<b>446,105.322</b>	LR chi2(9) =	<b>200.99</b>
Log likelihood =	<b>-9100.6177</b>	Prob > chi2 =	<b>0.0000</b>

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.264541</b>	<b>.1613928</b>	<b>11.47</b>	<b>0.000</b>	<b>1.969317</b> <b>2.604024</b>
zhs6st1	<b>.9117439</b>	<b>.035758</b>	<b>-2.36</b>	<b>0.018</b>	<b>.8442854</b> <b>.9845924</b>
_infectionburXzhs6st1_000	<b>1.047289</b>	<b>.0702476</b>	<b>0.69</b>	<b>0.491</b>	<b>.9182724</b> <b>1.194432</b>
AGE	<b>1.033879</b>	<b>.0129485</b>	<b>2.66</b>	<b>0.008</b>	<b>1.008809</b> <b>1.059572</b>
SEX	<b>.782872</b>	<b>.0517741</b>	<b>-3.70</b>	<b>0.000</b>	<b>.6876981</b> <b>.8912174</b>
NonWhite	<b>1.058059</b>	<b>.1799924</b>	<b>0.33</b>	<b>0.740</b>	<b>.7580664</b> <b>1.476769</b>
householdszie	<b>.9318997</b>	<b>.0392508</b>	<b>-1.67</b>	<b>0.094</b>	<b>.8580593</b> <b>1.012094</b>
SES	<b>.8215221</b>	<b>.0402493</b>	<b>-4.01</b>	<b>0.000</b>	<b>.7463042</b> <b>.9043211</b>
LE8_TOTALSCORE	<b>.9990199</b>	<b>.0003546</b>	<b>-2.76</b>	<b>0.006</b>	<b>.9983251</b> <b>.9997153</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-51283.142**  
 Iteration 1: Log likelihood = **-51283.142**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,726</b>
	Wald chi2(7) =	<b>1694.52</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.0198616</b>	<b>.0149032</b>	<b>1.33</b>	<b>0.183</b>	<b>-.0093482</b> <b>.0490714</b>
AGE	<b>-.0009705</b>	<b>.000972</b>	<b>-1.00</b>	<b>0.318</b>	<b>-.0028756</b> <b>.0009345</b>
SEX	<b>.3690241</b>	<b>.0103133</b>	<b>35.78</b>	<b>0.000</b>	<b>.3488103</b> <b>.3892379</b>
NonWhite	<b>-.2361998</b>	<b>.0246756</b>	<b>-9.57</b>	<b>0.000</b>	<b>-.2845631</b> <b>-.1878365</b>
householdszie	<b>-.0079381</b>	<b>.0046958</b>	<b>-1.69</b>	<b>0.091</b>	<b>-.0171417</b> <b>.0012654</b>
SES	<b>-.0143167</b>	<b>.0077353</b>	<b>-1.85</b>	<b>0.064</b>	<b>-.0294776</b> <b>.0008442</b>
LE8_TOTALSCORE	<b>-.0010431</b>	<b>.0000549</b>	<b>-18.99</b>	<b>0.000</b>	<b>-.0011507</b> <b>-.0009354</b>
_cons	<b>.0403679</b>	<b>.0702913</b>	<b>0.57</b>	<b>0.566</b>	<b>-.0974005</b> <b>.1781363</b>
<b>sigma2</b>					
_cons	<b>.9558694</b>	<b>.0070539</b>	<b>135.51</b>	<b>0.000</b>	<b>.9420441</b> <b>.9696947</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.255264</b>	.1603785	7.83	<b>0.000</b>	.9409285 1.5696
ereri_cde	<b>1.259072</b>	.1605222	7.84	<b>0.000</b>	.9444543 1.57369
ereri_intref	<b>-.0017377</b>	.0067786	-0.26	<b>0.798</b>	-.0150235 .0115482
ereri_intmed	<b>-.0002366</b>	.0025912	-0.09	<b>0.927</b>	-.0053151 .004842
ereri_pie	<b>-.0018335</b>	.0015792	-1.16	<b>0.246</b>	-.0049285 .0012616

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zhsd11b1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04646 2.216 -.07503 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9036.4379

Iteration 1: Log likelihood = -8946.9028

Iteration 2: Log likelihood = -8937.514

Iteration 3: Log likelihood = -8937.4734

Iteration 4: Log likelihood = -8937.4734

Refining estimates:

Iteration 0: Log likelihood = -8937.4734

Cox regression with Breslow method for ties

No. of subjects = 36,352 Number of obs = 36,352

No. of failures = 965

Time at risk = 441,650.762

Log likelihood = -8937.4734

LR chi2(9) = 197.93

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.26202</b>	.1620053	<b>11.40</b>	<b>0.000</b>	<b>1.965774</b>
zhsd11b1		<b>1.080044</b>	.0426855	<b>1.95</b>	<b>0.051</b>	<b>.99954</b>
_infectionburXzhsd11b1_000		<b>.9871328</b>	.0695779	<b>-0.18</b>	<b>0.854</b>	<b>.8597629</b>
AGE		<b>1.032544</b>	.0130108	<b>2.54</b>	<b>0.011</b>	<b>1.007356</b>
SEX		<b>.7685765</b>	.0503282	<b>-4.02</b>	<b>0.000</b>	<b>.6760027</b>
NonWhite		<b>1.060713</b>	.1828018	<b>0.34</b>	<b>0.732</b>	<b>.7566642</b>
householdsize		<b>.9346423</b>	.0396515	<b>-1.59</b>	<b>0.111</b>	<b>.86007</b>
SES		<b>.8183692</b>	.0404111	<b>-4.06</b>	<b>0.000</b>	<b>.742877</b>
LE8_TOTALSCORE		<b>.9989282</b>	.0003578	<b>-2.99</b>	<b>0.003</b>	<b>.9982271</b>

### -> Model for the mediator

Iteration 0: Log likelihood = -51053.142  
Iteration 1: Log likelihood = -51053.142

Linear regression (Maximum Likelihood)  
Number of obs = 36,352  
Log likelihood = -51053.142 Wald chi2(7) = 1070.69  
Prob > chi2 = 0.0000

	zhsd11b1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		-.0105375	.0150982	-0.70	0.485	-.0401295 .0190545
AGE		-.005605	.0009856	-5.69	0.000	-.0075367 -.0036733
SEX		-.1396634	.0104498	-13.37	0.000	-.1601448 -.1191821
NonWhite		-.1257568	.0250413	-5.02	0.000	-.1748369 -.0766767
householdsiz		-.0088111	.0048365	-1.82	0.068	-.0182905 .0006682
SES		.0175437	.0078379	2.24	0.025	.0021817 .0329057
LE8_TOTALSCORE		.0015686	.0000556	28.19	0.000	.0014595 .0016776
_cons		-.2059476	.0712975	-2.89	0.004	-.3456882 -.066207
<b>sigma2</b>						
_cons		.9713626	.007205	134.82	0.000	.9572411 .9854841

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.258446</b>	.1619316	<b>7.77</b>	<b>0.000</b>	.9410663 <b>1.575827</b>
ereri_cde	<b>1.258249</b>	.1614929	<b>7.79</b>	<b>0.000</b>	.9417291 <b>1.57477</b>
ereri_intref	<b>.0017218</b>	.0089607	<b>0.19</b>	<b>0.848</b>	- .0158409 <b>.0192846</b>
ereri_intmed	<b>-.0007137</b>	.0017864	<b>-0.40</b>	<b>0.689</b>	-.004215 <b>.0027875</b>
ereri_pie	<b>-.0008111</b>	.0012339	<b>-0.66</b>	<b>0.511</b>	-.0032295 <b>.0016074</b>

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intre to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
Warning: this analysis assumes a rare outcome.  
Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```

Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zhsp90b1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

Model for the outcome (yreg): cox
Model for the mediator (mreg): linear

Referent exposure level (a0):          0
Actual exposure level (a1):           1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c):    60.18 1.531 .04694 2.215 -.07374 500.5

```

-> Model for the outcome

```

Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid

Iteration 0: Log likelihood = -8775.0598
Iteration 1: Log likelihood = -8689.6302
Iteration 2: Log likelihood = -8681.9718
Iteration 3: Log likelihood = -8681.9555
Iteration 4: Log likelihood = -8681.9555
Refining estimates:
Iteration 0: Log likelihood = -8681.9555

```

Cox regression with Breslow method for ties

No. of subjects =	35,430	Number of obs =	35,430
No. of failures =	938		
Time at risk =	430,354.425	LR chi2(9) =	186.21
Log likelihood =	-8681.9555	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.224207	.1622099	10.96	0.000	1.927959 2.565977
zhsp90b1	1.018576	.0395418	0.47	0.635	.9439509 1.099101
_infectionburXzhsp90b1_000	.9976516	.0717348	-0.03	0.974	.8665117 1.148639
AGE	1.038274	.0132604	2.94	0.003	1.012607 1.064592
SEX	.7452309	.0493668	-4.44	0.000	.6544918 .8485502
NonWhite	1.094503	.1886811	0.52	0.600	.7806899 1.534459
householdsize	.931353	.0402567	-1.65	0.100	.855701 1.013693
SES	.8125929	.0406745	-4.15	0.000	.736658 .8963552
LE8_TOTALSCORE	.9992167	.0003612	-2.17	0.030	.9985091 .9999248

-> Model for the mediator

Iteration 0: Log likelihood =	-50251.877	Number of obs =	35,430
Iteration 1: Log likelihood =	-50251.877	Wald chi2(7) =	41.26
Log likelihood =	-50251.877	Prob > chi2 =	0.0000

zhsp90b1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	.0088495	.0154951	0.57	0.568	-.0215202 .0392193
AGE	-.0042429	.001015	-4.18	0.000	-.0062322 -.0022536
SEX	.0244058	.0107346	2.27	0.023	.0033663 .0454453
NonWhite	-.0707958	.0256014	-2.77	0.006	-.1209737 -.0206179
householdsize	-.0005256	.00512	-0.10	0.918	-.0105606 .0095093
SES	.0044409	.0080691	0.55	0.582	-.0113744 .0202561
LE8_TOTALSCORE	.0001361	.0000572	2.38	0.017	.000024 .0002483
_cons	.1534372	.0735936	2.08	0.037	.0091965 .2976779
<b>sigma2</b>					
_cons	.9988087	.0075043	133.10	0.000	.9841005 1.013517

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.22444	.1622804	7.55	0.000	.906376 1.542503
ereri_cde	1.224028	.1621948	7.55	0.000	.9061319 1.541924
ereri_intref	.0000959	.0021042	0.05	0.964	-.0040283 .00422
ereri_intmed	.0001531	.0012693	0.12	0.904	-.0023346 .0026408
ereri_pie	.0001629	.0004466	0.36	0.715	-.0007124 .0010382

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zhspa1a
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.532 .04628 2.216 -.07495 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9114.4129**  
 Iteration 1: Log likelihood = **-9023.7971**  
 Iteration 2: Log likelihood = **-9015.5997**  
 Iteration 3: Log likelihood = **-9015.5823**  
 Iteration 4: Log likelihood = **-9015.5823**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-9015.5823**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,536</b>	Number of obs =	<b>36,536</b>
No. of failures =	<b>973</b>		
Time at risk =	<b>443,779.95</b>	LR chi2(9) =	<b>197.66</b>
Log likelihood =	<b>-9015.5823</b>	Prob > chi2 =	<b>0.0000</b>

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.251244</b>	.1610139	<b>11.35</b>	<b>0.000</b>	<b>1.956783</b> <b>2.590016</b>
zhspa1a	<b>.9056678</b>	.0363042	<b>-2.47</b>	<b>0.013</b>	<b>.8372363</b> <b>.9796926</b>
_infectionburXzhspa1a_000	<b>1.090566</b>	.0786812	<b>1.20</b>	<b>0.229</b>	<b>.9467608</b> <b>1.256214</b>
AGE	<b>1.036021</b>	.0130116	<b>2.82</b>	<b>0.005</b>	<b>1.01083</b> <b>1.06184</b>
SEX	<b>.7619238</b>	.0494994	<b>-4.19</b>	<b>0.000</b>	<b>.6708294</b> <b>.8653882</b>
NonWhite	<b>1.095671</b>	.1864394	<b>0.54</b>	<b>0.591</b>	<b>.7849462</b> <b>1.529399</b>
householdsize	<b>.9363704</b>	.039308	<b>-1.57</b>	<b>0.117</b>	<b>.8624124</b> <b>1.016671</b>
SES	<b>.8246528</b>	.0406102	<b>-3.91</b>	<b>0.000</b>	<b>.7487787</b> <b>.9082152</b>
LE8_TOTALSCORE	<b>.998958</b>	.0003562	<b>-2.92</b>	<b>0.003</b>	<b>.9982601</b> <b>.9996565</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-51533.481**  
 Iteration 1: Log likelihood = **-51533.481**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,536</b>
	Wald chi2(7) =	<b>621.95</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

<u>zhspa1a</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.0081895</b>	.0151364	<b>0.54</b>	<b>0.588</b>	<b>-.0214773</b> <b>.0378564</b>
AGE	<b>-.0009387</b>	.0009879	<b>-0.95</b>	<b>0.342</b>	<b>-.002875</b> <b>.0009975</b>
SEX	<b>.0061117</b>	.0104886	<b>0.58</b>	<b>0.560</b>	<b>-.0144455</b> <b>.0266689</b>
NonWhite	<b>.0695343</b>	.0251614	<b>2.76</b>	<b>0.006</b>	<b>.020219</b> <b>.1188497</b>
householdsize	<b>-.0044585</b>	.0047742	<b>-0.93</b>	<b>0.350</b>	<b>-.0138157</b> <b>.0048987</b>
SES	<b>-.0277376</b>	.0078745	<b>-3.52</b>	<b>0.000</b>	<b>-.0431714</b> <b>-.0123038</b>
LE8_TOTALSCORE	<b>-.0012759</b>	.0000559	<b>-22.83</b>	<b>0.000</b>	<b>-.0013855</b> <b>-.0011664</b>
_cons	<b>.6891684</b>	.0713535	<b>9.66</b>	<b>0.000</b>	<b>.5493182</b> <b>.8290186</b>
<b>sigma2</b>					
_cons	<b>.9832351</b>	.0072746	<b>135.16</b>	<b>0.000</b>	<b>.9689771</b> <b>.9974932</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.240125</b>	.1600454	7.75	<b>0.000</b>	.9264422 1.553809
ereri_cde	<b>1.245079</b>	.1600621	7.78	<b>0.000</b>	.9313633 1.558795
ereri_intref	<b>-.0047265</b>	.0043299	-1.09	0.275	-.0132129 .00376
ereri_intmed	<b>.0005839</b>	.0015777	0.37	0.711	-.0025084 .0036762
ereri_pie	<b>-.0008111</b>	.001534	-0.53	0.597	-.0038177 .0021955

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zhspb1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04633 2.217 -.07582 500.4

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -8916.2869

Iteration 1: Log likelihood = -8826.4515

Iteration 2: Log likelihood = -8817.7237

Iteration 3: Log likelihood = -8817.7

Iteration 4: Log likelihood = -8817.7

Refining estimates:

Iteration 0: Log likelihood = -8817.7

Cox regression with Breslow method for ties

No. of subjects = 35,870 Number of obs = 35,870

No. of failures = 954

Time at risk = 435,755.857

Log likelihood = -8817.7

LR chi2(9) = 197.17

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.273546	.163774	11.40	0.000	1.974185 2.618302
zhspb1	.9232258	.0347924	-2.12	0.034	.8574914 .9939993
_infectionburXzhspb1_000	1.113904	.080804	1.49	0.137	.9662748 1.284089
AGE	1.035689	.0131704	2.76	0.006	1.010195 1.061827
SEX	.7429377	.0488954	-4.51	0.000	.653028 .8452263
NonWhite	.9473171	.1750636	-0.29	0.770	.6594682 1.360808
householdsize	.9206043	.0405895	-1.88	0.061	.8443908 1.003697
SES	.8334445	.0416176	-3.65	0.000	.7557399 .9191385
LE8_TOTALSCORE	.9990567	.0003593	-2.62	0.009	.9983528 .9997611

-> Model for the mediator

Iteration 0: Log likelihood = -50733.253  
 Iteration 1: Log likelihood = -50733.253

Linear regression (Maximum Likelihood)  
 Number of obs = 35,870  
 Wald chi2(7) = 328.64  
 Log likelihood = -50733.253 Prob > chi2 = 0.0000

zhspb1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	-.0061115	.0153224	-0.40	0.690	-.0361429 .0239198
AGE	.0007069	.0010021	0.71	0.481	-.0012573 .002671
SEX	.1091559	.0106257	10.27	0.000	.0883299 .1299818
NonWhite	.050014	.0254779	1.96	0.050	.0000782 .0999497
householdsize	.0009578	.0048265	0.20	0.843	-.008502 .0104176
SES	-.0311676	.0079777	-3.91	0.000	-.0468036 -.0155316
LE8_TOTALSCORE	-.0007667	.0000567	-13.53	0.000	-.0008777 -.0006556
_cons	.1680283	.0724409	2.32	0.020	.0260467 .3100099
<b>sigma2</b>					
_cons	.9908936	.0073991	133.92	0.000	.9763917 1.005395

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.26707	.1631554	7.77	0.000	.9472913 1.586849
ereri_cde	1.269613	.1631696	7.78	0.000	.9498061 1.589419
ereri_intref	-.0021548	.0050632	-0.43	0.670	-.0120785 .0077689
ereri_intmed	-.0008762	.0023707	-0.37	0.712	-.0055226 .0037703
ereri_pie	.0004883	.0012461	0.39	0.695	-.0019539 .0029306

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```

Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator      (mvar): zhspb6
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

Model for the outcome (yreg): cox
Model for the mediator (mreg): linear

Referent exposure level (a0):          0
Actual exposure level (a1):           1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c):    60.18 1.531 .04659 2.218 -.07483 500.6

```

-> Model for the outcome

```

Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid

Iteration 0: Log likelihood = -9201.1117
Iteration 1: Log likelihood = -9118.0379
Iteration 2: Log likelihood = -9100.1228
Iteration 3: Log likelihood = -9099.6733
Iteration 4: Log likelihood = -9099.6726
Refining estimates:
Iteration 0: Log likelihood = -9099.6726

```

Cox regression with Breslow method for ties

No. of subjects =	36,726	Number of obs =	36,726
No. of failures =	982		
Time at risk =	446,105.322	LR chi2(9) =	202.88
Log likelihood =	-9099.6726	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.178134	.1712867	9.90	0.000	1.867011 2.541104
zhspb6	1.086201	.0446032	2.01	0.044	1.002206 1.177236
_infectionburXzhspb6_000	1.036937	.0691835	0.54	0.587	.9098318 1.1818
AGE	1.028902	.0130169	2.25	0.024	1.003703 1.054733
SEX	.7929753	.0530418	-3.47	0.001	.6955416 .9040579
NonWhite	1.092103	.1857168	0.52	0.604	.7825514 1.524102
householdsize	.9353878	.0390854	-1.60	0.110	.8618348 1.015218
SES	.8207482	.0402204	-4.03	0.000	.7455851 .9034887
LE8_TOTALSCORE	.9992341	.0003561	-2.15	0.032	.9985364 .9999324

-> Model for the mediator

Iteration 0: Log likelihood = -48187.529	Number of obs = 36,726
Iteration 1: Log likelihood = -48187.529	Wald chi2(7) = 8749.35
Linear regression (Maximum Likelihood)	Prob > chi2 = 0.0000
Log likelihood = -48187.529	

	zhspb6	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.1811575	.0136985	13.22	0.000	.1543089 .2080062
AGE		.0468776	.0008934	52.47	0.000	.0451265 .0486287
SEX		-.5550543	.0094797	-58.55	0.000	-.5736341 -.5364745
NonWhite		-.1480438	.022681	-6.53	0.000	-.1924977 -.1035899
householdsize		-.0072851	.0043162	-1.69	0.091	-.0157447 .0011745
SES		-.0339034	.00711	-4.77	0.000	-.0478388 -.019968
LE8_TOTALSCORE		-.0014026	.0000505	-27.78	0.000	-.0015016 -.0013037
_cons		-1.274042	.0646093	-19.72	0.000	-1.400674 -1.14741
<b>sigma2</b>						
_cons		.8075803	.0059596	135.51	0.000	.7958998 .8192608

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.230133	.1652203	7.45	0.000	.9063073 1.553959
ereri_cde	1.177329	.1708744	6.89	0.000	.8424209 1.512236
ereri_intref	.0052592	.0084433	0.62	0.533	-.0112894 .0218078
ereri_intmed	.0324535	.0220394	1.47	0.141	-.010743 .0756499
ereri_pie	.015092	.0076383	1.98	0.048	.0001213 .0300628

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zhspg2
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04659 2.215 -.07537 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9000.2913**  
 Iteration 1: Log likelihood = **-8913.82**  
 Iteration 2: Log likelihood = **-8905.3533**  
 Iteration 3: Log likelihood = **-8905.3202**  
 Iteration 4: Log likelihood = **-8905.3202**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8905.3202**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,185</b>	Number of obs =	<b>36,185</b>
No. of failures =	<b>962</b>		
Time at risk =	<b>439,677.39</b>	LR chi2(9) =	<b>189.94</b>
Log likelihood =	<b>-8905.3202</b>	Prob > chi2 =	<b>0.0000</b>

