

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.234261	.1624513	7.60	0.000	.9158618 1.552659
ereri_cde	1.226633	.1643991	7.46	0.000	.9044166 1.548849
ereri_intref	-.0019443	.0030813	-0.63	0.528	-.0079836 .0040949
ereri_intmed	-.0010399	.0170695	-0.06	0.951	-.0344955 .0324157
ereri_pie	.0106118	.0052337	2.03	0.043	.0003539 .0208697

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): zil16
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -9074.8895

Iteration 2: Log likelihood = -9064.8669

Iteration 3: Log likelihood = -9064.8139

Iteration 4: Log likelihood = -9064.8139

Refining estimates:

Iteration 0: Log likelihood = -9064.8139

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) = 203.12

Log likelihood = -9064.8139 Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.25575	.1622268	11.31	0.000	1.959184 2.597209
zil16	.9305243	.0376861	-1.78	0.075	.8595164 1.007398
_infectionburXzil16_000	1.104402	.0766104	1.43	0.152	.9640087 1.265242
AGE	1.036384	.0130119	2.85	0.004	1.011193 1.062204
SEX	.7527072	.0487845	-4.38	0.000	.6629152 .8546615
NonWhite	1.044426	.1799123	0.25	0.802	.7450021 1.463725
householdsize	.9369787	.0392279	-1.55	0.120	.8631634 1.017106
SES	.8176144	.0401263	-4.10	0.000	.7426324 .9001672
LE8_TOTALSCORE	.9990018	.0003595	-2.78	0.006	.9982974 .9997067

-> Model for the mediator

Iteration 0: Log likelihood = -51155.33
 Iteration 1: Log likelihood = -51155.33

Linear regression (Maximum Likelihood) Number of obs = 36,824
 Wald chi2(7) = 2256.78
 Log likelihood = -51155.33 Prob > chi2 = 0.0000

	zil16	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr	.0438555	.0147695	2.97	0.003	.0149079	.0728032
AGE	.0145908	.0009633	15.15	0.000	.0127027	.0164789
SEX	-.0546609	.0102266	-5.34	0.000	-.0747047	-.034617
NonWhite	-.0705524	.0244636	-2.88	0.004	-.1185001	-.0226047
householdsize	.0005994	.0046623	0.13	0.898	-.0085386	.0097374
SES	-.0340021	.0076687	-4.43	0.000	-.0490324	-.0189718
LE8_TOTALSCORE	-.0021978	.0000544	-40.37	0.000	-.0023045	-.0020911
_cons	.2989107	.069634	4.29	0.000	.1624305	.4353908
sigma2						
_cons	.9422279	.0069439	135.69	0.000	.9286181	.9558378

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.252372	.1612818	7.77	0.000	.9362653 1.568479
ereri_cde	1.252138	.1618861	7.73	0.000	.9348469 1.569429
ereri_intref	-.0024607	.0040111	-0.61	0.540	-.0103222 .0054008
ereri_intmed	.0058477	.0061764	0.95	0.344	-.0062579 .0179532
ereri_pie	-.0031529	.0020637	-1.53	0.127	-.0071977 .0008918

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): zill17a
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 .04663 2.215 -.07647 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 = -8903.3275
 Iteration 1: Log likelihood = -8816.6064
 Iteration 2: Log likelihood = -8808.4292
 Iteration 3: Log likelihood = -8808.4061
 Iteration 4: Log likelihood = -8808.4061
 Refining estimates:
 Iteration 0: Log likelihood = -8808.4061