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.235403</b>	.1675265	<b>10.73</b>	<b>0.000</b>	<b>1.930033</b> <b>2.589089</b>
zhspg2	<b>1.026196</b>	.0410983	<b>0.65</b>	<b>0.518</b>	<b>.9487254</b> <b>1.109993</b>
_infectionburXzhspg2_000	<b>.9754853</b>	.0634895	<b>-0.38</b>	<b>0.703</b>	<b>.858658</b> <b>1.108208</b>
AGE	<b>1.034423</b>	.0131649	<b>2.66</b>	<b>0.008</b>	<b>1.008939</b> <b>1.06055</b>
SEX	<b>.7579927</b>	.0496384	<b>-4.23</b>	<b>0.000</b>	<b>.6666881</b> <b>.8618017</b>
NonWhite	<b>1.065679</b>	.1836625	<b>0.37</b>	<b>0.712</b>	<b>.7602001</b> <b>1.493913</b>
householdszie	<b>.9389803</b>	.0397221	<b>-1.49</b>	<b>0.137</b>	<b>.8642666</b> <b>1.020153</b>
SES	<b>.8174225</b>	.0406236	<b>-4.06</b>	<b>0.000</b>	<b>.7415565</b> <b>.9010501</b>
LE8_TOTALSCORE	<b>.9990846</b>	.000363	<b>-2.52</b>	<b>0.012</b>	<b>.9983733</b> <b>.9997964</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-49504.283**  
 Iteration 1: Log likelihood = **-49504.283**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,185</b>
	Wald chi2(7) =	<b>3872.55</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

<u>zhspg2</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.2367499</b>	.0145913	<b>16.23</b>	<b>0.000</b>	<b>.2081514</b> <b>.2653484</b>
AGE	<b>.0295083</b>	.0009516	<b>31.01</b>	<b>0.000</b>	<b>.0276432</b> <b>.0313733</b>
SEX	<b>-.1519634</b>	.0101013	<b>-15.04</b>	<b>0.000</b>	<b>-.1717616</b> <b>-.1321652</b>
NonWhite	<b>-.1347122</b>	.0241578	<b>-5.58</b>	<b>0.000</b>	<b>-.1820606</b> <b>-.0873639</b>
householdszie	<b>-.0041806</b>	.0046102	<b>-0.91</b>	<b>0.365</b>	<b>-.0132165</b> <b>.0048553</b>
SES	<b>-.0689415</b>	.0075891	<b>-9.08</b>	<b>0.000</b>	<b>-.0838158</b> <b>-.0540672</b>
LE8_TOTALSCORE	<b>-.0020116</b>	.0000539	<b>-37.34</b>	<b>0.000</b>	<b>-.0021172</b> <b>-.001906</b>
_cons	<b>-.5588939</b>	.0687896	<b>-8.12</b>	<b>0.000</b>	<b>-.6937191</b> <b>-.4240688</b>
<b>sigma2</b>					
_cons	<b>.9033005</b>	.0067156	<b>134.51</b>	<b>0.000</b>	<b>.8901382</b> <b>.9164627</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.237101</b>	.1630523	7.59	<b>0.000</b>	.9175242 1.556677
ereri_cde	<b>1.236079</b>	.1676636	7.37	<b>0.000</b>	.9074643 1.564693
ereri_intref	<b>.0004718</b>	.0037506	0.13	<b>0.900</b>	-.0068793 .0078229
ereri_intmed	<b>-.0055908</b>	.0291091	-0.19	<b>0.848</b>	-.0626435 .051462
ereri_pie	<b>.0061409</b>	.0095474	0.64	<b>0.520</b>	-.0125717 .0248535

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zhtra2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04641 2.217 -.0748 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9132.2436

Iteration 1: Log likelihood = -9042.7664

Iteration 2: Log likelihood = -9033.2145

Iteration 3: Log likelihood = -9033.1747

Iteration 4: Log likelihood = -9033.1747

Refining estimates:

Iteration 0: Log likelihood = -9033.1747

Cox regression with Breslow method for ties

No. of subjects = 36,540 Number of obs = 36,540

No. of failures = 975

Time at risk = 443,893.259

Log likelihood = -9033.1747

LR chi2(9) = 198.14

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.250931	.1612789	11.32	0.000	1.956022 2.590303
zhtra2	.9279374	.0362684	-1.91	0.056	.8595072 1.001816
_infectionburXzhtra2_000	.9901026	.0716339	-0.14	0.891	.859203 1.140945
AGE	1.03379	.0129838	2.65	0.008	1.008653 1.059553
SEX	.7646277	.0496109	-4.14	0.000	.6733207 .8683165
NonWhite	1.06969	.184239	0.39	0.696	.7632213 1.49922
householdsize	.9308793	.0394808	-1.69	0.091	.8566272 1.011568
SES	.8207955	.0404403	-4.01	0.000	.7452408 .9040102
LE8_TOTALSCORE	.9990041	.0003542	-2.81	0.005	.99831 .9996986

-> Model for the mediator

Iteration 0: Log likelihood = -51709.513  
 Iteration 1: Log likelihood = -51709.513

Linear regression (Maximum Likelihood)  
 Number of obs = 36,540  
 Wald chi2(7) = 277.05  
 Prob > chi2 = 0.0000  
 Log likelihood = -51709.513

	zhtra2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr	.0048447	.0152218	0.32	0.750	-.0249895	.0346789
AGE	-.0043402	.0009927	-4.37	0.000	-.0062858	-.0023946
SEX	-.0582513	.0105358	-5.53	0.000	-.078901	-.0376015
NonWhite	.0709658	.0252509	2.81	0.005	.0214749	.1204567
householdsize	-.0116297	.0047974	-2.42	0.015	-.0210324	-.0022271
SES	-.0227394	.0079088	-2.88	0.004	-.0382403	-.0072385
LE8_TOTALSCORE	-.0007318	.0000561	-13.05	0.000	-.0008418	-.0006219
_cons	.7369147	.0717814	10.27	0.000	.5962257	.8776037
<b>sigma2</b>						
_cons	.9924479	.0073424	135.17	0.000	.978057	1.006839

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.251794	.1606258	7.79	0.000	.9369734 1.566615
ereri_cde	1.247401	.1606964	7.76	0.000	.9324414 1.56236
ereri_intref	.0053182	.0119839	0.44	0.657	-.0181698 .0288062
ereri_intmed	-.0005623	.0018978	-0.30	0.767	-.0042819 .0031572
ereri_pie	-.0003623	.0011537	-0.31	0.754	-.0026234 .0018989

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zhyal1  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.19 1.531 .04625 2.217 -.07521 500.6

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9057.0567  
 Iteration 1: Log likelihood = -8970.8586  
 Iteration 2: Log likelihood = -8961.954  
 Iteration 3: Log likelihood = -8961.9219  
 Iteration 4: Log likelihood = -8961.9219  
 Refining estimates:  
 Iteration 0: Log likelihood = -8961.9219

Cox regression with Breslow method for ties

No. of subjects =	36,258	Number of obs =	36,258
No. of failures =	968		
Time at risk =	440,467.255	LR chi2(9) =	190.27
Log likelihood =	-8961.9219	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.231014	.1621165	11.04	0.000	1.934861 2.572496
zhyal1	.9671965	.0375783	-0.86	0.391	.8962788 1.043726
_infectionburXzhyal1_000	1.05869	.073511	0.82	0.411	.9239848 1.213033
AGE	1.033191	.0130473	2.59	0.010	1.007932 1.059082
SEX	.7584595	.049427	-4.24	0.000	.6675159 .8617935
NonWhite	1.10787	.1884946	0.60	0.547	.7937141 1.54637
householdsize	.9338082	.0395763	-1.62	0.106	.8593743 1.014689
SES	.8264781	.040933	-3.85	0.000	.7500218 .9107283
LE8_TOTALSCORE	.9990614	.000357	-2.63	0.009	.998362 .9997614

-> Model for the mediator

Iteration 0: Log likelihood = -50871.606  
 Iteration 1: Log likelihood = -50871.606

Linear regression (Maximum Likelihood)

Number of obs =	36,258
Wald chi2(7) =	1170.02
Prob > chi2 =	0.0000

Log likelihood = -50871.606

	zhyal1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.096984	.0150902	6.43	0.000	.0674077 .1265603
AGE		.0178792	.0009848	18.16	0.000	.015949 .0198093
SEX		.0841531	.010449	8.05	0.000	.0636734 .1046328
NonWhite		.122634	.0250797	4.89	0.000	.0734788 .1717892
householdsize		-.0053867	.0047534	-1.13	0.257	-.0147032 .0039297
SES		-.0810649	.007844	-10.33	0.000	-.096439 -.0656909
LE8_TOTALSCORE		-.0010006	.0000558	-17.94	0.000	-.0011099 -.0008913
_cons		-.7173095	.0711614	-10.08	0.000	-.8567833 -.5778357
<b>sigma2</b>						
_cons		.9687129	.0071946	134.64	0.000	.9546116 .9828141

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.23383	.1607679	7.67	0.000	.9187307 1.548929
ereri_cde	1.229798	.1620398	7.59	0.000	.9122063 1.54739
ereri_intref	-.0010923	.0022178	-0.49	0.622	-.0054392 .0032545
ereri_intmed	.0083535	.0130651	0.64	0.523	-.0172536 .0339606
ereri_pie	-.0032295	.0037893	-0.85	0.394	-.0106564 .0041973

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zyou1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

```
Model for the outcome (yreg): cox
Model for the mediator (mreg): linear
```

```
Referent exposure level (a0): 0
Actual exposure level (a1): 1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c): 60.18 1.531 .04648 2.216 -.0752 500.5
```

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9225.1762**  
 Iteration 1: Log likelihood = **-9136.9048**  
 Iteration 2: Log likelihood = **-9128.6059**  
 Iteration 3: Log likelihood = **-9128.5871**  
 Iteration 4: Log likelihood = **-9128.5871**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-9128.5871**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,896</b>	Number of obs =	<b>36,896</b>
No. of failures =	<b>984</b>		
Time at risk =	<b>448,211.761</b>	LR chi2(9) =	<b>193.18</b>
Log likelihood =	<b>-9128.5871</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.237612</b>	<b>.1598007</b>	<b>11.28</b>	<b>0.000</b>	<b>1.94534</b> <b>2.573795</b>
zhyou1		<b>1.000928</b>	<b>.0381513</b>	<b>0.02</b>	<b>0.981</b>	<b>.928878</b> <b>1.078568</b>
_infectionburXzhyou1_000		<b>.9986138</b>	<b>.0657011</b>	<b>-0.02</b>	<b>0.983</b>	<b>.8777989</b> <b>1.136057</b>
AGE		<b>1.034559</b>	<b>.0129474</b>	<b>2.71</b>	<b>0.007</b>	<b>1.009492</b> <b>1.06025</b>
SEX		<b>.7537775</b>	<b>.0487826</b>	<b>-4.37</b>	<b>0.000</b>	<b>.6639809</b> <b>.8557181</b>
NonWhite		<b>1.068879</b>	<b>.1821962</b>	<b>0.39</b>	<b>0.696</b>	<b>.7653084</b> <b>1.492864</b>
householdszie		<b>.937425</b>	<b>.0391793</b>	<b>-1.55</b>	<b>0.122</b>	<b>.8636959</b> <b>1.017448</b>
SES		<b>.8233399</b>	<b>.0403659</b>	<b>-3.96</b>	<b>0.000</b>	<b>.7479065</b> <b>.9063816</b>
LE8_TOTALSCORE		<b>.9990683</b>	<b>.000354</b>	<b>-2.63</b>	<b>0.009</b>	<b>.9983747</b> <b>.9997624</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-51726.502**  
 Iteration 1: Log likelihood = **-51726.502**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,896</b>
	Wald chi2(7) =	<b>1273.80</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	<u>zhyou1</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.1070753</b>	<b>.0149324</b>	<b>7.17</b>	<b>0.000</b>	<b>.0778083</b> <b>.1363423</b>
AGE		<b>.0096504</b>	<b>.0009749</b>	<b>9.90</b>	<b>0.000</b>	<b>.0077398</b> <b>.0115611</b>
SEX		<b>.0697287</b>	<b>.0103475</b>	<b>6.74</b>	<b>0.000</b>	<b>.0494479</b> <b>.0900094</b>
NonWhite		<b>-.4784715</b>	<b>.0247791</b>	<b>-19.31</b>	<b>0.000</b>	<b>-.5270376</b> <b>-.4299055</b>
householdszie		<b>-.0030791</b>	<b>.0047176</b>	<b>-0.65</b>	<b>0.514</b>	<b>-.0123254</b> <b>.0061673</b>
SES		<b>-.0716803</b>	<b>.0077653</b>	<b>-9.23</b>	<b>0.000</b>	<b>-.0869001</b> <b>-.0564606</b>
LE8_TOTALSCORE		<b>-.0011569</b>	<b>.0000551</b>	<b>-20.99</b>	<b>0.000</b>	<b>-.0012649</b> <b>-.0010488</b>
_cons		<b>-.0997473</b>	<b>.0704809</b>	<b>-1.42</b>	<b>0.157</b>	<b>-.2378874</b> <b>.0383927</b>
<b>sigma2</b>						
_cons		<b>.9666018</b>	<b>.0071166</b>	<b>135.82</b>	<b>0.000</b>	<b>.9526535</b> <b>.9805501</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.237547</b>	.159122	7.78	<b>0.000</b>	.925674 1.549421
ereri_cde	<b>1.237628</b>	.1598201	7.74	<b>0.000</b>	.9243869 1.55087
ereri_intref	<b>.0000289</b>	.0019229	0.02	0.988	-.0037398 .0037976
ereri_intmed	<b>-.0002094</b>	.0135319	-0.02	0.988	-.0267314 .0263127
ereri_pie	<b>.0000994</b>	.0040817	0.02	0.981	-.0079006 .0080994

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zica1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.53 .04656 2.215 -.07626 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -8913.3312

Iteration 1: Log likelihood = -8823.3892

Iteration 2: Log likelihood = -8815.034

Iteration 3: Log likelihood = -8815.004

Iteration 4: Log likelihood = -8815.004

Refining estimates:

Iteration 0: Log likelihood = -8815.004

Cox regression with Breslow method for ties

No. of subjects = 35,761 Number of obs = 35,761

No. of failures = 953

Time at risk = 434,427.923

Log likelihood = -8815.004

LR chi2(9) = 196.65

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.233989	.1624516	11.05	0.000	1.937239
	zical1	.8856925	.0354624	-3.03	0.002	.8188448
_infectionburXzical1_000		1.048805	.076773	0.65	0.515	.9086289
	AGE	1.037565	.013155	2.91	0.004	1.012099
	SEX	.7520393	.0494187	-4.34	0.000	.6611585
	NonWhite	1.054984	.184197	0.31	0.759	.749253
	householdsize	.9350293	.0397983	-1.58	0.115	.8601911
	SES	.8256966	.041079	-3.85	0.000	.7489841
	LE8_TOTALSCORE	.9989924	.0003587	-2.81	0.005	.9982895
						.9996957

-> Model for the mediator

Iteration 0: Log likelihood = -50621.841  
Iteration 1: Log likelihood = -50621.841

Linear regression (Maximum Likelihood) Number of obs = 35,761  
Log likelihood = -50621.841 Wald chi2(7) = 241.45  
Prob > chi2 = 0.0000

	zica1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0145072	.0154009	0.94	0.346	-.015678 .0446925
AGE		-.0037414	.0010031	-3.73	0.000	-.0057074 -.0017754
SEX		.0180057	.0106527	1.69	0.091	-.0028732 .0388846
NonWhite		.0106904	.0254887	0.42	0.675	-.0392666 .0606474
householdsiz		-.0022938	.0048454	-0.47	0.636	-.0117905 .0072029
SES		-.0224259	.0079869	-2.81	0.005	-.03808 -.0067718
LE8_TOTALSCORE		-.0007842	.0000568	-13.82	0.000	-.0008955 -.000673
_cons		.591084	.0724544	8.16	0.000	.4490761 .733092
sigma2						
_cons		.9932657	.0074281	133.72	0.000	.9787069 1.007824

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.221108	.1607491	7.60	0.000	.9060452 1.53617
ereri_cde	1.224694	.1609026	7.61	0.000	.9093304 1.540057
ereri_intref	-.0012091	.0113378	-0.11	0.915	-.0234307 .0210125
ereri_intmed	-.0006177	.0021675	-0.28	0.776	-.0048659 .0036305
ereri_pie	-.0017594	.0019542	-0.90	0.368	-.0055895 .0020707

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intre to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
Warning: this analysis assumes a rare outcome.  
Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```

Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zicam1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

Model for the outcome (yreg): cox
Model for the mediator (mreg): linear

Referent exposure level (a0):          0
Actual exposure level (a1):           1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c):    60.18 1.531 .04661 2.216 -.07585 500.5

```

-> Model for the outcome

```

Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid

```

```

Iteration 0: Log likelihood = -9027.0723
Iteration 1: Log likelihood = -8939.7745
Iteration 2: Log likelihood = -8931.7228
Iteration 3: Log likelihood = -8931.706
Refining estimates:
Iteration 0: Log likelihood = -8931.706

```

Cox regression with Breslow method for ties

No. of subjects =	36,299	Number of obs =	36,299
No. of failures =	965		
Time at risk =	441,051.769	LR chi2(9) =	190.73
Log likelihood =	-8931.706	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.238311	.1616711	11.16	0.000	1.942848 2.578707
zicam1	.984276	.039985	-0.39	0.696	.9089455 1.06585
_infectionburXzicam1_000	.9926805	.0698074	-0.10	0.917	.8648708 1.139378
AGE	1.036302	.0131322	2.81	0.005	1.01088 1.062363
SEX	.7583524	.0497925	-4.21	0.000	.6667796 .8625016
NonWhite	1.068317	.1840384	0.38	0.701	.7621919 1.497395
householdszie	.9348594	.0396952	-1.59	0.113	.8602078 1.01599
SES	.8205936	.0407329	-3.98	0.000	.7445192 .9044413
LE8_TOTALSCORE	.9990141	.0003623	-2.72	0.007	.9983041 .9997245

-> Model for the mediator

```

Iteration 0: Log likelihood = -49843.342
Iteration 1: Log likelihood = -49843.342

```

Linear regression (Maximum Likelihood)	Number of obs = 36,299
	Wald chi2(7) = 3481.40
Log likelihood = -49843.342	Prob > chi2 = 0.0000

	zicam1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.1348018	.0146366	9.21	0.000	.1061145 .1634891
AGE		.0112528	.0009547	11.79	0.000	.0093816 .0131241
SEX		.1978505	.0101369	19.52	0.000	.1779824 .2177186
NonWhite		-.0722302	.0242376	-2.98	0.003	-.1197351 -.0247254
householdsize		-.0156832	.00461	-3.40	0.001	-.0247185 -.0066478
SES		-.140652	.0076061	-18.49	0.000	-.1555596 -.1257444
LE8_TOTALSCORE		-.0023191	.0000541	-42.88	0.000	-.0024251 -.0022131
_cons		.1894311	.0690161	2.74	0.006	.0541622 .3247001
<b>sigma2</b>						
_cons		.9124593	.006773	134.72	0.000	.8991845 .9257341

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.231922	.1604619	7.68	0.000	.9174224 1.546422
ereri_cde	1.237802	.1616675	7.66	0.000	.9209396 1.554665
ereri_intref	.0011095	.0053761	0.21	0.836	-.0094274 .0116464
ereri_intmed	-.0048554	.018381	-0.26	0.792	-.0408815 .0311707
ereri_pie	-.0021342	.0054694	-0.39	0.696	-.012854 .0085856

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zicam2
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04648 2.216 -.0752 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9225.1762**  
 Iteration 1: Log likelihood = **-9138.7126**  
 Iteration 2: Log likelihood = **-9126.4996**  
 Iteration 3: Log likelihood = **-9126.3859**  
 Iteration 4: Log likelihood = **-9126.3859**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-9126.3859**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,896</b>	Number of obs =	<b>36,896</b>
No. of failures =	<b>984</b>		
Time at risk =	<b>448,211.761</b>	LR chi2(9) =	<b>197.58</b>
Log likelihood =	<b>-9126.3859</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.207123</b>	.158464	<b>11.03</b>	<b>0.000</b>	<b>1.917402</b> <b>2.540621</b>
zicam2		<b>1.001296</b>	.0380561	<b>0.03</b>	<b>0.973</b>	<b>.9294175</b> <b>1.078733</b>
_infectionburXzicam2_000		<b>1.127165</b>	.0780465	<b>1.73</b>	<b>0.084</b>	<b>.9841226</b> <b>1.290999</b>
AGE		<b>1.034417</b>	.0129467	<b>2.70</b>	<b>0.007</b>	<b>1.009351</b> <b>1.060106</b>
SEX		<b>.7528274</b>	.048659	<b>-4.39</b>	<b>0.000</b>	<b>.6632512</b> <b>.8545015</b>
NonWhite		<b>1.063288</b>	.1807623	<b>0.36</b>	<b>0.718</b>	<b>.7619803</b> <b>1.48374</b>
householdszie		<b>.9379667</b>	.0390807	<b>-1.54</b>	<b>0.124</b>	<b>.864414</b> <b>1.017778</b>
SES		<b>.8238581</b>	.0404024	<b>-3.95</b>	<b>0.000</b>	<b>.7483575</b> <b>.9069758</b>
LE8_TOTALSCORE		<b>.9990744</b>	.0003522	<b>-2.63</b>	<b>0.009</b>	<b>.9983843</b> <b>.9997651</b>

-> Model for the mediator

Iteration 0: Log likelihood =	<b>-52288.92</b>	Number of obs =	<b>36,896</b>
Iteration 1: Log likelihood =	<b>-52288.92</b> (backed up)	Wald chi2(7) =	<b>127.69</b>
Log likelihood =	<b>-52288.92</b>	Prob > chi2 =	<b>0.0000</b>

	<u>zicam2</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.0679039</b>	.0151618	<b>4.48</b>	<b>0.000</b>	<b>.0381873</b> <b>.0976204</b>
AGE		<b>.0040871</b>	.0009898	<b>4.13</b>	<b>0.000</b>	<b>.002147</b> <b>.0060271</b>
SEX		<b>.0277343</b>	.0105065	<b>2.64</b>	<b>0.008</b>	<b>.007142</b> <b>.0483266</b>
NonWhite		<b>.0823076</b>	.0251597	<b>3.27</b>	<b>0.001</b>	<b>.0329956</b> <b>.1316197</b>
householdszie		<b>-.0127456</b>	.0047901	<b>-2.66</b>	<b>0.008</b>	<b>-.022134</b> <b>-.0033572</b>
SES		<b>-.0435512</b>	.0078846	<b>-5.52</b>	<b>0.000</b>	<b>-.0590048</b> <b>-.0280977</b>
LE8_TOTALSCORE		<b>.0001267</b>	.000056	<b>2.26</b>	<b>0.024</b>	<b>.000017</b> <b>.0002363</b>
_cons		<b>-.3401095</b>	.0715635	<b>-4.75</b>	<b>0.000</b>	<b>-.4803714</b> <b>-.1998477</b>
<b>sigma2</b>						
_cons		<b>.9965241</b>	.0073369	<b>135.82</b>	<b>0.000</b>	<b>.982144</b> <b>1.010904</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.239092</b>	.1591758	7.78	<b>0.000</b>	.9271135 1.551071
ereri_cde	<b>1.207137</b>	.1584698	7.62	<b>0.000</b>	.8965416 1.517732
ereri_intref	<b>.0136338</b>	.0142675	0.96	0.339	-.01433 .0415976
ereri_intmed	<b>.018234</b>	.0100594	1.81	<b>0.070</b>	-.001482 .0379501
ereri_pie	<b>.0000879</b>	.0025811	0.03	0.973	-.0049709 .0051468

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zicam3
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): **cox**

Model for the mediator (mreg): **linear**

Referent exposure level (a0): **0**

Actual exposure level (a1): **1**

Mediator level for the decomposition (m): **0**

Fixed values of the covariates (c): **60.18 1.531 .04648 2.216 -.0752 500.5**

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9225.1762**

Iteration 1: Log likelihood = **-9136.9038**

Iteration 2: Log likelihood = **-9128.4827**

Iteration 3: Log likelihood = **-9128.461**

Iteration 4: Log likelihood = **-9128.461**

Refining estimates:

Iteration 0: Log likelihood = **-9128.461**

Cox regression with Breslow method for ties

No. of subjects = **36,896** Number of obs = **36,896**

No. of failures = **984**

Time at risk = **448,211.761**

LR chi2(9) = **193.43**

Log likelihood = **-9128.461** Prob > chi2 = **0.0000**

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.233249	.1593109	11.26	0.000	1.941851 2.568375
zicam3	1.010741	.0387407	0.28	0.780	.9375923 1.089596
_infectionburXzicam3_000	1.012111	.0669171	0.18	0.856	.8890984 1.152143
AGE	1.034418	.0129489	2.70	0.007	1.009347 1.060111
SEX	.752671	.0487198	-4.39	0.000	.6629909 .8544818
NonWhite	1.064693	.1811256	0.37	0.713	.7628129 1.486041
householdsize	.937197	.0391709	-1.55	0.121	.8634839 1.017203
SES	.8236347	.0403753	-3.96	0.000	.7481832 .9066952
LE8_TOTALSCORE	.999073	.0003523	-2.63	0.009	.9983827 .9997638

-> Model for the mediator

Iteration 0: Log likelihood = -52122.112  
 Iteration 1: Log likelihood = -52122.112

Linear regression (Maximum Likelihood)  
 Number of obs = 36,896  
 Wald chi2(7) = 463.98  
 Log likelihood = -52122.112 Prob > chi2 = 0.0000

	zicam3	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.060418	.0150934	4.00	0.000	.0308355 .0900005
AGE		.01091	.0009854	11.07	0.000	.0089787 .0128413
SEX		.0989416	.0104591	9.46	0.000	.0784422 .119441
NonWhite		.1934685	.0250462	7.72	0.000	.1443789 .2425581
householdsize		.0035063	.0047685	0.74	0.462	-.0058397 .0128523
SES		-.0543949	.007849	-6.93	0.000	-.0697787 -.0390111
LE8_TOTALSCORE		-.0004087	.0000557	-7.34	0.000	-.0005179 -.0002995
_cons		-.6327729	.0712407	-8.88	0.000	-.7724021 -.4931437
<b>sigma2</b>						
_cons		.987554	.0072709	135.82	0.000	.9733034 1.001805

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.236535	.1590213	7.78	0.000	.9248587 1.548211
ereri_cde	1.23329	.1593138	7.74	0.000	.9210406 1.545539
ereri_intref	.0001765	.0017087	0.10	0.918	-.0031725 .0035256
ereri_intmed	.0024225	.007658	0.32	0.752	-.0125868 .0174319
ereri_pie	.0006457	.0023229	0.28	0.781	-.0039071 .0051984

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zicam4  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.19 1.531 .04646 2.216 -.07503 500.6

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9036.4379  
 Iteration 1: Log likelihood = -8947.7435  
 Iteration 2: Log likelihood = -8938.5298  
 Iteration 3: Log likelihood = -8938.4949  
 Iteration 4: Log likelihood = -8938.4949  
 Refining estimates:  
 Iteration 0: Log likelihood = -8938.4949

Cox regression with Breslow method for ties

No. of subjects =	36,352	Number of obs =	36,352
No. of failures =	965		
Time at risk =	441,650.762	LR chi2(9) =	195.89
Log likelihood =	-8938.4949	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.260322	.1621502	11.37	0.000	1.963844 2.601558
zicam4	1.056226	.0415051	1.39	0.164	.9779314 1.140789
_infectionburXzicam4_000	1.004285	.071622	0.06	0.952	.8732778 1.154946
AGE	1.031964	.0130105	2.50	0.013	1.006776 1.057782
SEX	.7588515	.049489	-4.23	0.000	.667798 .8623201
NonWhite	1.037779	.1791933	0.21	0.830	.7398228 1.455733
householdsize	.9333277	.0396969	-1.62	0.105	.8586779 1.014467
SES	.8191988	.0404489	-4.04	0.000	.7436357 .9024402
LE8_TOTALSCORE	.9989868	.0003563	-2.84	0.004	.9982888 .9996853

-> Model for the mediator

Iteration 0: Log likelihood = -51418.805  
 Iteration 1: Log likelihood = -51418.805

Linear regression (Maximum Likelihood)

Number of obs =	36,352
Wald chi2(7) =	325.34
Prob > chi2 =	0.0000

Log likelihood = -51418.805

	zicam4	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>-.04517</b>	<b>.0152509</b>	<b>-2.96</b>	<b>0.003</b>	<b>-.0750611</b> -.0152788
AGE		<b>.0091944</b>	<b>.0009955</b>	<b>9.24</b>	<b>0.000</b>	<b>.0072432</b> .0111456
SEX		<b>-.0254153</b>	<b>.0105555</b>	<b>-2.41</b>	<b>0.016</b>	<b>-.0461037</b> -.004727
NonWhite		<b>.2720596</b>	<b>.0252945</b>	<b>10.76</b>	<b>0.000</b>	<b>.2224833</b> .3216359
householdsize		<b>.0032345</b>	<b>.0048854</b>	<b>0.66</b>	<b>0.508</b>	<b>-.0063407</b> .0128097
SES		<b>.023422</b>	<b>.0079171</b>	<b>2.96</b>	<b>0.003</b>	<b>.0079047</b> .0389392
LE8_TOTALSCORE		<b>.0006068</b>	<b>.0000562</b>	<b>10.80</b>	<b>0.000</b>	<b>.0004966</b> .0007169
_cons		<b>-.8300196</b>	<b>.0720183</b>	<b>-11.53</b>	<b>0.000</b>	<b>-.971173</b> -.6888663
<b>sigma2</b>						
_cons		<b>.9911023</b>	<b>.0073514</b>	<b>134.82</b>	<b>0.000</b>	<b>.9766938</b> <b>1.005511</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.254912</b>	<b>.1615337</b>	<b>7.77</b>	<b>0.000</b>	<b>.9383114</b> <b>1.571512</b>
ereri_cde	<b>1.258023</b>	<b>.1617549</b>	<b>7.78</b>	<b>0.000</b>	<b>.9409894</b> <b>1.575057</b>
ereri_intref	<b>.0029035</b>	<b>.0090376</b>	<b>0.32</b>	<b>0.748</b>	<b>-.0148099</b> <b>.020617</b>
ereri_intmed	<b>-.0035474</b>	<b>.0064509</b>	<b>-0.55</b>	<b>0.582</b>	<b>-.0161909</b> <b>.0090962</b>
ereri_pie	<b>-.0024678</b>	<b>.0019564</b>	<b>-1.26</b>	<b>0.207</b>	<b>-.0063024</b> <b>.0013667</b>

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zicam5
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04649 2.218 -.07578 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9064.8284**  
 Iteration 1: Log likelihood = **-8975.9255**  
 Iteration 2: Log likelihood = **-8964.8803**  
 Iteration 3: Log likelihood = **-8964.8063**  
 Iteration 4: Log likelihood = **-8964.8063**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8964.8063**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,441</b>	Number of obs =	<b>36,441</b>
No. of failures =	<b>968</b>		
Time at risk =	<b>442,700.115</b>	LR chi2(9) =	<b>200.04</b>
Log likelihood =	<b>-8964.8063</b>	Prob > chi2 =	<b>0.0000</b>

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.267514</b>	<b>.1631251</b>	<b>11.38</b>	<b>0.000</b>	<b>1.969312</b> <b>2.610872</b>
zicam5	<b>1.054466</b>	<b>.041436</b>	<b>1.35</b>	<b>0.177</b>	<b>.9763015</b> <b>1.138888</b>
_infectionburXzicam5_000	<b>1.022602</b>	<b>.0725847</b>	<b>0.31</b>	<b>0.753</b>	<b>.8897907</b> <b>1.175236</b>
AGE	<b>1.032948</b>	<b>.0130126</b>	<b>2.57</b>	<b>0.010</b>	<b>1.007756</b> <b>1.05877</b>
SEX	<b>.7411088</b>	<b>.0485532</b>	<b>-4.57</b>	<b>0.000</b>	<b>.6518026</b> <b>.8426512</b>
NonWhite	<b>1.036317</b>	<b>.1841</b>	<b>0.20</b>	<b>0.841</b>	<b>.7316078</b> <b>1.467937</b>
householdszie	<b>.9288262</b>	<b>.0398624</b>	<b>-1.72</b>	<b>0.085</b>	<b>.8538931</b> <b>1.010335</b>
SES	<b>.831218</b>	<b>.0411846</b>	<b>-3.73</b>	<b>0.000</b>	<b>.7542933</b> <b>.9159877</b>
LE8_TOTALSCORE	<b>.9990971</b>	<b>.000356</b>	<b>-2.54</b>	<b>0.011</b>	<b>.9983996</b> <b>.9997951</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-51072.483**  
 Iteration 1: Log likelihood = **-51072.483**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,441</b>
	Wald chi2(7) =	<b>1291.47</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

<u>zicam5</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.0776255</b>	<b>.0150187</b>	<b>5.17</b>	<b>0.000</b>	<b>.0481895</b> <b>.1070616</b>
AGE	<b>.0029348</b>	<b>.0009809</b>	<b>2.99</b>	<b>0.003</b>	<b>.0010123</b> <b>.0048573</b>
SEX	<b>.1875795</b>	<b>.0104073</b>	<b>18.02</b>	<b>0.000</b>	<b>.1671815</b> <b>.2079775</b>
NonWhite	<b>-.6015233</b>	<b>.0249198</b>	<b>-24.14</b>	<b>0.000</b>	<b>-.6503651</b> <b>-.5526814</b>
householdszie	<b>-.0195824</b>	<b>.0047362</b>	<b>-4.13</b>	<b>0.000</b>	<b>-.0288652</b> <b>-.0102996</b>
SES	<b>-.0813088</b>	<b>.0078098</b>	<b>-10.41</b>	<b>0.000</b>	<b>-.0966157</b> <b>-.0660018</b>
LE8_TOTALSCORE	<b>-.0006095</b>	<b>.0000555</b>	<b>-10.99</b>	<b>0.000</b>	<b>-.0007182</b> <b>-.0005007</b>
_cons	<b>-.1043615</b>	<b>.0708934</b>	<b>-1.47</b>	<b>0.141</b>	<b>-.24331</b> <b>.0345871</b>
<b>sigma2</b>					
_cons	<b>.9657465</b>	<b>.0071546</b>	<b>134.98</b>	<b>0.000</b>	<b>.9517238</b> <b>.9797692</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.283435	.162994	7.87	0.000	.9639725 1.602897
ereri_cde	1.266519	.1629393	7.77	0.000	.9471633 1.585874
ereri_intref	.0035934	.0085132	0.42	0.673	-.0130922 .0202789
ereri_intmed	.0091978	.0110812	0.83	0.407	-.012521 .0309165
ereri_pie	.0041253	.0031656	1.30	0.193	-.0020792 .0103298

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zicoslg
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04658 2.216 -.07524 500.8

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9057.6167

Iteration 1: Log likelihood = -8969.5808

Iteration 2: Log likelihood = -8960.8724

Iteration 3: Log likelihood = -8960.8479

Iteration 4: Log likelihood = -8960.8479

Refining estimates:

Iteration 0: Log likelihood = -8960.8479

Cox regression with Breslow method for ties

No. of subjects = 36,264 Number of obs = 36,264

No. of failures = 968

Time at risk = 440,524.906

LR chi2(9) = 193.54

Log likelihood = -8960.8479

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.254381	.1614112	11.35	0.000	1.959215 2.594014
zicoslg		.9903767	.0384725	-0.25	0.803	.9177711 1.068726
_infectionburXzicoslg_000		.9900907	.0679341	-0.15	0.885	.865507 1.132607
AGE		1.031791	.0129924	2.49	0.013	1.006638 1.057572
SEX		.7525492	.0491071	-4.36	0.000	.6622017 .8552233
NonWhite		1.087877	.185066	0.50	0.621	.7794288 1.518391
householdszie		.936802	.0393309	-1.55	0.120	.8628012 1.01715
SES		.8169466	.0402852	-4.10	0.000	.7416847 .8998457
LE8_TOTALSCORE		.9990672	.0003555	-2.62	0.009	.9983706 .9997642

-> Model for the mediator

Iteration 0: Log likelihood = -51275.098  
 Iteration 1: Log likelihood = -51275.098

Linear regression (Maximum Likelihood) Number of obs = 36,264  
 Wald chi2(7) = 363.39  
 Log likelihood = -51275.098 Prob > chi2 = 0.0000

	zicoslg	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.0145287	.0152488	0.95	0.341	-.0153584 .0444158
AGE		-.0005938	.0009957	-0.60	0.551	-.0025454 .0013577
SEX		.1106941	.0105627	10.48	0.000	.0899917 .1313966
NonWhite		.068201	.0252748	2.70	0.007	.0186632 .1177387
householdszie		-.0020383	.0048038	-0.42	0.671	-.0114536 .0073769
SES		-.0197102	.0079219	-2.49	0.013	-.0352368 -.0041836
LE8_TOTALSCORE		.0008263	.0000562	14.69	0.000	.0007161 .0009366
_cons		-.5497426	.0719616	-7.64	0.000	-.6907847 -.4087006
<b>sigma2</b>						
_cons		.9900515	.0073525	134.66	0.000	.9756409 1.004462

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.254109	.1613546	7.77	0.000	.9378594 1.570358
ereri_cde	1.254298	.1613903	7.77	0.000	.9379789 1.570617
ereri_intref	.0004535	.002783	0.16	0.871	-.0050012 .0059081
ereri_intmed	-.0005024	.0020089	-0.25	0.803	-.0044398 .0034349
ereri_pie	-.0001405	.0005832	-0.24	0.810	-.0012836 .0010027

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdszie SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zidi2  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.18 1.531 .04688 2.215 -.07424 500.5

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -8819.5642  
 Iteration 1: Log likelihood = -8735.0325  
 Iteration 2: Log likelihood = -8726.6324  
 Iteration 3: Log likelihood = -8726.5897  
 Iteration 4: Log likelihood = -8726.5897  
 Refining estimates:  
 Iteration 0: Log likelihood = -8726.5897

Cox regression with Breslow method for ties

No. of subjects =	35,601	Number of obs =	35,601
No. of failures =	943		
Time at risk =	432,443.367	LR chi2(9) =	185.95
Log likelihood =	-8726.5897	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.194343	.1622623	10.63	0.000	1.898286 2.536572
zidi2	.9544492	.0382818	-1.16	0.245	.8822917 1.032508
_infectionburXzidi2_000	1.075717	.0732614	1.07	0.284	.9412983 1.229331
AGE	1.037657	.0132223	2.90	0.004	1.012062 1.063898
SEX	.7415879	.0497204	-4.46	0.000	.6502691 .8457309
NonWhite	1.09074	.1879539	0.50	0.614	.7781152 1.528968
householdsize	.9306773	.0401331	-1.67	0.096	.8552502 1.012756
SES	.8154078	.0407137	-4.09	0.000	.7393906 .8992404
LE8_TOTALSCORE	.9991791	.000361	-2.27	0.023	.9984719 .9998869

-> Model for the mediator

Iteration 0: Log likelihood = -49670.394  
 Iteration 1: Log likelihood = -49670.394

Linear regression (Maximum Likelihood)  
 Number of obs = 35,601  
 Wald chi2(7) = 1730.20  
 Prob > chi2 = 0.0000  
 Log likelihood = -49670.394

	zidi2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.083596	.0151031	5.54	0.000	.0539945 .1131975
AGE		.0120702	.0009888	12.21	0.000	.010132 .0140083
SEX		-.3730687	.0104628	-35.66	0.000	-.3935754 -.3525619
NonWhite		-.0131079	.0249653	-0.53	0.600	-.0620391 .0358232
householdsize		.0081602	.0049636	1.64	0.100	-.0015683 .0178887
SES		-.0205959	.0078598	-2.62	0.009	-.0360009 -.0051909
LE8_TOTALSCORE		-.0004946	.0000558	-8.87	0.000	-.0006039 -.0003853
_cons		.0615561	.0716885	0.86	0.391	-.0789507 .202063
<b>sigma2</b>						
_cons		.9536258	.0071476	133.42	0.000	.9396167 .9676349

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.195774	.1609132	7.43	0.000	.8803897 1.511158
ereri_cde	1.19246	.1620818	7.36	0.000	.8747855 1.510135
ereri_intref	-.0015207	.0028664	-0.53	0.596	-.0071388 .0040974
ereri_intmed	.0087242	.0107602	0.81	0.417	-.0123654 .0298139
ereri_pie	-.0038897	.0034127	-1.14	0.254	-.0105786 .0027991

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zids
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .0466 2.218 -.07544 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9166.3755  
 Iteration 1: Log likelihood = -9074.5613  
 Iteration 2: Log likelihood = -9065.5568  
 Iteration 3: Log likelihood = -9065.5346  
 Iteration 4: Log likelihood = -9065.5346  
 Refining estimates:  
 Iteration 0: Log likelihood = -9065.5346

Cox regression with Breslow method for ties

No. of subjects =	<b>36,824</b>	Number of obs =	<b>36,824</b>
No. of failures =	<b>978</b>		
Time at risk =	<b>447,356.911</b>	LR chi2(9) =	<b>201.68</b>
Log likelihood =	<b>-9065.5346</b>	Prob > chi2 =	<b>0.0000</b>

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.286668</b>	.16311	<b>11.60</b>	<b>0.000</b>	<b>1.98832</b> <b>2.629784</b>
zids	<b>.9481013</b>	.034676	-1.46	0.145	.8825164 <b>1.01856</b>
_infectionburXzids_000	<b>1.059647</b>	.0718664	<b>0.85</b>	<b>0.393</b>	.9277514 <b>1.210293</b>
AGE	<b>1.035466</b>	.0129881	<b>2.78</b>	<b>0.005</b>	<b>1.01032</b> <b>1.061238</b>
SEX	<b>.7592691</b>	.0495486	-4.22	<b>0.000</b>	.6681096 <b>.8628667</b>
NonWhite	<b>1.045154</b>	.180086	<b>0.26</b>	0.798	.7456132 <b>1.465032</b>
householdszie	<b>.936513</b>	.039278	-1.56	0.118	.8626088 <b>1.016749</b>
SES	<b>.819665</b>	.0402434	-4.05	<b>0.000</b>	.7444655 <b>.9024605</b>
LE8_TOTALSCORE	<b>.9990759</b>	.0003533	-2.61	0.009	.9983837 <b>.9997687</b>

-> Model for the mediator

Iteration 0: Log likelihood = -51991.709  
 Iteration 1: Log likelihood = -51991.709

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,824</b>
	Wald chi2(7) =	<b>521.22</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

<u>zids</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>-.0685436</b>	.0151088	-4.54	<b>0.000</b>	-.0981563    -.038931
AGE	<b>-.0040977</b>	.0009855	-4.16	<b>0.000</b>	-.0060291    -.0021662
SEX	<b>.2139398</b>	.0104616	<b>20.45</b>	<b>0.000</b>	.1934355 <b>.2344441</b>
NonWhite	<b>-.0993865</b>	.0250256	-3.97	<b>0.000</b>	-.1484357    -.0503372
householdszie	<b>-.0004756</b>	.0047694	-0.10	0.921	-.0098235 <b>.0088723</b>
SES	<b>.0296388</b>	.0078448	<b>3.78</b>	<b>0.000</b>	.0142631 <b>.0450144</b>
LE8_TOTALSCORE	<b>.0000332</b>	.0000557	<b>0.60</b>	0.551	-.000076 <b>.0001423</b>
_cons	<b>-.0800886</b>	.0712337	-1.12	0.261	-.2197041 <b>.0595269</b>
<b>sigma2</b>					
_cons	<b>.9860164</b>	.0072666	<b>135.69</b>	<b>0.000</b>	<b>.971774</b> <b>1.000259</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.284024</b>	.1623883	7.91	<b>0.000</b>	.9657492 1.6023
ereri_cde	<b>1.285519</b>	.1628909	7.89	<b>0.000</b>	.9662588 1.604779
ereri_intref	<b>-.0007679</b>	.0024623	-0.31	0.755	-.005594 .0040581
ereri_intmed	<b>-.0043864</b>	.0093688	-0.47	0.640	-.022749 .0139762
ereri_pie	<b>.0036596</b>	.0026427	1.38	0.166	-.00152 .0088392

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zidua
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04659 2.218 -.07483 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9201.1117

Iteration 1: Log likelihood = -9111.5301

Iteration 2: Log likelihood = -9102.033

Iteration 3: Log likelihood = -9101.9921

Iteration 4: Log likelihood = -9101.9921

Refining estimates:

Iteration 0: Log likelihood = -9101.9921

Cox regression with Breslow method for ties

No. of subjects = 36,726 Number of obs = 36,726

No. of failures = 982

Time at risk = 446,105.322

Log likelihood = -9101.9921

LR chi2(9) = 198.24

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.267996	.1611624	11.52	0.000	1.973133
zidua		.9555528	.0364042	-1.19	0.233	.8868007
_infectionburXzidua_000		.9620657	.0661332	-0.56	0.574	.8407994
AGE		1.034443	.012953	2.70	0.007	1.009364
SEX		.7614006	.0492901	-4.21	0.000	.6706714
NonWhite		1.080521	.1836601	0.46	0.649	.7743747
householdsize		.9332026	.039177	-1.65	0.100	.8594913
SES		.8175094	.0401111	-4.11	0.000	.7425548
LE8_TOTALSCORE		.9989995	.0003575	-2.80	0.005	.9982991
						.9997003

-> Model for the mediator

Iteration 0: Log likelihood = -51364.521  
Iteration 1: Log likelihood = -51364.521

Linear regression (Maximum Likelihood) Number of obs = 36,726  
Log likelihood = -51364.521 Wald chi2(7) = 1524.63  
Prob > chi2 = 0.0000

	zidua	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0586727	.0149363	3.93	0.000	.029398 .0879473
AGE		.0045457	.0009741	4.67	0.000	.0026364 .006455
SEX		.1044626	.0103362	10.11	0.000	.0842039 .1247212
NonWhite		.0792938	.0247304	3.21	0.001	.0308232 .1277645
householdsiz		-.0032696	.0047062	-0.69	0.487	-.0124936 .0059544
SES		-.0743411	.0077525	-9.59	0.000	-.0895356 -.0591465
LE8_TOTALSCORE		-.0017754	.0000551	-32.25	0.000	-.0018833 -.0016675
_cons		.4450447	.0704472	6.32	0.000	.3069707 .5831187
sigma2						
	_cons	.9601149	.0070852	135.51	0.000	.9462282 .9740017

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.262975</b>	.1610851	7.84	<b>0.000</b>	<b>.9472544</b> <b>1.578696</b>
ereri_cde	<b>1.26627</b>	.1609846	7.87	<b>0.000</b>	<b>.9507456</b> <b>1.581794</b>
ereri_intref	<b>.0079047</b>	.0118973	0.66	<b>0.506</b>	- .0154135    .0312229
ereri_intmed	<b>-.008535</b>	.0083714	-1.02	<b>0.308</b>	- .0249426    .0078726
ereri_pie	<b>-.002664</b>	.0023299	-1.14	<b>0.253</b>	- .0072306    .0019026

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intre to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
Warning: this analysis assumes a rare outcome.  
Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zifng  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.18 1.53 .04656 2.215 -.07626 500.6

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -8913.3312  
 Iteration 1: Log likelihood = -8828.2633  
 Iteration 2: Log likelihood = -8820.3555  
 Iteration 3: Log likelihood = -8820.3351  
 Iteration 4: Log likelihood = -8820.3351  
 Refining estimates:  
 Iteration 0: Log likelihood = -8820.3351

Cox regression with Breslow method for ties

No. of subjects =	35,761	Number of obs =	35,761
No. of failures =	953		
Time at risk =	434,427.923	LR chi2(9) =	185.99
Log likelihood =	-8820.3351	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.223539	.1610058	11.04	0.000	1.929344 2.562596
zifng	1.005761	.039553	0.15	0.884	.931151 1.086349
_infectionburXzifng_000	.9759804	.0698901	-0.34	0.734	.8481769 1.123041
AGE	1.03696	.0131592	2.86	0.004	1.011487 1.063075
SEX	.7491661	.0493787	-4.38	0.000	.6583762 .8524759
NonWhite	1.054551	.1841773	0.30	0.761	.7488684 1.485012
householdsize	.935077	.0398117	-1.58	0.115	.8602144 1.016455
SES	.8271185	.0411643	-3.81	0.000	.750248 .9118653
LE8_TOTALSCORE	.9990662	.0003584	-2.60	0.009	.998364 .9997689

-> Model for the mediator

Iteration 0: Log likelihood = -50547.58  
 Iteration 1: Log likelihood = -50547.58

Linear regression (Maximum Likelihood)

Number of obs =	35,761
Wald chi2(7) =	391.29
Prob > chi2 =	0.0000

Log likelihood = -50547.58

	zifng	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.066935	.015369	4.36	0.000	.0368124 .0970576
AGE		.0112781	.001001	11.27	0.000	.0093162 .0132401
SEX		.148306	.0106306	13.95	0.000	.1274704 .1691416
NonWhite		-.0582928	.0254359	-2.29	0.022	-.1081462 -.0084395
householdsize		-.0012814	.0048353	-0.27	0.791	-.0107585 .0081956
SES		-.01967	.0079704	-2.47	0.014	-.0352917 -.0040484
LE8_TOTALSCORE		-.0002077	.0000566	-3.67	0.000	-.0003187 -.0000966
_cons		-.806905	.0723041	-11.16	0.000	-.9486184 -.6651916
<b>sigma2</b>						
_cons		.9891491	.0073973	133.72	0.000	.9746507 1.003647

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.221621	.1607755	7.60	0.000	.9065068 1.536735
ereri_cde	1.223585	.1610162	7.60	0.000	.9079987 1.539171
ereri_intref	.0007991	.0037011	0.22	0.829	-.0064549 .0080531
ereri_intmed	-.0031475	.0093331	-0.34	0.736	-.02144 .0151451
ereri_pie	.0003846	.0026348	0.15	0.884	-.0047795 .0055487

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zifngr1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04635 2.216 -.07488 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9125.8833**  
 Iteration 1: Log likelihood = **-9037.9**  
 Iteration 2: Log likelihood = **-9029.3284**  
 Iteration 3: Log likelihood = **-9029.2993**  
 Iteration 4: Log likelihood = **-9029.2993**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-9029.2993**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,595</b>	Number of obs =	<b>36,595</b>
No. of failures =	<b>974</b>		
Time at risk =	<b>444,506.48</b>	LR chi2(9) =	<b>193.17</b>
Log likelihood =	<b>-9029.2993</b>	Prob > chi2 =	<b>0.0000</b>

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.241593</b>	.1627935	<b>11.11</b>	<b>0.000</b>	<b>1.944192</b> <b>2.584488</b>
zifngr1	<b>1.057861</b>	.0405033	<b>1.47</b>	<b>0.142</b>	<b>.981381</b> <b>1.1403</b>
_infectionburXzifngr1_000	<b>.9691011</b>	.0624625	<b>-0.49</b>	<b>0.626</b>	<b>.854094</b> <b>1.099594</b>
AGE	<b>1.034401</b>	.0130065	<b>2.69</b>	<b>0.007</b>	<b>1.009221</b> <b>1.06021</b>
SEX	<b>.7562441</b>	.0490995	<b>-4.30</b>	<b>0.000</b>	<b>.6658822</b> <b>.8588685</b>
NonWhite	<b>1.10293</b>	.1877794	<b>0.58</b>	<b>0.565</b>	<b>.7899994</b> <b>1.539818</b>
householdsize	<b>.9376405</b>	.0392678	<b>-1.54</b>	<b>0.124</b>	<b>.863751</b> <b>1.017851</b>
SES	<b>.8295008</b>	.0408693	<b>-3.79</b>	<b>0.000</b>	<b>.7531446</b> <b>.9135982</b>
LE8_TOTALSCORE	<b>.9990519</b>	.000354	<b>-2.68</b>	<b>0.007</b>	<b>.9983584</b> <b>.9997459</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-51502.534**  
 Iteration 1: Log likelihood = **-51502.534**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,595</b>
	Wald chi2(7) =	<b>855.90</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

<u>zifngr1</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.1405287</b>	.0150783	<b>9.32</b>	<b>0.000</b>	<b>.1109758</b> <b>.1700816</b>
AGE	<b>.0207323</b>	.0009841	<b>21.07</b>	<b>0.000</b>	<b>.0188036</b> <b>.0226611</b>
SEX	<b>.0064328</b>	.0104475	<b>0.62</b>	<b>0.538</b>	<b>-.014044</b> <b>.0269096</b>
NonWhite	<b>-.2522292</b>	.025048	<b>-10.07</b>	<b>0.000</b>	<b>-.3013223</b> <b>-.2031361</b>
householdsize	<b>.0043199</b>	.0047568	<b>0.91</b>	<b>0.364</b>	<b>-.0050033</b> <b>.0136431</b>
SES	<b>-.0563236</b>	.0078418	<b>-7.18</b>	<b>0.000</b>	<b>-.0716933</b> <b>-.0409539</b>
LE8_TOTALSCORE	<b>-.0001188</b>	.0000556	<b>-2.13</b>	<b>0.033</b>	<b>-.0002278</b> <b>-9.70e-06</b>
_cons	<b>-1.219816</b>	.071079	<b>-17.16</b>	<b>0.000</b>	<b>-1.359128</b> <b>-1.080504</b>
<b>sigma2</b>					
_cons	<b>.9771194</b>	.0072236	<b>135.27</b>	<b>0.000</b>	<b>.9629615</b> <b>.9912773</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.248021</b>	.161079	7.75	<b>0.000</b>	.9323115 1.56373
ereri_cde	<b>1.241038</b>	.1626052	7.63	<b>0.000</b>	.9223381 1.559739
ereri_intref	<b>-.0008584</b>	.0014667	-0.59	0.558	-.0037331 .0020163
ereri_intmed	<b>-.0000953</b>	.0171913	-0.01	0.996	-.0337897 .0335991
ereri_pie	<b>.0079359</b>	.0054902	1.45	0.148	-.0028248 .0186965

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zifngr2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.17 1.532 .0464 2.216 -.07458 500.7

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8985.4467**

Iteration 1: Log likelihood = **-8893.1417**

Iteration 2: Log likelihood = **-8885.2027**

Iteration 3: Log likelihood = **-8885.1787**

Iteration 4: Log likelihood = **-8885.1787**

Refining estimates:

Iteration 0: Log likelihood = **-8885.1787**

Cox regression with Breslow method for ties

No. of subjects = 36,164 Number of obs = 36,164

No. of failures = 960

Time at risk = 439,440.668

LR chi2(9) = 200.54

Log likelihood = -8885.1787

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.205824	.1594157	10.95	0.000	1.914495 2.541485
zifngr2		.8933847	.036314	-2.77	0.006	.8249718 .9674709
_infectionburXzifngr2_000		1.144831	.082546	1.88	0.061	.9939556 1.318608
AGE		1.037577	.0131183	2.92	0.004	1.012181 1.063609
SEX		.7405034	.0484685	-4.59	0.000	.6513479 .8418623
NonWhite		1.048769	.183621	0.27	0.786	.7441312 1.478122
householdsize		.9432941	.0393585	-1.40	0.162	.8692229 1.023677
SES		.8086714	.0400698	-4.29	0.000	.7338291 .8911469
LE8_TOTALSCORE		.9989297	.0003597	-2.97	0.003	.998225 .9996349

-> Model for the mediator

Iteration 0: Log likelihood = -50759.865  
 Iteration 1: Log likelihood = -50759.865

Linear regression (Maximum Likelihood) Number of obs = 36,164  
 Wald chi2(7) = 1125.41  
 Prob > chi2 = 0.0000  
 Log likelihood = -50759.865

	zifngr2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.0241067	.0151255	1.59	0.111	-.0055387 .0537521
AGE		.0014791	.0009896	1.49	0.135	-.0004606 .0034188
SEX		.0019593	.0104699	0.19	0.852	-.0185613 .02248
NonWhite		.4398883	.0251053	17.52	0.000	.3906828 .4890937
householdsize		-.0059697	.0049653	-1.20	0.229	-.0157014 .0037621
SES		-.0261317	.0078704	-3.32	0.001	-.0415573 -.010706
LE8_TOTALSCORE		-.0014166	.0000557	-25.42	0.000	-.0015258 -.0013073
_cons		.6047295	.0717252	8.43	0.000	.4641507 .7453082
<b>sigma2</b>						
_cons		.9697927	.007212	134.47	0.000	.9556574 .983928

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.19301	.158266	7.54	0.000	.8828143 1.503206
ereri_cde	1.197964	.1582654	7.57	0.000	.8877698 1.508159
ereri_intref	-.0061446	.0052644	-1.17	0.243	-.0164627 .0041735
ereri_intmed	.0039042	.0041148	0.95	0.343	-.0041607 .0119691
ereri_pie	-.0027141	.0019614	-1.38	0.166	-.0065583 .0011302

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```

Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zifnl1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

Model for the outcome (yreg): cox
Model for the mediator (mreg): linear

Referent exposure level (a0):          0
Actual exposure level (a1):           1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c):    60.18 1.531 .04688 2.215 -.07424 500.5