Cox regression with Breslow method for ties

No. of subjects =	35,704	Number of obs =	35,704
No. of failures =	952		
Time at risk =	433,720.862	LR chi2(9) =	189.84
Log likelihood =	-8808.4061	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.2436	.1625112	11.16	0.000	1.94666 2.585835
zill17a	1.055643	.0388801	1.47	0.141	.9821247 1.134664
_infectionburXzill17a_000	.8840094	.0640794	-1.70	0.089	.7669298 1.018962
AGE	1.037027	.013159	2.87	0.004	1.011554 1.063141
SEX	.74611	.0490512	-4.45	0.000	.6559076 .8487173
NonWhite	1.052439	.1837972	0.29	0.770	.7473836 1.482007
householdsize	.9360146	.0397845	-1.56	0.120	.8611981 1.017331
SES	.8274981	.0412221	-3.80	0.000	.7505231 .9123678
LE8_TOTALSCORE	.9990691	.0003586	-2.59	0.009	.9983665 .9997721

-> Model for the mediator

Iteration 0: Log likelihood = -50588.477
 Iteration 1: Log likelihood = -50588.477

Linear regression (Maximum Likelihood)
 Number of obs = 35,704
 Wald chi2(7) = 145.91
 Log likelihood = -50588.477 Prob > chi2 = 0.0000

	zil17a	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0722459	.015437	4.68	0.000	.0419899 .1025019
AGE		.0033653	.0010052	3.35	0.001	.0013952 .0053355
SEX		-.0005563	.0106756	-0.05	0.958	-.0214801 .0203676
NonWhite		.0402929	.0255239	1.58	0.114	-.009733 .0903189
householdsize		-.0017787	.0048537	-0.37	0.714	-.0112918 .0077343
SES		-.0700897	.0080041	-8.76	0.000	-.0857774 -.054402
LE8_TOTALSCORE		.0000569	.0000569	1.00	0.317	-.0000546 .0001684
_cons		-.243477	.0726091	-3.35	0.001	-.3857881 -.1011658
sigma2						
_cons		.9959022	.0074537	133.61	0.000	.9812932 1.010511

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.237234	.162011	7.64	0.000	.9196979 1.554769
ereri_cde	1.242458	.1622994	7.66	0.000	.9243575 1.560559
ereri_intref	.0059779	.0112956	0.53	0.597	-.016161 .0281169
ereri_intmed	-.0151225	.0110468	-1.37	0.171	-.0367738 .0065288
ereri_pie	.0039198	.0028	1.40	0.162	-.0015682 .0094077

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): zil17c
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8826.563**
 Iteration 2: Log likelihood = **-8816.4271**
 Iteration 3: Log likelihood = **-8816.3034**
 Iteration 4: Log likelihood = **-8816.3033**
 Refining estimates:
 Iteration 0: Log likelihood = **-8816.3033**

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) =	194.06
Log likelihood =	-8816.3033	Prob > chi2 =	0.0000

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.230823	.1653157	10.83	0.000	1.929242 2.579548
zil17c	1.105477	.0389389	2.85	0.004	1.031733 1.184492
_infectionburXzil17c_000	.9447032	.0612053	-0.88	0.380	.832047 1.072613
AGE	1.035437	.0131374	2.74	0.006	1.010006 1.061509
SEX	.7713316	.0513464	-3.90	0.000	.6769831 .878829
NonWhite	1.061229	.185346	0.34	0.734	.7536065 1.494422
householdszie	.93418	.0398657	-1.60	0.111	.8592231 1.015676
SES	.8355168	.0416713	-3.60	0.000	.7577076 .9213162
LE8_TOTALSCORE	.9991225	.0003593	-2.44	0.015	.9984184 .9998271

-> Model for the mediator

Iteration 0: Log likelihood = **-49841.046**
 Iteration 1: Log likelihood = **-49841.046**

Linear regression (Maximum Likelihood)	Number of obs =	35,761
	Wald chi2(7) =	1848.41
Log likelihood =	Prob > chi2 =	0.0000

<u>zil17c</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.1105138	.0150683	7.33	0.000	.0809805 .1400471
AGE	.0094242	.0009814	9.60	0.000	.0075006 .0113477
SEX	-.3343163	.0104226	-32.08	0.000	-.3547443 -.3138882
NonWhite	-.0528047	.0249382	-2.12	0.034	-.1016828 -.0039267
householdszie	.0036482	.0047407	0.77	0.442	-.0056435 .0129398
SES	-.1110942	.0078144	-14.22	0.000	-.1264103 -.0957782
LE8_TOTALSCORE	-.0006863	.0000555	-12.36	0.000	-.0007951 -.0005774
_cons	.2585275	.0708896	3.65	0.000	.1195865 .3974686
sigma2					
_cons	.9508258	.0071107	133.72	0.000	.9368891 .9647624

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.2348	.1626972	7.59	0.000	.9159193 1.55368
ereri_cde	1.226835	.1644958	7.46	0.000	.9044294 1.549241
ereri_intref	-.0027267	.0041928	-0.65	0.515	-.0109445 .0054911
ereri_intmed	-.0004524	.0139698	-0.03	0.974	-.0278327 .0269279
ereri_pie	.0111436	.0042222	2.64	0.008	.0028682 .0194189

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): zil17d
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -8826.2795

Iteration 2: Log likelihood = -8818.6629

Iteration 3: Log likelihood = -8818.6471

Refining estimates:

Iteration 0: Log likelihood = -8818.6471

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) = 189.37
Log likelihood =	-8818.6471	Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.259434	.1670635	11.02	0.000	1.954616 2.611787
zil17d	1.069932	.036757	1.97	0.049	1.000262 1.144456
_infectionburXzil17d_000	.9274558	.0634232	-1.10	0.271	.8111191 1.060478
AGE	1.035098	.0131978	2.71	0.007	1.009551 1.061291
SEX	.7418363	.0489528	-4.53	0.000	.6518361 .8442631
NonWhite	1.057482	.1847015	0.32	0.749	.7509322 1.489173
householdsize	.9346979	.0398026	-1.59	0.113	.8598531 1.016058
SES	.828384	.0412357	-3.78	0.000	.7513809 .9132785
LE8_TOTALSCORE	.9990748	.0003584	-2.58	0.010	.9983726 .9997775

-> Model for the mediator

Iteration 0: Log likelihood = **-49551.732**
 Iteration 1: Log likelihood = **-49551.732**

Linear regression (Maximum Likelihood) Number of obs = 35,761
 Wald chi2(7) = 2461.90
 Log likelihood = **-49551.732** Prob > chi2 = 0.0000

	zil17d	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr	.0101924	.0149469	0.68	0.495	-.0191029	.0394878
AGE	.0419368	.0009735	43.08	0.000	.0400287	.0438448
SEX	.1940225	.0103387	18.77	0.000	.1737591	.2142859
NonWhite	-.0513732	.0247373	-2.08	0.038	-.0998574	-.002889
householdsize	-.0041642	.0047025	-0.89	0.376	-.013381	.0050525
SES	-.0374825	.0077515	-4.84	0.000	-.0526751	-.0222899
LE8_TOTALSCORE	-.000165	.0000551	-3.00	0.003	-.000273	-.0000571
_cons	-2.730691	.0703184	-38.83	0.000	-2.868513	-2.59287
sigma2						
_cons	.9355648	.0069966	133.72	0.000	.9218518	.9492778

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.254735	.1661705	7.55	0.000	.9290467 1.580423
ereri_cde	1.256865	.1664209	7.55	0.000	.9306857 1.583043
ereri_intref	-.0019525	.0024774	-0.79	0.431	-.0068082 .0029031
ereri_intmed	-.0008665	.0019002	-0.46	0.648	-.0045909 .0028579
ereri_pie	.0006892	.00107	0.64	0.520	-.001408 .0027864

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): zil17f
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8830.6445
Iteration 2: Log likelihood = -8819.0199
Iteration 3: Log likelihood = -8818.7709
Iteration 4: Log likelihood = -8818.7702
Refining estimates:
Iteration 0: Log likelihood = -8818.7702