```

-> Model for the outcome

```

Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid

Iteration 0: Log likelihood = -8819.5642
Iteration 1: Log likelihood = -8737.1767
Iteration 2: Log likelihood = -8726.1828
Iteration 3: Log likelihood = -8725.9744
Iteration 4: Log likelihood = -8725.974
Refining estimates:
Iteration 0: Log likelihood = -8725.974

```

Cox regression with Breslow method for ties

No. of subjects =	35,601	Number of obs =	35,601
No. of failures =	943		
Time at risk =	432,443.367	LR chi2(9) =	187.18
Log likelihood =	-8725.974	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.194199	.1614611	10.68	0.000	1.899503 2.534615
zifnl1	1.039331	.0404369	0.99	0.321	.9630227 1.121686
_infectionburXzifnl1_000	1.036972	.0684056	0.55	0.582	.9112052 1.180098
AGE	1.037061	.013208	2.86	0.004	1.011494 1.063274
SEX	.7534843	.04984	-4.28	0.000	.6618667 .8577839
NonWhite	1.09524	.1887007	0.53	0.597	.7813658 1.535197
householdsize	.929997	.0400958	-1.68	0.092	.8546394 1.011999
SES	.8186569	.0409037	-4.00	0.000	.7422875 .9028835
LE8_TOTALSCORE	.9992185	.0003604	-2.17	0.030	.9985123 .9999252

-> Model for the mediator

Iteration 0: Log likelihood = -50325.817	Number of obs = 35,601
Iteration 1: Log likelihood = -50325.817	Wald chi2(7) = 380.65
Log likelihood = -50325.817	Prob > chi2 = 0.0000

zifnl1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	.0789877	.0153837	5.13	0.000	.0488362 .1091392
AGE	.0053369	.0010072	5.30	0.000	.0033628 .007311
SEX	-.1090584	.0106572	-10.23	0.000	-.1299461 -.0881706
NonWhite	-.1146868	.0254292	-4.51	0.000	-.1645271 -.0648465
householdsize	-.0009094	.0050558	-0.18	0.857	-.0108187 .0089998
SES	-.0505042	.0080059	-6.31	0.000	-.0661954 -.034813
LE8_TOTALSCORE	-.0004888	.0000568	-8.61	0.000	-.0006002 -.0003775
_cons	.0830764	.0730205	1.14	0.255	-.0600412 .226194
<b>sigma2</b>					
_cons	.9893932	.0074157	133.42	0.000	.9748587 1.003928

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.210838	.1611437	7.51	0.000	.8950018 1.526673
ereri_cde	1.193825	.1613649	7.40	0.000	.877556 1.510095
ereri_intref	.0039741	.0074763	0.53	0.595	-.0106792 .0186275
ereri_intmed	.0099863	.0099582	1.00	0.316	-.0095314 .0295039
ereri_pie	.0030518	.0031395	0.97	0.331	-.0031015 .0092051

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zifnlr1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04646 2.216 -.07503 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9036.4379**  
 Iteration 1: Log likelihood = **-8942.7347**  
 Iteration 2: Log likelihood = **-8931.9196**  
 Iteration 3: Log likelihood = **-8931.8613**  
 Iteration 4: Log likelihood = **-8931.8613**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8931.8613**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,352</b>	Number of obs =	<b>36,352</b>
No. of failures =	<b>965</b>		
Time at risk =	<b>441,650.762</b>	LR chi2(9) =	<b>209.15</b>
Log likelihood =	<b>-8931.8613</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.279392</b>	<b>.1634671</b>	<b>11.49</b>	<b>0.000</b>	<b>1.980501</b> <b>2.623392</b>
zifnlr1		<b>.8758694</b>	<b>.0382034</b>	<b>-3.04</b>	<b>0.002</b>	<b>.8041035</b> <b>.9540404</b>
_infectionburXzifnlr1_000		<b>.9644881</b>	<b>.0755089</b>	<b>-0.46</b>	<b>0.644</b>	<b>.8272886</b> <b>1.124441</b>
AGE		<b>1.031174</b>	<b>.012995</b>	<b>2.44</b>	<b>0.015</b>	<b>1.006016</b> <b>1.056961</b>
SEX		<b>.7476404</b>	<b>.0488626</b>	<b>-4.45</b>	<b>0.000</b>	<b>.6577514</b> <b>.8498137</b>
NonWhite		<b>1.05623</b>	<b>.1820778</b>	<b>0.32</b>	<b>0.751</b>	<b>.7533979</b> <b>1.480787</b>
householdszie		<b>.9320593</b>	<b>.0397493</b>	<b>-1.65</b>	<b>0.099</b>	<b>.8573192</b> <b>1.013315</b>
SES		<b>.8142335</b>	<b>.0402559</b>	<b>-4.16</b>	<b>0.000</b>	<b>.7390356</b> <b>.8970829</b>
LE8_TOTALSCORE		<b>.9987504</b>	<b>.0003619</b>	<b>-3.45</b>	<b>0.001</b>	<b>.9980414</b> <b>.9994599</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50633.484**  
 Iteration 1: Log likelihood = **-50633.484**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,352</b>
	Wald chi2(7) =	<b>1944.78</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	<u>zifnlr1</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.0732244</b>	<b>.0149249</b>	<b>4.91</b>	<b>0.000</b>	<b>.0439721</b> <b>.1024767</b>
AGE		<b>-.0024953</b>	<b>.0009743</b>	<b>-2.56</b>	<b>0.010</b>	<b>-.0044049</b> <b>-.0005858</b>
SEX		<b>-.1445566</b>	<b>.0103299</b>	<b>-13.99</b>	<b>0.000</b>	<b>-.1648028</b> <b>-.1243104</b>
NonWhite		<b>-.0440199</b>	<b>.0247539</b>	<b>-1.78</b>	<b>0.075</b>	<b>-.0925366</b> <b>.0044969</b>
householdszie		<b>-.0038139</b>	<b>.004781</b>	<b>-0.80</b>	<b>0.425</b>	<b>-.0131845</b> <b>.0055566</b>
SES		<b>-.050553</b>	<b>.0077479</b>	<b>-6.52</b>	<b>0.000</b>	<b>-.0657387</b> <b>-.0353674</b>
LE8_TOTALSCORE		<b>-.0020449</b>	<b>.000055</b>	<b>-37.18</b>	<b>0.000</b>	<b>-.0021527</b> <b>-.0019371</b>
_cons		<b>1.391824</b>	<b>.0704792</b>	<b>19.75</b>	<b>0.000</b>	<b>1.253688</b> <b>1.529961</b>
<b>sigma2</b>						
_cons		<b>.9491922</b>	<b>.0070405</b>	<b>134.82</b>	<b>0.000</b>	<b>.935393</b> <b>.9629913</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.263908</b>	.1624485	7.78	<b>0.000</b>	.9455146 1.582301
ereri_cde	<b>1.267065</b>	.1616868	7.84	<b>0.000</b>	.9501644 1.583965
ereri_intref	<b>.024982</b>	.0263664	0.95	<b>0.343</b>	-.0266952 .0766591
ereri_intmed	<b>-.0184806</b>	.0123251	-1.50	<b>0.134</b>	-.0426374 .0056761
ereri_pie	<b>-.0096581</b>	.0037206	-2.60	<b>0.009</b>	-.0169502 -.0023659

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zigf1r
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04658 2.216 -.07524 500.8

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9057.6167

Iteration 1: Log likelihood = -8969.469

Iteration 2: Log likelihood = -8960.9327

Iteration 3: Log likelihood = -8960.9118

Iteration 4: Log likelihood = -8960.9118

Refining estimates:

Iteration 0: Log likelihood = -8960.9118

Cox regression with Breslow method for ties

No. of subjects = 36,264

Number of obs = 36,264

No. of failures = 968

Time at risk = 440,524.906

LR chi2(9) = 193.41

Log likelihood = -8960.9118 Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.25211	.163444	11.19	0.000	1.953506 2.596357
zigf1r	.9908643	.0393704	-0.23	0.817	.9166279 1.071113
_infectionburXzigf1r_000	1.008748	.0708809	0.12	0.901	.8789655 1.157693
AGE	1.032015	.0130359	2.49	0.013	1.006779 1.057884
SEX	.7512006	.0489221	-4.39	0.000	.6611825 .8534745
NonWhite	1.086045	.184748	0.49	0.628	.7781244 1.515815
householdsize	.9366631	.0393402	-1.56	0.119	.8626461 1.017031
SES	.8168935	.0402865	-4.10	0.000	.7416295 .8997958
LE8_TOTALSCORE	.9990556	.0003557	-2.65	0.008	.9983587 .9997531

-> Model for the mediator

Iteration 0: Log likelihood = -50878.268  
 Iteration 1: Log likelihood = -50878.268

Linear regression (Maximum Likelihood)  
 Number of obs = 36,264  
 Wald chi2(7) = 1173.83  
 Prob > chi2 = 0.0000  
 Log likelihood = -50878.268

zigf1r	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	.0547512	.0150829	3.63	0.000	.0251893 .084313
AGE	.0267955	.0009849	27.21	0.000	.0248652 .0287258
SEX	-.057911	.0104477	-5.54	0.000	-.0783881 -.0374338
NonWhite	-.0517483	.0249998	-2.07	0.038	-.1007469 -.0027497
householdsize	-.0142777	.0047515	-3.00	0.003	-.0235905 -.0049649
SES	-.0188062	.0078357	-2.40	0.016	-.0341638 -.0034485
LE8_TOTALSCORE	-.0006069	.0000556	-10.91	0.000	-.000716 -.0004979
_cons	-1.194942	.0711784	-16.79	0.000	-1.334449 -1.055435
<b>sigma2</b>					
_cons	.968619	.0071933	134.66	0.000	.9545204 .9827177

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.251811	.1627244	7.69	0.000	.9328773 1.570745
ereri_cde	1.251971	.1634855	7.66	0.000	.9315456 1.572397
ereri_intref	-.0001023	.0012405	-0.08	0.934	-.0025336 .002329
ereri_intmed	.0004447	.0074923	0.06	0.953	-.01424 .0151294
ereri_pie	-.0005024	.0021788	-0.23	0.818	-.0047726 .0037679

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zigf2r  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.19 1.531 .04638 2.215 -.07464 500.5

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9121.8147  
 Iteration 1: Log likelihood = -9034.1789  
 Iteration 2: Log likelihood = -9025.2187  
 Iteration 3: Log likelihood = -9025.1804  
 Iteration 4: Log likelihood = -9025.1804  
 Refining estimates:  
 Iteration 0: Log likelihood = -9025.1804

Cox regression with Breslow method for ties

No. of subjects =	36,459	Number of obs =	36,459
No. of failures =	974		
Time at risk =	442,828.345	LR chi2(9) =	193.27
Log likelihood =	-9025.1804	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.233167	.1616809	11.10	0.000	1.937735 2.573641
zgf2r	1.037334	.040879	0.93	0.352	.9602291 1.120631
_infectionburXzgf2r_000	.9921568	.0702709	-0.11	0.911	.8635604 1.139903
AGE	1.034751	.0130127	2.72	0.007	1.009558 1.060572
SEX	.7538681	.0489747	-4.35	0.000	.6637391 .8562357
NonWhite	1.093185	.1859038	0.52	0.600	.7833225 1.52562
householdsize	.9396407	.0393007	-1.49	0.137	.8656853 1.019914
SES	.8258546	.0406479	-3.89	0.000	.7499082 .9094925
LE8_TOTALSCORE	.9990873	.00036	-2.53	0.011	.9983819 .9997932

-> Model for the mediator

Iteration 0: Log likelihood = -50675.36  
 Iteration 1: Log likelihood = -50675.36

Linear regression (Maximum Likelihood)  
 Number of obs = 36,459  
 Wald chi2(7) = 2176.96  
 Log likelihood = -50675.36 Prob > chi2 = 0.0000

	zigf2r	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr	.0651722	.0148455	4.39	0.000	.0360755	.0942689
AGE	.013165	.0009716	13.55	0.000	.0112606	.0150694
SEX	-.064264	.0102872	-6.25	0.000	-.0844265	-.0441015
NonWhite	-.1715963	.0246634	-6.96	0.000	-.2199357	-.1232568
householdsize	-.0095211	.0048884	-1.95	0.051	-.0191023	.0000601
SES	-.0460971	.0077266	-5.97	0.000	-.061241	-.0309531
LE8_TOTALSCORE	-.0020956	.0000548	-38.26	0.000	-.002203	-.0019883
_cons	.3715445	.0704637	5.27	0.000	.2334382	.5096509
<b>sigma2</b>						
_cons	.9436288	.006989	135.02	0.000	.9299306	.9573269

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.236975	.160527	7.71	0.000	.9223478 1.551602
ereri_cde	1.232794	.1615494	7.63	0.000	.9161632 1.549425
ereri_intref	-.0000112	.002594	-0.00	0.997	-.0050954 .0050729
ereri_intmed	.0018002	.0089829	0.20	0.841	-.015806 .0194064
ereri_pie	.0023917	.0026316	0.91	0.363	-.0027661 .0075495

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zigfbp1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04652 2.216 -.07544 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9205.1914**  
 Iteration 1: Log likelihood = **-9115.5016**  
 Iteration 2: Log likelihood = **-9104.2903**  
 Iteration 3: Log likelihood = **-9104.1999**  
 Iteration 4: Log likelihood = **-9104.1999**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-9104.1999**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,841</b>	Number of obs =	<b>36,841</b>
No. of failures =	<b>982</b>		
Time at risk =	<b>447,519.433</b>	LR chi2(9) =	<b>201.98</b>
Log likelihood =	<b>-9104.1999</b>	Prob > chi2 =	<b>0.0000</b>

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.214775</b>	.1585852	<b>11.10</b>	<b>0.000</b>	<b>1.924779</b> <b>2.548464</b>
zigfbp1	<b>1.075515</b>	.0430775	<b>1.82</b>	<b>0.069</b>	<b>.9943139</b> <b>1.163348</b>
_infectionburXzigfbp1_000	<b>1.091693</b>	.0792758	<b>1.21</b>	<b>0.227</b>	<b>.9468661</b> <b>1.258672</b>
AGE	<b>1.033261</b>	.0129406	<b>2.61</b>	<b>0.009</b>	<b>1.008207</b> <b>1.058938</b>
SEX	<b>.7266922</b>	.0478791	<b>-4.85</b>	<b>0.000</b>	<b>.6386573</b> <b>.8268621</b>
NonWhite	<b>1.085894</b>	.184592	<b>0.48</b>	<b>0.628</b>	<b>.7781992</b> <b>1.515248</b>
householdszie	<b>.9399935</b>	.0390402	<b>-1.49</b>	<b>0.136</b>	<b>.8665077</b> <b>1.019711</b>
SES	<b>.8280993</b>	.0406192	<b>-3.85</b>	<b>0.000</b>	<b>.7521942</b> <b>.911664</b>
LE8_TOTALSCORE	<b>.9988713</b>	.0003591	<b>-3.14</b>	<b>0.002</b>	<b>.9981678</b> <b>.9995753</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50405.046**  
 Iteration 1: Log likelihood = **-50405.046**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,841</b>
	Wald chi2(7) =	<b>3935.47</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

<u>zigfbp1</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.0508032</b>	.0144473	<b>3.52</b>	<b>0.000</b>	<b>.0224869</b> <b>.0791195</b>
AGE	<b>.0072833</b>	.000943	<b>7.72</b>	<b>0.000</b>	<b>.005435</b> <b>.0091316</b>
SEX	<b>.3873093</b>	.0100109	<b>38.69</b>	<b>0.000</b>	<b>.3676882</b> <b>.4069304</b>
NonWhite	<b>-.2051935</b>	.0239635	<b>-8.56</b>	<b>0.000</b>	<b>-.2521611</b> <b>-.1582259</b>
householdszie	<b>-.0180505</b>	.0045629	<b>-3.96</b>	<b>0.000</b>	<b>-.0269936</b> <b>-.0091075</b>
SES	<b>-.0598564</b>	.0075109	<b>-7.97</b>	<b>0.000</b>	<b>-.0745775</b> <b>-.0451354</b>
LE8_TOTALSCORE	<b>.0023286</b>	.0000533	<b>43.67</b>	<b>0.000</b>	<b>.0022241</b> <b>.0024332</b>
_cons	<b>-2.158646</b>	.0681935	<b>-31.65</b>	<b>0.000</b>	<b>-2.292303</b> <b>-2.024989</b>
<b>sigma2</b>					
_cons	<b>.9034622</b>	.0066567	<b>135.72</b>	<b>0.000</b>	<b>.8904153</b> <b>.9165091</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.252259</b>	.1605242	<b>7.80</b>	<b>0.000</b>	.9376375 1.566881
ereri_cde	<b>1.212494</b>	.1582682	<b>7.66</b>	<b>0.000</b>	.9022938 1.522694
ereri_intref	<b>.021472</b>	.0191227	<b>1.12</b>	<b>0.261</b>	-.0160078 .0589517
ereri_intmed	<b>.0145881</b>	.0085273	<b>1.71</b>	<b>0.087</b>	-.0021251 .0313013
ereri_pie	<b>.0037053</b>	.0022991	<b>1.61</b>	<b>0.107</b>	-.0008007 .0082114

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zigfbp2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04646 2.216 -.07521 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9213.6345

Iteration 1: Log likelihood = -9109.7102

Iteration 2: Log likelihood = -9091.5306

Iteration 3: Log likelihood = -9091.2128

Iteration 4: Log likelihood = -9091.2127

Refining estimates:

Iteration 0: Log likelihood = -9091.2127

Cox regression with Breslow method for ties

No. of subjects = 36,845 Number of obs = 36,845

No. of failures = 983

Time at risk = 447,583.608

Log likelihood = -9091.2127

LR chi2(9) = 244.84

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.197372	.1656853	10.44	0.000	1.895491 2.547332
zigfbp2		1.302104	.0550712	6.24	0.000	1.198519 1.414642
_infectionburXzigfbp2_000		.9754246	.0708282	-0.34	0.732	.8460298 1.124609
AGE		1.025471	.0128989	2.00	0.046	1.000499 1.051067
SEX		.7342326	.0475538	-4.77	0.000	.6467019 .8336105
NonWhite		1.171347	.1993404	0.93	0.353	.8391274 1.635097
householdszie		.9496779	.0387766	-1.26	0.206	.8766387 1.028803
SES		.8362708	.0409336	-3.65	0.000	.7597707 .9204737
LE8_TOTALSCORE		.9983766	.000361	-4.49	0.000	.9976693 .9990844

-> Model for the mediator

Iteration 0: Log likelihood = **-49572.273**  
 Iteration 1: Log likelihood = **-49572.273**

Linear regression (Maximum Likelihood) Number of obs = 36,845  
 Wald chi2(7) = 5834.34  
 Log likelihood = **-49572.273** Prob > chi2 = 0.0000

	zigfbp2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.1070574	.0141235	7.58	0.000	.0793758 .1347391
AGE		.0299772	.000922	32.51	0.000	.0281701 .0317843
SEX		.1533161	.0097855	15.67	0.000	.1341369 .1724952
NonWhite		-.4950624	.0234375	-21.12	0.000	-.5409989 -.4491258
householdszie		-.0219848	.0044617	-4.93	0.000	-.0307296 -.0132401
SES		-.0610302	.0073437	-8.31	0.000	-.0754235 -.0466369
LE8_TOTALSCORE		.0030704	.0000521	58.91	0.000	.0029682 .0031725
_cons		-3.523168	.0666519	-52.86	0.000	-3.653803 -3.392532
<b>sigma2</b>						
_cons		.8632748	.0063603	135.73	0.000	.8508089 .8757407

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.243027	.1602448	7.76	0.000	.9289535 1.557101
ereri_cde	1.166465	.1601903	7.28	0.000	.8524979 1.480432
ereri_intref	.0198754	.0257928	0.77	0.441	-.0306774 .0704283
ereri_intmed	.0280226	.0155096	1.81	0.071	-.0023756 .0584208
ereri_pie	.0286643	.0060335	4.75	0.000	.0168389 .0404897

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdszie SES LE8\_TOTALSCORE were not provided. All

-> Summary

```

Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zigfbp3
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

Model for the outcome (yreg): cox
Model for the mediator (mreg): linear

Referent exposure level (a0):          0
Actual exposure level (a1):           1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c):    60.19 1.531 .04645 2.216 -.0751 500.6

```

-> Model for the outcome

```

Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid

Iteration 0: Log likelihood = -9132.7834
Iteration 1: Log likelihood = -9054.2008
Iteration 2: Log likelihood = -9030.593
Iteration 3: Log likelihood = -9029.1195
Iteration 4: Log likelihood = -9029.1062
Iteration 5: Log likelihood = -9029.1062
Refining estimates:
Iteration 0: Log likelihood = -9029.1062

Cox regression with Breslow method for ties

No. of subjects = 36,596                               Number of obs = 36,596
No. of failures = 975
Time at risk = 444,571.57
Log likelihood = -9029.1062
                                         LR chi2(9) = 207.35
                                         Prob > chi2 = 0.0000

```

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.23036	.1644342	10.88	0.000	1.930278 2.577093
zigfbp3	.8824309	.03223	-3.42	0.001	.8214693 .9479164
_infectionburXzigfbp3_000	1.001548	.0581665	0.03	0.979	.8937926 1.122294
AGE	1.029991	.0129607	2.35	0.019	1.004899 1.055709
SEX	.8307852	.0569507	-2.70	0.007	.7263376 .9502525
NonWhite	1.050889	.1789843	0.29	0.771	.7526317 1.467341
householdsize	.9321763	.0393771	-1.66	0.096	.8581071 1.012639
SES	.8399151	.0414862	-3.53	0.000	.7624154 .9252926
LE8_TOTALSCORE	.9990482	.0003534	-2.69	0.007	.9983557 .9997411

-> Model for the mediator

```

Iteration 0: Log likelihood = -50008.594
Iteration 1: Log likelihood = -50008.594

Linear regression (Maximum Likelihood)
                                         Number of obs = 36,596
                                         Wald chi2(7) = 4045.10
                                         Prob > chi2 = 0.0000
Log likelihood = -50008.594

```

	zigfbp3	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		-.082046	.0144872	-5.66	0.000	-.1104403 -.0536517
AGE		-.0150478	.0009448	-15.93	0.000	-.0168996 -.0131961
SEX		.5650557	.0100277	56.35	0.000	.5454018 .5847097
NonWhite		-.3357377	.0240177	-13.98	0.000	-.3828115 -.288664
householdszie		.0013896	.0045687	0.30	0.761	-.007565 .0103441
SES		.1009996	.0075277	13.42	0.000	.0862455 .1157537
LE8_TOTALSCORE		-.0004213	.0000535	-7.88	0.000	-.0005262 -.0003165
_cons		.2831356	.0682912	4.15	0.000	.1492873 .4169839
<b>sigma2</b>						
_cons		.9004431	.0066566	135.27	0.000	.8873963 .9134898

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.252729	.1621973	7.72	0.000	.9348283 1.57063
ereri_cde	1.223464	.1630425	7.50	0.000	.9039069 1.543022
ereri_intref	.0065488	.0108145	0.61	0.545	-.0146472 .0277449
ereri_intmed	.0124014	.0092144	1.35	0.178	-.0056585 .0304613
ereri_pie	.0103147	.003538	2.92	0.004	.0033804 .0172491

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdszie SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zigfbp4
Covariates (cvars): AGE SEX NonWhite householdszie SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04627 2.215 -.07483 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8986.7942**  
 Iteration 1: Log likelihood = **-8899.7613**  
 Iteration 2: Log likelihood = **-8886.2351**  
 Iteration 3: Log likelihood = **-8885.9514**  
 Iteration 4: Log likelihood = **-8885.951**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8885.951**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,005</b>	Number of obs =	<b>36,005</b>
No. of failures =	<b>961</b>		
Time at risk =	<b>437,277.045</b>	LR chi2(9) =	<b>201.69</b>
Log likelihood =	<b>-8885.951</b>	Prob > chi2 =	<b>0.0000</b>

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.228467</b>	.1746443	<b>10.22</b>	<b>0.000</b>	<b>1.911163</b> <b>2.598451</b>
zigfbp4	<b>1.088239</b>	.0435422	<b>2.11</b>	<b>0.035</b>	<b>1.006158</b> <b>1.177015</b>
_infectionburXzigfbp4_000	<b>.9765746</b>	.0601189	<b>-0.39</b>	<b>0.700</b>	<b>.8655748</b> <b>1.101809</b>
AGE	<b>1.033116</b>	.0132214	<b>2.55</b>	<b>0.011</b>	<b>1.007525</b> <b>1.059357</b>
SEX	<b>.7572206</b>	.0497782	<b>-4.23</b>	<b>0.000</b>	<b>.6656809</b> <b>.8613481</b>
NonWhite	<b>1.128062</b>	.1921978	<b>0.71</b>	<b>0.479</b>	<b>.8078047</b> <b>1.575287</b>
householdszie	<b>.943141</b>	.0393067	<b>-1.40</b>	<b>0.160</b>	<b>.8691639</b> <b>1.023415</b>
SES	<b>.8310228</b>	.0412831	<b>-3.73</b>	<b>0.000</b>	<b>.7539238</b> <b>.9160062</b>
LE8_TOTALSCORE	<b>.9991683</b>	.0003641	<b>-2.28</b>	<b>0.022</b>	<b>.9984549</b> <b>.9998822</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-47741.38**  
 Iteration 1: Log likelihood = **-47741.38**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,005</b>
	Wald chi2(7) =	<b>7356.70</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

<u>zigfbp4</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.3018115</b>	.0140231	<b>21.52</b>	<b>0.000</b>	<b>.2743268</b> <b>.3292963</b>
AGE	<b>.042806</b>	.0009167	<b>46.70</b>	<b>0.000</b>	<b>.0410093</b> <b>.0446026</b>
SEX	<b>-.179887</b>	.0097089	<b>-18.53</b>	<b>0.000</b>	<b>-.1989162</b> <b>-.1608579</b>
NonWhite	<b>-.2855353</b>	.0233087	<b>-12.25</b>	<b>0.000</b>	<b>-.3312195</b> <b>-.2398511</b>
householdszie	<b>-.0093566</b>	.0046054	<b>-2.03</b>	<b>0.042</b>	<b>-.0183829</b> <b>-.0003302</b>
SES	<b>-.1453666</b>	.0072925	<b>-19.93</b>	<b>0.000</b>	<b>-.1596596</b> <b>-.1310736</b>
LE8_TOTALSCORE	<b>-.002222</b>	.0000517	<b>-42.96</b>	<b>0.000</b>	<b>-.0023234</b> <b>-.0021206</b>
_cons	<b>-1.207307</b>	.0664931	<b>-18.16</b>	<b>0.000</b>	<b>-1.337631</b> <b>-1.076982</b>
<b>sigma2</b>					
_cons	<b>.830318</b>	.0061884	<b>134.17</b>	<b>0.000</b>	<b>.818189</b> <b>.8424471</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.26878</b>	.1679792	7.55	<b>0.000</b>	.9395465 1.598013
ereri_cde	<b>1.229168</b>	.1745394	7.04	<b>0.000</b>	.8870771 1.571259
ereri_intref	<b>-.0016791</b>	.0015331	-1.10	0.273	-.0046839 .0013257
ereri_intmed	<b>.0154409</b>	.0339237	0.46	0.649	-.0510482 .0819301
ereri_pie	<b>.0258498</b>	.0124477	2.08	0.038	.0014528 .0502469

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zigfbp6
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04662 2.216 -.07586 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9007.8977

Iteration 1: Log likelihood = -8922.0803

Iteration 2: Log likelihood = -8912.7725

Iteration 3: Log likelihood = -8912.7216

Iteration 4: Log likelihood = -8912.7216

Refining estimates:

Iteration 0: Log likelihood = -8912.7216

Cox regression with Breslow method for ties

No. of subjects = 36,293 Number of obs = 36,293

No. of failures = 963

Time at risk = 440,966.201

Log likelihood = -8912.7216

LR chi2(9) = 190.35

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.245503	.1679577	10.81	0.000	1.939305 2.600048
zigfbp6		.992927	.0425236	-0.17	0.868	.9129844 1.07987
_infectionburXzigfbp6_000		.9960971	.065268	-0.06	0.952	.8760478 1.132597
AGE		1.03546	.0132064	2.73	0.006	1.009897 1.06167
SEX		.7529079	.0542517	-3.94	0.000	.6537436 .8671141
NonWhite		1.065931	.1836371	0.37	0.711	.7604753 1.494076
householdszie		.9382126	.0395942	-1.51	0.131	.8637322 1.019116
SES		.8179436	.040531	-4.06	0.000	.7422399 .9013685
LE8_TOTALSCORE		.9990568	.0003594	-2.62	0.009	.9983526 .9997615

-> Model for the mediator

Iteration 0: Log likelihood = **-46234.977**  
 Iteration 1: Log likelihood = **-46234.977**

Linear regression (Maximum Likelihood) Number of obs = 36,293  
 Wald chi2(7) = 12208.83  
 Prob > chi2 = 0.0000

Log likelihood = **-46234.977**

	zigfbp6	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.1594114	.013256	12.03	0.000	.1334301 .1853926
AGE		.0307505	.0008648	35.56	0.000	.0290556 .0324454
SEX		-.8604351	.0091798	-93.73	0.000	-.8784273 -.8424429
NonWhite		.0066955	.0219483	0.31	0.760	-.0363223 .0497133
householdszie		.009418	.0041756	2.26	0.024	.0012339 .0176021
SES		-.0331456	.0068897	-4.81	0.000	-.0466492 -.019642
LE8_TOTALSCORE		-.0012054	.000049	-24.62	0.000	-.0013014 -.0011095
_cons		.0240643	.0624979	0.39	0.700	-.0984295 .146558
<b>sigma2</b>						
_cons		.7482605	.0055546	134.71	0.000	.7373736 .7591474

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.241819	.1647794	7.54	0.000	.9188577 1.564781
ereri_cde	1.245284	.1680831	7.41	0.000	.9158474 1.574721
ereri_intref	.0004727	.0037722	0.13	0.900	-.0069205 .007866
ereri_intmed	-.0028067	.0199399	-0.14	0.888	-.0418882 .0362747
ereri_pie	-.0011309	.00682	-0.17	0.868	-.0144978 .012236

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdszie SES LE8\_TOTALSCORE were not provided. All

-> Summary

```

Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zigfbp7
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

Model for the outcome (yreg): cox
Model for the mediator (mreg): linear

Referent exposure level (a0):          0
Actual exposure level (a1):           1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c):    60.18 1.531 .04648 2.216 -.0752 500.5

```

-> Model for the outcome

```

Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid

Iteration 0: Log likelihood = -9225.1762
Iteration 1: Log likelihood = -9138.4792
Iteration 2: Log likelihood = -9128.4152
Iteration 3: Log likelihood = -9128.3262
Iteration 4: Log likelihood = -9128.3261
Refining estimates:
Iteration 0: Log likelihood = -9128.3261

Cox regression with Breslow method for ties

No. of subjects =      36,896                      Number of obs = 36,896
No. of failures =       984
Time at risk      = 448,211.761
Log likelihood = -9128.3261                         LR chi2(9)      = 193.70
                                                               Prob > chi2 = 0.0000

```

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.22491	.1636561	10.87	0.000	1.926199 2.569944
zigfbp7	1.020595	.0398692	0.52	0.602	.9453689 1.101806
_infectionburXzigfbp7_000	1.007578	.0664361	0.11	0.909	.8854287 1.146579
AGE	1.033807	.0129804	2.65	0.008	1.008676 1.059564
SEX	.7583245	.0494336	-4.24	0.000	.6673706 .8616743
NonWhite	1.069317	.181748	0.39	0.693	.7663567 1.492046
householdsize	.9379165	.0391323	-1.54	0.124	.8642709 1.017838
SES	.8245714	.0404419	-3.93	0.000	.7489973 .907771
LE8_TOTALSCORE	.9990972	.0003543	-2.55	0.011	.9984031 .9997919

-> Model for the mediator

```

Iteration 0: Log likelihood = -50825.352
Iteration 1: Log likelihood = -50825.352

Linear regression (Maximum Likelihood)                      Number of obs = 36,896
                                                               Wald chi2(7) = 3184.62
                                                               Prob > chi2 = 0.0000
Log likelihood = -50825.352

```

	zigfbp7	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.1807021	.0145721	12.40	0.000	.1521413 .2092629
AGE		.0286509	.0009513	30.12	0.000	.0267863 .0305155
SEX		-.2807664	.0100978	-27.80	0.000	-.3005578 -.260975
NonWhite		.0003656	.0241812	0.02	0.988	-.0470287 .0477598
householdsize		-.0078326	.0046038	-1.70	0.089	-.0168558 .0011906
SES		-.0691869	.007578	-9.13	0.000	-.0840394 -.0543344
LE8_TOTALSCORE		-.0012219	.0000538	-22.72	0.000	-.0013273 -.0011164
_cons		-.6959374	.0687803	-10.12	0.000	-.8307443 -.5611304
<b>sigma2</b>						
_cons		.9205198	.0067773	135.82	0.000	.9072365 .9338031

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.236121	.1606447	7.69	0.000	.921263 1.550978
ereri_cde	1.225303	.1637347	7.48	0.000	.9043887 1.546217
ereri_intref	-.0004414	.0003477	-1.27	0.204	-.0011228 .00024
ereri_intmed	.0075688	.022589	0.34	0.738	-.0367047 .0518424
ereri_pie	.0036905	.0070914	0.52	0.603	-.0102084 .0175894

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zigfbpl1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04649 2.218 -.07578 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9064.8284**  
 Iteration 1: Log likelihood = **-8977.7228**  
 Iteration 2: Log likelihood = **-8964.4518**  
 Iteration 3: Log likelihood = **-8964.2671**  
 Iteration 4: Log likelihood = **-8964.267**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8964.267**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,441</b>	Number of obs =	<b>36,441</b>
No. of failures =	<b>968</b>		
Time at risk =	<b>442,700.115</b>	LR chi2(9) =	<b>201.12</b>
Log likelihood =	<b>-8964.267</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.239992</b>	.1699192	<b>10.63</b>	<b>0.000</b>	<b>1.930531</b> <b>2.599059</b>
zigfbpl1		<b>1.062785</b>	.0420987	<b>1.54</b>	<b>0.124</b>	<b>.9833945</b> <b>1.148584</b>
_infectionburXzigfbpl1_000		<b>1.023164</b>	.06863	<b>0.34</b>	<b>0.733</b>	<b>.8971189</b> <b>1.166919</b>
AGE		<b>1.030127</b>	.0130797	<b>2.34</b>	<b>0.019</b>	<b>1.004808</b> <b>1.056084</b>
SEX		<b>.746962</b>	.0486995	<b>-4.47</b>	<b>0.000</b>	<b>.6573595</b> <b>.8487779</b>
NonWhite		<b>1.014773</b>	.1796185	<b>0.08</b>	<b>0.934</b>	<b>.7173039</b> <b>1.435604</b>
householdsize		<b>.9288857</b>	.0398235	<b>-1.72</b>	<b>0.085</b>	<b>.8540224</b> <b>1.010312</b>
SES		<b>.8277917</b>	.0409281	<b>-3.82</b>	<b>0.000</b>	<b>.7513384</b> <b>.9120246</b>
LE8_TOTALSCORE		<b>.9991909</b>	.0003615	<b>-2.24</b>	<b>0.025</b>	<b>.9984827</b> <b>.9998996</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-49891.061**  
 Iteration 1: Log likelihood = **-49891.061**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,441</b>
	Wald chi2(7) =	<b>3819.11</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	zigfbpl1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.1746681</b>	.0145396	<b>12.01</b>	<b>0.000</b>	<b>.146171</b> <b>.2031651</b>
AGE		<b>.039019</b>	.0009496	<b>41.09</b>	<b>0.000</b>	<b>.0371578</b> <b>.0408802</b>
SEX		<b>.1082367</b>	.0100753	<b>10.74</b>	<b>0.000</b>	<b>.0884895</b> <b>.127984</b>
NonWhite		<b>-.1617367</b>	.0241248	<b>-6.70</b>	<b>0.000</b>	<b>-.2090205</b> <b>-.1144529</b>
householdsize		<b>-.01818</b>	.0045851	<b>-3.96</b>	<b>0.000</b>	<b>-.0271667</b> <b>-.0091933</b>
SES		<b>-.0329618</b>	.0075607	<b>-4.36</b>	<b>0.000</b>	<b>-.0477805</b> <b>-.0181431</b>
LE8_TOTALSCORE		<b>-.0018026</b>	.0000537	<b>-33.56</b>	<b>0.000</b>	<b>-.0019079</b> <b>-.0016973</b>
_cons		<b>-1.590762</b>	.0686319	<b>-23.18</b>	<b>0.000</b>	<b>-1.725278</b> <b>-1.456246</b>
<b>sigma2</b>						
_cons		<b>.9051142</b>	.0067054	<b>134.98</b>	<b>0.000</b>	<b>.8919719</b> <b>.9182565</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.275163	.1656387	7.70	0.000	.9505173 1.599809
ereri_cde	1.239744	.1697006	7.31	0.000	.9071369 1.572351
ereri_intref	.0023627	.0064475	0.37	0.714	-.0102743 .0149996
ereri_intmed	.0223638	.0223215	1.00	0.316	-.0213855 .0661131
ereri_pie	.0106927	.0070499	1.52	0.129	-.0031248 .0245103

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zigsf3
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04658 2.216 -.07524 500.8

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9057.6167

Iteration 1: Log likelihood = -8965.5189

Iteration 2: Log likelihood = -8957.0655

Iteration 3: Log likelihood = -8957.0463

Iteration 4: Log likelihood = -8957.0463

Refining estimates:

Iteration 0: Log likelihood = -8957.0463

Cox regression with Breslow method for ties

No. of subjects = 36,264 Number of obs = 36,264

No. of failures = 968

Time at risk = 440,524.906

Log likelihood = -8957.0463

LR chi2(9) = 201.14

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.271942	.1636617	11.39	0.000	1.972787 2.616462
zigsf3	.8942043	.0389919	-2.56	0.010	.8209562 .9739877
_infectionburXzigsf3_000	1.052309	.075168	0.71	0.475	.914831 1.210448
AGE	1.03273	.0130107	2.56	0.011	1.007542 1.058548
SEX	.7584888	.0494715	-4.24	0.000	.6674682 .8619216
NonWhite	1.116419	.1901524	0.65	0.518	.7995539 1.558859
householdsize	.9359308	.0392252	-1.58	0.114	.8621236 1.016057
SES	.8148001	.0401711	-4.15	0.000	.7397506 .8974635
LE8_TOTALSCORE	.9988149	.0003667	-3.23	0.001	.9980966 .9995339

-> Model for the mediator

Iteration 0: Log likelihood = **-49752.934**  
 Iteration 1: Log likelihood = **-49752.934**

Linear regression (Maximum Likelihood) Number of obs = 36,264  
 Wald chi2(7) = 3570.97  
 Prob > chi2 = 0.0000

Log likelihood = **-49752.934**

	zigsf3	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr	.1534338	.014622	10.49	0.000	.1247752	.1820924
AGE	.0094813	.0009548	9.93	0.000	.0076099	.0113526
SEX	.0526346	.0101285	5.20	0.000	.0327832	.0724861
NonWhite	.3229552	.0242359	13.33	0.000	.2754537	.3704566
householdsize	-.0097768	.0046063	-2.12	0.034	-.018805	-.0007486
SES	-.0447052	.0075963	-5.89	0.000	-.0595935	-.0298168
LE8_TOTALSCORE	-.0027506	.0000539	-51.00	0.000	-.0028563	-.0026449
_cons	.7081189	.0690035	10.26	0.000	.5728745	.8433633
<b>sigma2</b>						
_cons	.9103307	.0067605	134.66	0.000	.8970804	.923581

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.239399	.1608114	7.71	0.000	.9242148 1.554584
ereri_cde	1.261714	.1623755	7.77	0.000	.9434634 1.579964
ereri_intref	-.0013139	.0112991	-0.12	0.907	-.0234596 .0208319
ereri_intmed	-.0039896	.0211258	-0.19	0.850	-.0453954 .0374163
ereri_pie	-.0170108	.0067702	-2.51	0.012	-.0302802 -.0037414

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

Outcome (yvar): Age\_dementia  
 Exposure (avar): infectionburdenhospbr  
 Mediator (mvar): zigsf8  
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE

Model for the outcome (yreg): cox  
 Model for the mediator (mreg): linear

Referent exposure level (a0): 0  
 Actual exposure level (a1): 1  
 Mediator level for the decomposition (m): 0  
 Fixed values of the covariates (c): 60.18 1.531 .04649 2.218 -.07578 500.5

-> Model for the outcome

Failure \_d: dem\_diag==1  
 Analysis time \_t: Age\_dementia  
 Enter on or after: time baselineage  
 ID variable: n\_eid

Iteration 0: Log likelihood = -9064.8284  
 Iteration 1: Log likelihood = -8975.0713  
 Iteration 2: Log likelihood = -8966.0287  
 Iteration 3: Log likelihood = -8966.007  
 Iteration 4: Log likelihood = -8966.007  
 Refining estimates:  
 Iteration 0: Log likelihood = -8966.007

Cox regression with Breslow method for ties

No. of subjects =	<b>36,441</b>	Number of obs =	<b>36,441</b>
No. of failures =	<b>968</b>		
Time at risk =	<b>442,700.115</b>	LR chi2(9) =	<b>197.64</b>
Log likelihood =	<b>-8966.007</b>	Prob > chi2 =	<b>0.0000</b>

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.294214</b>	.164434	<b>11.59</b>	<b>0.000</b>	<b>1.993542</b> <b>2.640234</b>
zigsf8	<b>.9760725</b>	.0394586	<b>-0.60</b>	<b>0.549</b>	<b>.9017195</b> <b>1.056556</b>
_infectionburXzigsf8_000	<b>.9780386</b>	.0679341	<b>-0.32</b>	<b>0.749</b>	<b>.8535558</b> <b>1.120676</b>
AGE	<b>1.033755</b>	.0130328	<b>2.63</b>	<b>0.008</b>	<b>1.008524</b> <b>1.059617</b>
SEX	<b>.7567563</b>	.0498712	<b>-4.23</b>	<b>0.000</b>	<b>.6650599</b> <b>.8610955</b>
NonWhite	<b>1.005954</b>	.1780396	<b>0.03</b>	<b>0.973</b>	<b>.7110949</b> <b>1.423078</b>
householdsize	<b>.9263437</b>	.0398889	<b>-1.78</b>	<b>0.076</b>	<b>.8513711</b> <b>1.007918</b>
SES	<b>.8243316</b>	.0408231	<b>-3.90</b>	<b>0.000</b>	<b>.7480802</b> <b>.9083552</b>
LE8_TOTALSCORE	<b>.9989905</b>	.0003619	<b>-2.79</b>	<b>0.005</b>	<b>.9982814</b> <b>.9997001</b>

-> Model for the mediator

Iteration 0: Log likelihood =	<b>-50446.502</b>	Number of obs =	<b>36,441</b>
Iteration 1: Log likelihood =	<b>-50446.502</b>	Wald chi2(7) =	<b>2610.33</b>
Linear regression (Maximum Likelihood)		Prob > chi2 =	<b>0.0000</b>
Log likelihood =	<b>-50446.502</b>		

zigsf8	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	.1209882	.0147629	8.20	0.000	.0920535 .1499229
AGE	.0102153	.0009642	10.59	0.000	.0083255 .0121051
SEX	.260978	.0102301	25.51	0.000	.2409274 .2810285
NonWhite	-.1022719	.0244954	-4.18	0.000	-.1502819 -.0542619
householdsize	-.007616	.0046556	-1.64	0.102	-.0167408 .0015087
SES	-.0821297	.0076768	-10.70	0.000	-.097176 -.0670835
LE8_TOTALSCORE	-.0020138	.0000545	-36.93	0.000	-.0021207 -.001907
_cons	-.0078762	.069686	-0.11	0.910	-.1444583 .1287059
<b>sigma2</b>					
_cons	.9331309	.0069129	134.98	0.000	.9195818 .94668

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.283887	.1632197	7.87	0.000	.963982 1.603792
ereri_cde	1.293333	.16437	7.87	0.000	.971174 1.615492
ereri_intref	.003418	.0081368	0.42	0.674	-.0125298 .0193657
ereri_intmed	-.0099384	.0167557	-0.59	0.553	-.042779 .0229021
ereri_pie	-.0029259	.0048898	-0.60	0.550	-.0125096 .0066579

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zikbkg
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04646 2.216 -.07503 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9036.4379**  
 Iteration 1: Log likelihood = **-8946.4975**  
 Iteration 2: Log likelihood = **-8937.767**  
 Iteration 3: Log likelihood = **-8937.7421**  
 Iteration 4: Log likelihood = **-8937.7421**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8937.7421**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,352</b>	Number of obs =	<b>36,352</b>
No. of failures =	<b>965</b>		
Time at risk =	<b>441,650.762</b>	LR chi2(9) =	<b>197.39</b>
Log likelihood =	<b>-8937.7421</b>	Prob > chi2 =	<b>0.0000</b>

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.261414</b>	.1623277	<b>11.37</b>	<b>0.000</b>	<b>1.964625</b> <b>2.603039</b>
zibkg	<b>.9294862</b>	.0360156	<b>-1.89</b>	<b>0.059</b>	<b>.8615107</b> <b>1.002825</b>
_infectionburXzibkg_000	<b>1.017457</b>	.0721003	<b>0.24</b>	<b>0.807</b>	<b>.8855176</b> <b>1.169055</b>
AGE	<b>1.032906</b>	.0130079	<b>2.57</b>	<b>0.010</b>	<b>1.007724</b> <b>1.058719</b>
SEX	<b>.7558116</b>	.0493174	<b>-4.29</b>	<b>0.000</b>	<b>.6650769</b> <b>.8589251</b>
NonWhite	<b>1.062079</b>	.1830673	<b>0.35</b>	<b>0.727</b>	<b>.757596</b> <b>1.488935</b>
householdszie	<b>.9331711</b>	.0396766	<b>-1.63</b>	<b>0.104</b>	<b>.8585585</b> <b>1.014268</b>
SES	<b>.8191826</b>	.0404571	<b>-4.04</b>	<b>0.000</b>	<b>.743605</b> <b>.9024416</b>
LE8_TOTALSCORE	<b>.9989653</b>	.0003563	<b>-2.90</b>	<b>0.004</b>	<b>.9982672</b> <b>.9996639</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-51412.984**  
 Iteration 1: Log likelihood = **-51412.984**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,352</b>	
	Wald chi2(7) =	<b>337.09</b>	
Log likelihood =	<b>-51412.984</b>	Prob > chi2 =	<b>0.0000</b>

<u>zibkg</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.0001776</b>	.0152484	<b>0.01</b>	<b>0.991</b>	<b>-.0297087</b> <b>.030064</b>
AGE	<b>-.0026532</b>	.0009954	<b>-2.67</b>	<b>0.008</b>	<b>-.0046041</b> <b>-.0007023</b>
SEX	<b>-.0765536</b>	.0105538	<b>-7.25</b>	<b>0.000</b>	<b>-.0972386</b> <b>-.0558685</b>
NonWhite	<b>.0968623</b>	.0252904	<b>3.83</b>	<b>0.000</b>	<b>.047294</b> <b>.1464306</b>
householdszie	<b>-.0046586</b>	.0048846	<b>-0.95</b>	<b>0.340</b>	<b>-.0142323</b> <b>.0049151</b>
SES	<b>-.0128392</b>	.0079159	<b>-1.62</b>	<b>0.105</b>	<b>-.028354</b> <b>.0026756</b>
LE8_TOTALSCORE	<b>-.0008266</b>	.0000562	<b>-14.71</b>	<b>0.000</b>	<b>-.0009367</b> <b>-.0007165</b>
_cons	<b>.6955681</b>	.0720068	<b>9.66</b>	<b>0.000</b>	<b>.5544374</b> <b>.8366988</b>
<b>sigma2</b>					
_cons	<b>.990785</b>	.007349	<b>134.82</b>	<b>0.000</b>	<b>.9763811</b> <b>1.005189</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.258892</b>	.1617542	7.78	<b>0.000</b>	.9418598 1.575925
ereri_cde	<b>1.258075</b>	.1617703	7.78	<b>0.000</b>	.9410111 1.575139
ereri_intref	<b>.0008397</b>	.0079314	0.11	0.916	-.0147056 .0163849
ereri_intmed	<b>-9.41e-06</b>	.0008078	-0.01	0.991	-.0015927 .0015739
ereri_pie	<b>-.000013</b>	.0011115	-0.01	0.991	-.0021984 .0021724

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zikzf2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.19 1.531 .04669 2.217 -.07551 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -8882.1967

Iteration 1: Log likelihood = -8796.9521

Iteration 2: Log likelihood = -8788.409

Iteration 3: Log likelihood = -8788.3732

Iteration 4: Log likelihood = -8788.3731

Refining estimates:

Iteration 0: Log likelihood = -8788.3731

Cox regression with Breslow method for ties

No. of subjects = 35,573 Number of obs = 35,573

No. of failures = 951

Time at risk = 432,088.637

LR chi2(9) = 187.65

Log likelihood = -8788.3731

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.248754</b>	.1623956	<b>11.22</b>	<b>0.000</b>	<b>1.951964</b> <b>2.590671</b>
zikzf2	<b>1.02564</b>	.0398752	<b>0.65</b>	<b>0.515</b>	<b>.950389</b> <b>1.106848</b>
_infectionburXzikzf2_000	<b>1.028429</b>	.0718937	<b>0.40</b>	<b>0.688</b>	<b>.8967468</b> <b>1.179447</b>
AGE	<b>1.037563</b>	.0131948	<b>2.90</b>	<b>0.004</b>	<b>1.012022</b> <b>1.06375</b>
SEX	<b>.7449807</b>	.0490074	<b>-4.48</b>	<b>0.000</b>	<b>.6548624</b> <b>.8475006</b>
NonWhite	<b>1.112746</b>	.1893183	<b>0.63</b>	<b>0.530</b>	<b>.7972159</b> <b>1.55316</b>
householdszie	<b>.9401924</b>	.0395877	<b>-1.46</b>	<b>0.143</b>	<b>.8657173</b> <b>1.021074</b>
SES	<b>.8277717</b>	.0412875	<b>-3.79</b>	<b>0.000</b>	<b>.7506793</b> <b>.9127813</b>
LE8_TOTALSCORE	<b>.9992177</b>	.0003588	<b>-2.18</b>	<b>0.029</b>	<b>.9985147</b> <b>.9999212</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50415.27**  
 Iteration 1: Log likelihood = **-50415.27**

Linear regression (Maximum Likelihood)  
 Number of obs = 35,573  
 Wald chi2(7) = 120.46  
 Log likelihood = **-50415.27** Prob > chi2 = 0.0000

zикzf2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.010602</b>	.0154642	<b>0.69</b>	<b>0.493</b>	<b>-.0197073</b> <b>.0409113</b>
AGE	<b>-.0067412</b>	.0010084	<b>-6.69</b>	<b>0.000</b>	<b>-.0087176</b> <b>-.0047648</b>
SEX	<b>.0278417</b>	.0107004	<b>2.60</b>	<b>0.009</b>	<b>.0068692</b> <b>.0488141</b>
NonWhite	<b>-.1277697</b>	.025573	<b>-5.00</b>	<b>0.000</b>	<b>-.1778919</b> <b>-.0776475</b>
householdszie	<b>-.0022097</b>	.0048701	<b>-0.45</b>	<b>0.650</b>	<b>-.011755</b> <b>.0073356</b>
SES	<b>.0162702</b>	.0080256	<b>2.03</b>	<b>0.043</b>	<b>.0005403</b> <b>.0320001</b>
LE8_TOTALSCORE	<b>.0002649</b>	.000057	<b>4.65</b>	<b>0.000</b>	<b>.0001532</b> <b>.0003766</b>
_cons	<b>.2411303</b>	.0728778	<b>3.31</b>	<b>0.001</b>	<b>.0982926</b> <b>.3839681</b>
<b>sigma2</b>					
_cons	<b>.996597</b>	.0074726	<b>133.37</b>	<b>0.000</b>	<b>.9819509</b> <b>1.011243</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.252408</b>	.1627207	<b>7.70</b>	<b>0.000</b>	<b>.9334808</b> <b>1.571334</b>
ereri_cde	<b>1.248402</b>	.1623631	<b>7.69</b>	<b>0.000</b>	<b>.9301762</b> <b>1.566628</b>
ereri_intref	<b>.0027319</b>	.0068465	<b>0.40</b>	<b>0.690</b>	<b>-.010687</b> <b>.0161507</b>
ereri_intmed	<b>.0010052</b>	.0020643	<b>0.49</b>	<b>0.626</b>	<b>-.0030407</b> <b>.0050511</b>
ereri_pie	<b>.0002684</b>	.0005686	<b>0.47</b>	<b>0.637</b>	<b>-.0008461</b> <b>.0013829</b>

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdszie SES LE8\_TOTALSCORE were not provided. All

-> Summary

```

Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zil10
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

Model for the outcome (yreg): cox
Model for the mediator (mreg): linear

Referent exposure level (a0):          0
Actual exposure level (a1):           1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c):    60.18 1.53 .04656 2.215 -.07626 500.6

```

-> Model for the outcome

```

Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid

Iteration 0: Log likelihood = -8913.3312
Iteration 1: Log likelihood = -8821.9584
Iteration 2: Log likelihood = -8814.5396
Iteration 3: Log likelihood = -8814.5228
Iteration 4: Log likelihood = -8814.5228
Refining estimates:
Iteration 0: Log likelihood = -8814.5228

Cox regression with Breslow method for ties

No. of subjects =      35,761                               Number of obs = 35,761
No. of failures =       953
Time at risk      = 434,427.923
Log likelihood = -8814.5228
LR chi2(9)      = 197.62
Prob > chi2     = 0.0000

```

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.236534	.162687	11.07	0.000	1.93936 2.579244
zil10	1.129227	.0382316	3.59	0.000	1.056726 1.206701
_infectionburXzil10_000	.9011132	.059746	-1.57	0.116	.7913027 1.026162
AGE	1.036544	.0131526	2.83	0.005	1.011083 1.062646
SEX	.7456776	.049007	-4.47	0.000	.6555547 .8481902
NonWhite	1.054462	.1841489	0.30	0.761	.7488231 1.484851
householdsize	.9353557	.0398291	-1.57	0.117	.8604608 1.016769
SES	.8291642	.0412628	-3.76	0.000	.7521095 .9141133
LE8_TOTALSCORE	.9990687	.0003581	-2.60	0.009	.998367 .9997709

-> Model for the mediator

```

Iteration 0: Log likelihood = -50679.145
Iteration 1: Log likelihood = -50679.145

Linear regression (Maximum Likelihood)
Number of obs = 35,761
Wald chi2(7) = 126.25
Prob > chi2 = 0.0000
Log likelihood = -50679.145

```

	zil10	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.1058835	.0154256	6.86	0.000	.0756498 .1361171
AGE		.0038417	.0010047	3.82	0.000	.0018726 .0058109
SEX		.0474557	.0106698	4.45	0.000	.0265433 .0683681
NonWhite		.022871	.0255296	0.90	0.370	-.0271661 .0729081
householdsize		-.0035718	.0048531	-0.74	0.462	-.0130837 .0059402
SES		-.0309061	.0079997	-3.86	0.000	-.0465854 -.0152269
LE8_TOTALSCORE		-.0000822	.0000568	-1.45	0.148	-.0001936 .0000292
_cons		-.2728498	.0725706	-3.76	0.000	-.4150855 -.130614
<b>sigma2</b>						
_cons		.996454	.0074519	133.72	0.000	.9818486 1.01106

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.227968	.1611823	7.62	0.000	.9120563 1.543879
ereri_cde	1.229658	.1615512	7.61	0.000	.913023 1.546292
ereri_intref	-.0057929	.0036305	-1.60	0.111	-.0129085 .0013228
ereri_intmed	-.0088485	.0139698	-0.63	0.526	-.0362288 .0185318
ereri_pie	.0129515	.0040978	3.16	0.002	.0049199 .0209831

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zil10ra
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.53 .04656 2.215 -.07626 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8913.3312**  
 Iteration 1: Log likelihood = **-8827.9607**  
 Iteration 2: Log likelihood = **-8819.0345**  
 Iteration 3: Log likelihood = **-8819.0066**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8819.0066**

Cox regression with Breslow method for ties

No. of subjects =	<b>35,761</b>	Number of obs =	<b>35,761</b>
No. of failures =	<b>953</b>		
Time at risk =	<b>434,427.923</b>	LR chi2(9) =	<b>188.65</b>
Log likelihood =	<b>-8819.0066</b>	Prob > chi2 =	<b>0.0000</b>

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.223288</b>	<b>.1608932</b>	<b>11.04</b>	<b>0.000</b>	<b>1.929286</b> <b>2.562093</b>
zil10ra		<b>.9918626</b>	<b>.0385563</b>	<b>-0.21</b>	<b>0.834</b>	<b>.9191006</b> <b>1.070385</b>
_infectionburXzil10ra_000		<b>.9021414</b>	<b>.0730297</b>	<b>-1.27</b>	<b>0.203</b>	<b>.7697834</b> <b>1.057257</b>
AGE		<b>1.03722</b>	<b>.0131626</b>	<b>2.88</b>	<b>0.004</b>	<b>1.01174</b> <b>1.063342</b>
SEX		<b>.7503908</b>	<b>.0493058</b>	<b>-4.37</b>	<b>0.000</b>	<b>.6597171</b> <b>.853527</b>
NonWhite		<b>1.055765</b>	<b>.1843929</b>	<b>0.31</b>	<b>0.756</b>	<b>.7497247</b> <b>1.486731</b>
householdszie		<b>.9347531</b>	<b>.0398371</b>	<b>-1.58</b>	<b>0.113</b>	<b>.8598459</b> <b>1.016186</b>
SES		<b>.8268571</b>	<b>.0411103</b>	<b>-3.82</b>	<b>0.000</b>	<b>.7500838</b> <b>.9114883</b>
LE8_TOTALSCORE		<b>.9990537</b>	<b>.0003586</b>	<b>-2.64</b>	<b>0.008</b>	<b>.9983511</b> <b>.9997569</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50708.12**  
 Iteration 1: Log likelihood = **-50708.12**

Linear regression (Maximum Likelihood)	Number of obs =	<b>35,761</b>
	Wald chi2(7) =	<b>68.15</b>
Log likelihood =	<b>-50708.12</b>	Prob > chi2 = <b>0.0000</b>

	zil10ra	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.0333324</b>	<b>.0154381</b>	<b>2.16</b>	<b>0.031</b>	<b>.0030743</b> <b>.0635906</b>
AGE		<b>.0036298</b>	<b>.0010055</b>	<b>3.61</b>	<b>0.000</b>	<b>.001659</b> <b>.0056005</b>
SEX		<b>.0356499</b>	<b>.0106784</b>	<b>3.34</b>	<b>0.001</b>	<b>.0147205</b> <b>.0565792</b>
NonWhite		<b>-.0850097</b>	<b>.0255503</b>	<b>-3.33</b>	<b>0.001</b>	<b>-.1350874</b> <b>-.034932</b>
householdszie		<b>.0074825</b>	<b>.0048571</b>	<b>1.54</b>	<b>0.123</b>	<b>-.0020372</b> <b>.0170022</b>
SES		<b>-.024074</b>	<b>.0080062</b>	<b>-3.01</b>	<b>0.003</b>	<b>-.039766</b> <b>-.0083821</b>
LE8_TOTALSCORE		<b>-.0001958</b>	<b>.0000569</b>	<b>-3.44</b>	<b>0.001</b>	<b>-.0003073</b> <b>-.0000843</b>
_cons		<b>-.1940394</b>	<b>.0726294</b>	<b>-2.67</b>	<b>0.008</b>	<b>-.3363904</b> <b>-.0516884</b>
<b>sigma2</b>						
_cons		<b>.9980701</b>	<b>.007464</b>	<b>133.72</b>	<b>0.000</b>	<b>.983441</b> <b>1.012699</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.229751</b>	.1615081	7.61	<b>0.000</b>	.9132013 1.546301
ereri_cde	<b>1.223201</b>	.1608873	7.60	<b>0.000</b>	.9078677 1.538534
ereri_intref	<b>.014827</b>	.018425	0.80	<b>0.421</b>	-.0212853 .0509393
ereri_intmed	<b>-.0080044</b>	.0066436	-1.20	<b>0.228</b>	-.0210256 .0050168
ereri_pie	<b>-.0002723</b>	.0013015	-0.21	<b>0.834</b>	-.0028232 .0022786

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zil10rb
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04635 2.216 -.07488 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9125.8833

Iteration 1: Log likelihood = -9037.677

Iteration 2: Log likelihood = -9029.599

Iteration 3: Log likelihood = -9029.5821

Iteration 4: Log likelihood = -9029.5821

Refining estimates:

Iteration 0: Log likelihood = -9029.5821

Cox regression with Breslow method for ties

No. of subjects = 36,595

Number of obs = 36,595

No. of failures = 974

LR chi2(9) = 192.60

Time at risk = 444,506.48

Prob > chi2 = 0.0000

Log likelihood = -9029.5821

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.286419	.166982	11.32	0.000	1.981485 2.63828
zil10rb		1.038633	.0413453	0.95	0.341	.9606782 1.122913
_infectionburXzil10rb_000		.9142025	.0625994	-1.31	0.190	.7993868 1.045509
AGE		1.035113	.0130229	2.74	0.006	1.009901 1.060955
SEX		.7596698	.0494785	-4.22	0.000	.6686283 .8631076
NonWhite		1.098431	.1871358	0.55	0.582	.7866052 1.533872
householdsize		.9366456	.0393311	-1.56	0.119	.862645 1.016994
SES		.8288135	.040901	-3.80	0.000	.7524038 .9129828
LE8_TOTALSCORE		.999055	.0003598	-2.63	0.009	.9983502 .9997604

-> Model for the mediator

Iteration 0: Log likelihood = -50161.269  
 Iteration 1: Log likelihood = -50161.269

Linear regression (Maximum Likelihood)  
 Number of obs = 36,595  
 Wald chi2(7) = 3704.29  
 Log likelihood = -50161.269 Prob > chi2 = 0.0000

	zil10rb	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.189486	.0145356	13.04	0.000	.1609966 .2179753
AGE		.0221473	.0009487	23.35	0.000	.020288 .0240067
SEX		-.1736748	.0100716	-17.24	0.000	-.1934147 -.1539349
NonWhite		-.3043356	.0241465	-12.60	0.000	-.3516619 -.2570092
householdsize		-.0001027	.0045856	-0.02	0.982	-.0090903 .008885
SES		-.1113417	.0075596	-14.73	0.000	-.1261583 -.0965251
LE8_TOTALSCORE		-.0020242	.0000536	-37.74	0.000	-.0021293 -.001919
_cons		-.074204	.068521	-1.08	0.279	-.2085026 .0600947
<b>sigma2</b>						
_cons		.9080557	.006713	135.27	0.000	.8948984 .9212129

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.270727	.16358	7.77	0.000	.9501157 1.591338
ereri_cde	1.286864	.1670008	7.71	0.000	.9595482 1.614179
ereri_intref	.0062597	.0097045	0.65	0.519	-.0127608 .0252803
ereri_intmed	-.0296052	.0259881	-1.14	0.255	-.080541 .0213306
ereri_pie	.0072084	.0076176	0.95	0.344	-.0077218 .0221385

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```

Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zil11
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

Model for the outcome (yreg): cox
Model for the mediator (mreg): linear

Referent exposure level (a0):          0
Actual exposure level (a1):           1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c):    60.18 1.53 .04656 2.215 -.07626 500.6

```

-> Model for the outcome

```

Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid

Iteration 0: Log likelihood = -8913.3312
Iteration 1: Log likelihood = -8828.6319
Iteration 2: Log likelihood = -8819.9818
Iteration 3: Log likelihood = -8819.931
Iteration 4: Log likelihood = -8819.931
Refining estimates:
Iteration 0: Log likelihood = -8819.931

```

Cox regression with Breslow method for ties

No. of subjects =	35,761	Number of obs =	35,761
No. of failures =	953		
Time at risk =	434,427.923	LR chi2(9) =	186.80
Log likelihood =	-8819.931	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.216094	.160564	10.98	0.000	1.922718 2.554235
zil11	1.002573	.038435	0.07	0.947	.9300022 1.080806
_infectionburXzil11_000	1.05826	.0756678	0.79	0.428	.9198773 1.217461
AGE	1.037044	.013158	2.87	0.004	1.011573 1.063157
SEX	.7483981	.0491722	-4.41	0.000	.6579698 .8512545
NonWhite	1.055507	.1842771	0.31	0.757	.7496404 1.486173
householdsize	.9355287	.0398275	-1.57	0.117	.8606362 1.016938
SES	.8272811	.0411477	-3.81	0.000	.7504395 .9119909
LE8_TOTALSCORE	.9990668	.0003583	-2.60	0.009	.9983648 .9997694

-> Model for the mediator

Iteration 0: Log likelihood = -50727.597	Number of obs = 35,761
Iteration 1: Log likelihood = -50727.597	Wald chi2(7) = 29.14
Log likelihood = -50727.597	Prob > chi2 = 0.0001

	zil11	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.0156947	.0154465	1.02	0.310	-.0145799 .0459694
AGE		.0028611	.0010061	2.84	0.004	.0008893 .004833
SEX		.0182658	.0106843	1.71	0.087	-.002675 .0392065
NonWhite		-.0428613	.0255642	-1.68	0.094	-.0929663 .0072436
householdsize		-.0044172	.0048597	-0.91	0.363	-.0139421 .0051076
SES		-.0051727	.0080106	-0.65	0.518	-.0208732 .0105277
LE8_TOTALSCORE		-.0001517	.0000569	-2.67	0.008	-.0002633 -.0000402
_cons		-.1149644	.072669	-1.58	0.114	-.257393 .0274642
<b>sigma2</b>						
_cons		.9991579	.0074721	133.72	0.000	.9845128 1.013803

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.22176	.1607505	7.60	0.000	.9066947 1.536825
ereri_cde	1.216097	.1605642	7.57	0.000	.9013972 1.530797
ereri_intref	.0035995	.0076587	0.47	0.638	-.0114113 .0186103
ereri_intmed	.0020229	.0029622	0.68	0.495	-.0037829 .0078286
ereri_pie	.0000403	.000603	0.07	0.947	-.0011416 .0012222

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zil12a_il12b
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .04658 2.216 -.07524 500.8

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-9057.6167**  
 Iteration 1: Log likelihood = **-8968.4513**  
 Iteration 2: Log likelihood = **-8959.9544**  
 Iteration 3: Log likelihood = **-8959.934**  
 Iteration 4: Log likelihood = **-8959.934**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8959.934**

Cox regression with Breslow method for ties

No. of subjects =	<b>36,264</b>	Number of obs =	<b>36,264</b>
No. of failures =	<b>968</b>		
Time at risk =	<b>440,524.906</b>	LR chi2(9) =	<b>195.37</b>
Log likelihood =	<b>-8959.934</b>	Prob > chi2 =	<b>0.0000</b>

	<b>t</b>	Haz. ratio	Std. err.	<b>z</b>	P> z	[95% conf. interval]
infectionburdenhospbr		<b>2.255252</b>	.1636585	<b>11.21</b>	<b>0.000</b>	<b>1.956254</b> <b>2.599949</b>
zil12a_il12b		<b>1.055059</b>	.0412791	<b>1.37</b>	<b>0.171</b>	<b>.9771773</b> <b>1.139147</b>
_infectionburXzil12a_il12b_000		<b>.9687025</b>	.0633451	<b>-0.49</b>	<b>0.627</b>	<b>.8521753</b> <b>1.101164</b>
AGE		<b>1.031042</b>	.0129948	<b>2.43</b>	<b>0.015</b>	<b>1.005885</b> <b>1.056829</b>
SEX		<b>.7397023</b>	.0488978	<b>-4.56</b>	<b>0.000</b>	<b>.6498133</b> <b>.8420258</b>
NonWhite		<b>1.105022</b>	.1884359	<b>0.59</b>	<b>0.558</b>	<b>.7910759</b> <b>1.54356</b>
householdszie		<b>.9370216</b>	.0393291	<b>-1.55</b>	<b>0.121</b>	<b>.8630235</b> <b>1.017365</b>
SES		<b>.8198206</b>	.0404899	<b>-4.02</b>	<b>0.000</b>	<b>.7441819</b> <b>.9031473</b>
LE8_TOTALSCORE		<b>.9990893</b>	.000356	<b>-2.56</b>	<b>0.011</b>	<b>.9983918</b> <b>.9997873</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50517.416**  
 Iteration 1: Log likelihood = **-50517.416**

Linear regression (Maximum Likelihood)	Number of obs =	<b>36,264</b>
	Wald chi2(7) =	<b>1926.36</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

	<b>zil12a_il12b</b>	Coefficient	Std. err.	<b>z</b>	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		<b>.1358338</b>	.0149335	<b>9.10</b>	<b>0.000</b>	<b>.1065646</b> <b>.1651029</b>
AGE		<b>.0153199</b>	.0009751	<b>15.71</b>	<b>0.000</b>	<b>.0134087</b> <b>.0172311</b>
SEX		<b>.3403254</b>	.0103443	<b>32.90</b>	<b>0.000</b>	<b>.3200511</b> <b>.3605998</b>
NonWhite		<b>-.3432717</b>	.0247522	<b>-13.87</b>	<b>0.000</b>	<b>-.3917851</b> <b>-.2947582</b>
householdszie		<b>.0111158</b>	.0047045	<b>2.36</b>	<b>0.018</b>	<b>.0018953</b> <b>.0203364</b>
SES		<b>-.0696623</b>	.0077581	<b>-8.98</b>	<b>0.000</b>	<b>-.0848679</b> <b>-.0544567</b>
LE8_TOTALSCORE		<b>-.0007227</b>	.0000551	<b>-13.12</b>	<b>0.000</b>	<b>-.0008306</b> <b>-.0006147</b>
_cons		<b>-1.114058</b>	.0704736	<b>-15.81</b>	<b>0.000</b>	<b>-1.252184</b> <b>-.9759323</b>
<b>sigma2</b>						
_cons		<b>.9495327</b>	.0070516	<b>134.66</b>	<b>0.000</b>	<b>.9357118</b> <b>.9633536</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.260722</b>	.1621568	7.77	<b>0.000</b>	.9429007 1.578544
ereri_cde	<b>1.254809</b>	.1635194	7.67	<b>0.000</b>	.934317 1.575301
ereri_intref	<b>-.0007711</b>	.0012695	-0.61	0.544	-.0032594 .0017172
ereri_intmed	<b>-.0006227</b>	.0170258	-0.04	0.971	-.0339927 .0327473
ereri_pie	<b>.0073068</b>	.0054137	1.35	0.177	-.0033039 .0179174

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zil12b
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.531 .0466 2.218 -.07544 500.5

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = -9166.3755

Iteration 1: Log likelihood = -9075.0339

Iteration 2: Log likelihood = -9065.8676

Iteration 3: Log likelihood = -9065.8437

Iteration 4: Log likelihood = -9065.8437

Refining estimates:

Iteration 0: Log likelihood = -9065.8437

Cox regression with Breslow method for ties

No. of subjects = 36,824

Number of obs = 36,824

No. of failures = 978

Time at risk = 447,356.911

LR chi2(9) = 201.06

Log likelihood = -9065.8437

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.275062	.1639006	11.41	0.000	1.975472 2.620087
zil12b	1.044578	.0411537	1.11	0.268	.9669539 1.128434
_infectionburXzil12b_000	.9827003	.0652293	-0.26	0.793	.8628204 1.119236
AGE	1.034867	.0129915	2.73	0.006	1.009715 1.060646
SEX	.7432121	.0489182	-4.51	0.000	.653261 .8455491
NonWhite	1.064737	.1838018	0.36	0.716	.7591057 1.493421
householdszie	.9362766	.0392612	-1.57	0.116	.8624034 1.016478
SES	.8208619	.0403244	-4.02	0.000	.7455131 .9038261
LE8_TOTALSCORE	.9991014	.0003543	-2.54	0.011	.9984073 .9997961

-> Model for the mediator

Iteration 0: Log likelihood = -51317.468  
 Iteration 1: Log likelihood = -51317.468

Linear regression (Maximum Likelihood)  
 Number of obs = 36,824  
 Wald chi2(7) = 1914.14  
 Log likelihood = -51317.468 Prob > chi2 = 0.0000

	zil12b	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr	.1211976	.0148347	8.17	0.000	.0921222	.150273
AGE	.0156074	.0009676	16.13	0.000	.013711	.0175038
SEX	.3537986	.0102718	34.44	0.000	.3336663	.3739309
NonWhite	-.3405114	.0245715	-13.86	0.000	-.3886707	-.2923521
householdszie	.0119587	.0046829	2.55	0.011	.0027804	.021137
SES	-.0600196	.0077025	-7.79	0.000	-.0751163	-.044923
LE8_TOTALSCORE	-.0005664	.0000547	-10.36	0.000	-.0006736	-.0004593
_cons	-1.229307	.0699413	-17.58	0.000	-1.366389	-1.092225
<b>sigma2</b>						
_cons	.9505619	.0070054	135.69	0.000	.9368317	.9642922

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.281637	.162523	7.89	0.000	.9630973 1.600176
ereri_cde	1.274845	.1638129	7.78	0.000	.9537774 1.595912
ereri_intref	-.0004313	.0013801	-0.31	0.755	-.0031363 .0022736
ereri_intmed	.0019233	.0155823	0.12	0.902	-.0286174 .032464
ereri_pie	.0052998	.004844	1.09	0.274	-.0041943 .014794

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdszie SES LE8\_TOTALSCORE were not provided. All

-> Summary

```

Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zil12rb1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

Model for the outcome (yreg): cox
Model for the mediator (mreg): linear

Referent exposure level (a0):          0
Actual exposure level (a1):           1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c):    60.18 1.53 .04656 2.215 -.07626 500.6

```

-> Model for the outcome

```

Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid

```

```

Iteration 0: Log likelihood = -8913.3312
Iteration 1: Log likelihood = -8827.2467
Iteration 2: Log likelihood = -8819.5748
Iteration 3: Log likelihood = -8819.5589
Refining estimates:
Iteration 0: Log likelihood = -8819.5589

```

Cox regression with Breslow method for ties

No. of subjects =	35,761	Number of obs = 35,761
No. of failures =	953	
Time at risk =	434,427.923	LR chi2(9) = 187.54
Log likelihood =	-8819.5589	Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.241292	.1637144	11.05	0.000	1.942329 2.586272
zil12rb1	1.048528	.0408422	1.22	0.224	.9714578 1.131712
_infectionburXzil12rb1_000	.9295268	.0650497	-1.04	0.296	.8103891 1.066179
AGE	1.036545	.0131648	2.83	0.005	1.011061 1.062671
SEX	.7485187	.0491762	-4.41	0.000	.6580826 .8513829
NonWhite	1.053269	.1839365	0.30	0.766	.7479812 1.48316
householdszie	.9348773	.0398637	-1.58	0.114	.8599217 1.016366
SES	.8281726	.0412462	-3.79	0.000	.7511518 .9130908
LE8_TOTALSCORE	.9990844	.0003593	-2.55	0.011	.9983804 .999789

-> Model for the mediator

Iteration 0: Log likelihood = -50355.579	Number of obs = 35,761
Iteration 1: Log likelihood = -50355.579	Wald chi2(7) = 781.58
Linear regression (Maximum Likelihood)	Prob > chi2 = 0.0000
Log likelihood = -50355.579	

		Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.1175133	.0152867	7.69	0.000	.087552 .1474747
AGE		.015809	.0009956	15.88	0.000	.0138575 .0177604
SEX		.0047151	.0105737	0.45	0.656	-.0160089 .0254392
NonWhite		.0388452	.0252997	1.54	0.125	-.0107412 .0884316
householdsize		.0002731	.0048094	0.06	0.955	-.0091532 .0096993
SES		-.0587617	.0079277	-7.41	0.000	-.0742997 -.0432237
LE8_TOTALSCORE		-.0008239	.0000563	-14.62	0.000	-.0009343 -.0007135
_cons		-.5693133	.0719169	-7.92	0.000	-.7102678 -.4283587
<b>sigma2</b>						
_cons		.9785844	.0073183	133.72	0.000	.9642408 .9929279

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.23546	.1621928	7.62	0.000	.9175683 1.553352
ereri_cde	1.240886	.1635732	7.59	0.000	.9202882 1.561483
ereri_intref	.0013342	.0056003	0.24	0.812	-.0096423 .0123106
ereri_intmed	-.0123437	.0161541	-0.76	0.445	-.0440051 .0193178
ereri_pie	.0055841	.0046602	1.20	0.231	-.0035497 .014718

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zil13
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.53 .04656 2.215 -.07626 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8913.3312**  
 Iteration 1: Log likelihood = **-8827.3716**  
 Iteration 2: Log likelihood = **-8819.6321**  
 Iteration 3: Log likelihood = **-8819.6157**  
 Iteration 4: Log likelihood = **-8819.6157**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8819.6157**

Cox regression with Breslow method for ties

No. of subjects =	<b>35,761</b>	Number of obs =	<b>35,761</b>
No. of failures =	<b>953</b>		
Time at risk =	<b>434,427.923</b>	LR chi2(9) =	<b>187.43</b>
Log likelihood =	<b>-8819.6157</b>	Prob > chi2 =	<b>0.0000</b>

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.226289</b>	.1611671	<b>11.06</b>	<b>0.000</b>	<b>1.931793</b>	<b>2.565679</b>
zil13	<b>.9491931</b>	.0420964	<b>-1.18</b>	<b>0.240</b>	<b>.87017</b>	<b>1.035393</b>
_infectionburXzil13_000	<b>1.036515</b>	.0744227	<b>0.50</b>	<b>0.617</b>	<b>.9004482</b>	<b>1.193144</b>
AGE	<b>1.036935</b>	.0131589	<b>2.86</b>	<b>0.004</b>	<b>1.011462</b>	<b>1.06305</b>
SEX	<b>.7483658</b>	.0491634	<b>-4.41</b>	<b>0.000</b>	<b>.657953</b>	<b>.8512028</b>
NonWhite	<b>1.051217</b>	.1835696	<b>0.29</b>	<b>0.775</b>	<b>.7465359</b>	<b>1.480247</b>
householdszie	<b>.9352738</b>	.0397777	<b>-1.57</b>	<b>0.116</b>	<b>.8604719</b>	<b>1.016578</b>
SES	<b>.8275871</b>	.0411718	<b>-3.80</b>	<b>0.000</b>	<b>.7507012</b>	<b>.9123476</b>
LE8_TOTALSCORE	<b>.9990602</b>	.0003584	<b>-2.62</b>	<b>0.009</b>	<b>.9983581</b>	<b>.9997629</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50735.161**  
 Iteration 1: Log likelihood = **-50735.161**

Linear regression (Maximum Likelihood)	Number of obs =	<b>35,761</b>
	Wald chi2(7) =	<b>14.00</b>
Log likelihood =	<b>-50735.161</b>	Prob > chi2 = <b>0.0511</b>

	<u>zil13</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr	<b>.0038167</b>	.0154498	<b>0.25</b>	<b>0.805</b>	<b>-.0264644</b>	<b>.0340977</b>
AGE	<b>-.0029942</b>	.0010063	<b>-2.98</b>	<b>0.003</b>	<b>-.0049665</b>	<b>-.001022</b>
SEX	<b>-.0086091</b>	.0106865	<b>-0.81</b>	<b>0.420</b>	<b>-.0295543</b>	<b>.0123361</b>
NonWhite	<b>-.0515902</b>	.0255696	<b>-2.02</b>	<b>0.044</b>	<b>-.1017057</b>	<b>-.0014746</b>
householdszie	<b>-.0013682</b>	.0048607	<b>-0.28</b>	<b>0.778</b>	<b>-.010895</b>	<b>.0081587</b>
SES	<b>-.0009027</b>	.0080123	<b>-0.11</b>	<b>0.910</b>	<b>-.0166065</b>	<b>.0148011</b>
LE8_TOTALSCORE	<b>-.0000659</b>	.0000569	<b>-1.16</b>	<b>0.247</b>	<b>-.0001775</b>	<b>.0000457</b>
_cons	<b>.2311829</b>	.0726843	<b>3.18</b>	<b>0.001</b>	<b>.0887242</b>	<b>.3736416</b>
<b>sigma2</b>						
_cons	<b>.9995806</b>	.0074753	<b>133.72</b>	<b>0.000</b>	<b>.9849293</b>	<b>1.014232</b>

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	<b>1.223379</b>	.1608732	<b>7.60</b>	<b>0.000</b>	.9080737 1.538685
ereri_cde	<b>1.22459</b>	.160863	<b>7.61</b>	<b>0.000</b>	.9093038 1.539875
ereri_intref	<b>-.0010719</b>	.0031457	<b>-0.34</b>	<b>0.733</b>	<b>-.0072374</b> .0050936
ereri_intmed	<b>.0000609</b>	.000565	<b>0.11</b>	<b>0.914</b>	<b>-.0010465</b> .0011682
ereri_pie	<b>-.000199</b>	.000823	<b>-0.24</b>	<b>0.809</b>	<b>-.0018121</b> .0014141

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zil13ra1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): **cox**

Model for the mediator (mreg): **linear**

Referent exposure level (a0): **0**

Actual exposure level (a1): **1**

Mediator level for the decomposition (m): **0**

Fixed values of the covariates (c): **60.18 1.531 .04663 2.217 -.07438 500.8**

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8919.471**

Iteration 1: Log likelihood = **-8822.3289**

Iteration 2: Log likelihood = **-8814.2823**

Iteration 3: Log likelihood = **-8814.2603**

Iteration 4: Log likelihood = **-8814.2603**

Refining estimates:

Iteration 0: Log likelihood = **-8814.2603**

Cox regression with Breslow method for ties

No. of subjects = **35,984** Number of obs = **35,984**

No. of failures = **954**

Time at risk = **437,050.8**

Log likelihood = **-8814.2603**

LR chi2(9) = **210.42**

Prob > chi2 = **0.0000**

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.276404	.1649495	11.35	0.000	1.975017 2.623783
zil13ra1		.8321494	.0304765	-5.02	0.000	.7745101 .8940784
_infectionburXzil13ra1_000		1.144311	.0793595	1.94	0.052	.9988776 1.31092
AGE		1.034011	.0131398	2.63	0.008	1.008575 1.060088
SEX		.7920523	.0524296	-3.52	0.000	.695679 .9017764
NonWhite		1.100731	.1897461	0.56	0.578	.7851446 1.543167
householdsize		.9266785	.0399721	-1.77	0.078	.851555 1.008429
SES		.8169573	.0406691	-4.06	0.000	.7410125 .9006855
LE8_TOTALSCORE		.9988843	.0003636	-3.07	0.002	.998172 .9995972

-> Model for the mediator

Iteration 0: Log likelihood = **-50065.013**  
 Iteration 1: Log likelihood = **-50065.013**

Linear regression (Maximum Likelihood) Number of obs = 35,984  
 Wald chi2(7) = 2043.04  
 Log likelihood = **-50065.013** Prob > chi2 = 0.0000

	zil13ra1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.0163493	.0149833	1.09	0.275	-.0130174 .045716
AGE		.0010691	.0009765	1.09	0.274	-.0008448 .0029829
SEX		.1517388	.0103673	14.64	0.000	.1314193 .1720582
NonWhite		.0952902	.0247926	3.84	0.000	.0466976 .1438827
householdsize		-.0001683	.004708	-0.04	0.971	-.0093958 .0090591
SES		-.0337856	.0077781	-4.34	0.000	-.0490304 -.0185408
LE8_TOTALSCORE		-.0022589	.0000552	-40.92	0.000	-.0023671 -.0021507
_cons		.8256852	.0705945	11.70	0.000	.6873225 .964048
<b>sigma2</b>						
_cons		.9462478	.0070545	134.13	0.000	.9324213 .9600744

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.240393	.1618257	7.66	0.000	.9232208 1.557566
ereri_cde	1.255655	.1618544	7.76	0.000	.9384263 1.572884
ereri_intref	-.0134683	.0089903	-1.50	0.134	-.0310889 .0041523
ereri_intmed	.0012062	.0025156	0.48	0.632	-.0037243 .0061367
ereri_pie	-.0029996	.002809	-1.07	0.286	-.0085051 .002506

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.  
 Warning: this analysis assumes a rare outcome.  
 Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```

Outcome      (yvar): Age_dementia
Exposure     (avar): infectionburdenhospbr
Mediator     (mvar): zill15
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

Model for the outcome (yreg): cox
Model for the mediator (mreg): linear

Referent exposure level (a0):          0
Actual exposure level (a1):           1
Mediator level for the decomposition (m): 0
Fixed values of the covariates (c):    60.19 1.531 .04646 2.216 -.07503 500.6

```

-> Model for the outcome

```

Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid

Iteration 0: Log likelihood = -9036.4379
Iteration 1: Log likelihood = -8945.5797
Iteration 2: Log likelihood = -8935.8508
Iteration 3: Log likelihood = -8935.7826
Iteration 4: Log likelihood = -8935.7825
Refining estimates:
Iteration 0: Log likelihood = -8935.7825

```

Cox regression with Breslow method for ties

No. of subjects =	36,352	Number of obs =	36,352
No. of failures =	965		
Time at risk =	441,650.762	LR chi2(9) =	201.31
Log likelihood =	-8935.7825	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.249325	.1628162	11.20	0.000	1.951814 2.592185
zill15	1.115268	.0434652	2.80	0.005	1.03325 1.203796
_infectionburXzill15_000	.935286	.0607583	-1.03	0.303	.8234713 1.062283
AGE	1.032464	.0130075	2.54	0.011	1.007282 1.058276
SEX	.7646245	.0499047	-4.11	0.000	.6728107 .8689675
NonWhite	1.02897	.1776054	0.17	0.869	.7336369 1.443193
householdsize	.9364586	.0397136	-1.55	0.122	.8617684 1.017622
SES	.8225927	.0406092	-3.96	0.000	.7467295 .9061631
LE8_TOTALSCORE	.9990744	.0003554	-2.60	0.009	.9983781 .9997713

-> Model for the mediator

Iteration 0: Log likelihood = -51215.809	Number of obs = 36,352
Iteration 1: Log likelihood = -51215.809	Wald chi2(7) = 737.27
Log likelihood = -51215.809	Prob > chi2 = 0.0000

	zil15	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>						
infectionburdenhospbr		.1940459	.0151659	12.79	0.000	.1643212 .2237706
AGE		-.0025975	.00099	-2.62	0.009	-.0045379 -.0006572
SEX		-.0748398	.0104967	-7.13	0.000	-.095413 -.0542666
NonWhite		.3029971	.0251536	12.05	0.000	.2536969 .3522973
householdsize		-.0262536	.0048582	-5.40	0.000	-.0357755 -.0167318
SES		-.0589475	.007873	-7.49	0.000	-.0743784 -.0435166
LE8_TOTALSCORE		-.0006511	.0000559	-11.65	0.000	-.0007606 -.0005415
_cons		.6096567	.0716173	8.51	0.000	.4692894 .750024
<b>sigma2</b>						
_cons		.9800949	.0072697	134.82	0.000	.9658465 .9943433

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.26066	.1618512	7.79	0.000	.9434379 1.577883
ereri_cde	1.24571	.1622205	7.68	0.000	.9277639 1.563656
ereri_intref	-.0034824	.0035356	-0.98	0.325	-.010412 .0034471
ereri_intmed	-.0029623	.0239964	-0.12	0.902	-.0499944 .0440698
ereri_pie	.021395	.007907	2.71	0.007	.0058975 .0368925

tereri=total excess relative risk; ereri\_cde=excess relative risk due to controlled direct effect; ereri\_intref=excess relative risk due to mediated interaction; ereri\_pie=excess relative risk due to pure indirect effect.

Warning: this analysis assumes a rare outcome.

Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8\_TOTALSCORE were not provided. All

-> Summary

```
Outcome (yvar): Age_dementia
Exposure (avar): infectionburdenhospbr
Mediator (mvar): zil15ra
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.18 1.53 .04656 2.215 -.07626 500.6

-> Model for the outcome

```
Failure _d: dem_diag==1
Analysis time _t: Age_dementia
Enter on or after: time baselineage
ID variable: n_eid
```

Iteration 0: Log likelihood = **-8913.3312**  
 Iteration 1: Log likelihood = **-8826.6896**  
 Iteration 2: Log likelihood = **-8818.0697**  
 Iteration 3: Log likelihood = **-8818.0295**  
 Iteration 4: Log likelihood = **-8818.0295**  
 Refining estimates:  
 Iteration 0: Log likelihood = **-8818.0295**

Cox regression with Breslow method for ties

No. of subjects =	<b>35,761</b>	Number of obs =	<b>35,761</b>
No. of failures =	<b>953</b>		
Time at risk =	<b>434,427.923</b>	LR chi2(9) =	<b>190.60</b>
Log likelihood =	<b>-8818.0295</b>	Prob > chi2 =	<b>0.0000</b>

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	<b>2.228888</b>	<b>.1649487</b>	<b>10.83</b>	<b>0.000</b>	<b>1.927948</b> <b>2.576804</b>
zil15ra	<b>1.085942</b>	<b>.0426155</b>	<b>2.10</b>	<b>0.036</b>	<b>1.005548</b> <b>1.172763</b>
_infectionburXzil15ra_000	<b>.952263</b>	<b>.0660922</b>	<b>-0.70</b>	<b>0.481</b>	<b>.831149</b> <b>1.091026</b>
AGE	<b>1.035467</b>	<b>.013158</b>	<b>2.74</b>	<b>0.006</b>	<b>1.009996</b> <b>1.06158</b>
SEX	<b>.7546509</b>	<b>.0496504</b>	<b>-4.28</b>	<b>0.000</b>	<b>.663351</b> <b>.8585168</b>
NonWhite	<b>1.074696</b>	<b>.187868</b>	<b>0.41</b>	<b>0.680</b>	<b>.7629338</b> <b>1.513856</b>
householdszie	<b>.9356869</b>	<b>.0398304</b>	<b>-1.56</b>	<b>0.118</b>	<b>.8607886</b> <b>1.017102</b>
SES	<b>.8303232</b>	<b>.0413597</b>	<b>-3.73</b>	<b>0.000</b>	<b>.7530911</b> <b>.9154757</b>
LE8_TOTALSCORE	<b>.9990881</b>	<b>.0003586</b>	<b>-2.54</b>	<b>0.011</b>	<b>.9983855</b> <b>.9997911</b>

-> Model for the mediator

Iteration 0: Log likelihood = **-50212.07**  
 Iteration 1: Log likelihood = **-50212.07**

Linear regression (Maximum Likelihood)	Number of obs =	<b>35,761</b>
	Wald chi2(7) =	<b>1076.05</b>
Log likelihood =	Prob > chi2 =	<b>0.0000</b>

<u>zil15ra</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
<b>mu</b>					
infectionburdenhospbr	<b>.1280317</b>	<b>.0152254</b>	<b>8.41</b>	<b>0.000</b>	<b>.0981903</b> <b>.157873</b>
AGE	<b>.0198408</b>	<b>.0009917</b>	<b>20.01</b>	<b>0.000</b>	<b>.0178972</b> <b>.0217844</b>
SEX	<b>-.1156332</b>	<b>.0105313</b>	<b>-10.98</b>	<b>0.000</b>	<b>-.1362743</b> <b>-.0949922</b>
NonWhite	<b>-.2688397</b>	<b>.0251983</b>	<b>-10.67</b>	<b>0.000</b>	<b>-.3182275</b> <b>-.2194518</b>
householdszie	<b>-.0021522</b>	<b>.0047902</b>	<b>-0.45</b>	<b>0.653</b>	<b>-.0115407</b> <b>.0072363</b>
SES	<b>-.0618792</b>	<b>.0078959</b>	<b>-7.84</b>	<b>0.000</b>	<b>-.0773549</b> <b>-.0464034</b>
LE8_TOTALSCORE	<b>-.0004137</b>	<b>.0000561</b>	<b>-7.37</b>	<b>0.000</b>	<b>-.0005237</b> <b>-.0003037</b>
_cons	<b>-.8151682</b>	<b>.0716289</b>	<b>-11.38</b>	<b>0.000</b>	<b>-.9555583</b> <b>-.6747781</b>
<b>sigma2</b>					
_cons	<b>.9707617</b>	<b>.0072598</b>	<b>133.72</b>	<b>0.000</b>	<b>.9565328</b> <b>.9849906</b>

-> 4-way decomposition: delta method