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 = -8818.7702                         LR chi2(9)      = 189.12
                                                       Prob > chi2    = 0.0000

```

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.20382	.1602871	10.86	0.000	1.911028 2.541472
zil17f	.9877566	.0387362	-0.31	0.753	.9146794 1.066672
_infectionburXzil17f_000	1.122405	.0766624	1.69	0.091	.9817722 1.283182
AGE	1.036919	.0131558	2.86	0.004	1.011452 1.063027
SEX	.747096	.0490928	-4.44	0.000	.6568144 .8497872
NonWhite	1.057511	.1846343	0.32	0.749	.7510534 1.489015
householdsize	.9358282	.0397473	-1.56	0.118	.8610793 1.017066
SES	.8276334	.041209	-3.80	0.000	.7506812 .9124739
LE8_TOTALSCORE	.9990664	.0003582	-2.61	0.009	.9983647 .9997687

-> Model for the mediator

```

Iteration 0: Log likelihood = -50726.603
Iteration 1: Log likelihood = -50726.603

Linear regression (Maximum Likelihood)                      Number of obs = 35,761
                                                               Wald chi2(7) = 31.13
                                                               Prob > chi2 = 0.0001
Log likelihood = -50726.603

```

	<i>zil17f</i>	Coefficient	Std. err.	<i>z</i>	P> <i>z</i>	[95% conf. interval]
mu						
infectionburdenhospbr		.0278116	.0154461	1.80	0.072	-.0024622 .0580854
AGE		-.0032785	.001006	-3.26	0.001	-.0052503 -.0013067
SEX		.0062526	.010684	0.59	0.558	-.0146876 .0271928
NonWhite		-.0241761	.0255635	-0.95	0.344	-.0742796 .0259275
householdsize		.0056681	.0048596	1.17	0.243	-.0038565 .0151927
SES		-.024725	.0080104	-3.09	0.002	-.040425 -.0090249
LE8_TOTALSCORE		-.0001129	.0000569	-1.98	0.047	-.0002245 -1.38e-06
_cons		.2271154	.0726669	3.13	0.002	.0846908 .36954
sigma2						
_cons		.9991023	.0074717	133.72	0.000	.984458 1.013747

-> 4-way decomposition: delta method

	Coefficient	Std. err.	<i>z</i>	P> <i>z</i>	[95% conf. interval]
tereri	1.220775	.1607185	7.60	0.000	.9057724 1.535777
ereri_cde	1.203672	.160262	7.51	0.000	.8895641 1.51778
ereri_intref	.010741	.0123291	0.87	0.384	-.0134236 .0349055
ereri_intmed	.0067046	.0052103	1.29	0.198	-.0035075 .0169166
ereri_pie	-.0003426	.0011068	-0.31	0.757	-.0025118 .0018267

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): zil17ra
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-9033.9928**
 Iteration 2: Log likelihood = **-9025.5342**
 Iteration 3: Log likelihood = **-9025.5094**
 Iteration 4: Log likelihood = **-9025.5094**
 Refining estimates:
 Iteration 0: Log likelihood = **-9025.5094**

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) =	192.61
Log likelihood =	-9025.5094	Prob > chi2 =	0.0000

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.232888	.1595025	11.25	0.000	1.941167 2.568449
zil17ra	.9942356	.0377087	-0.15	0.879	.9230081 1.07096
_infectionburXzil17ra_000	1.044577	.0738408	0.62	0.537	.9094299 1.199808
AGE	1.035268	.0130145	2.76	0.006	1.010072 1.061093
SEX	.7520867	.0488804	-4.38	0.000	.6621338 .85426
NonWhite	1.086099	.1848671	0.49	0.628	.7780095 1.516192
householdszie	.9392377	.0392679	-1.50	0.134	.865343 1.019443
SES	.8245148	.040558	-3.92	0.000	.7487344 .907965
LE8_TOTALSCORE	.9990233	.0003544	-2.75	0.006	.998329 .9997181

-> Model for the mediator

Iteration 0: Log likelihood = **-51630.554**
 Iteration 1: Log likelihood = **-51630.554**

Linear regression (Maximum Likelihood)	Number of obs =	36,459
	Wald chi2(7) =	204.62
Log likelihood =	Prob > chi2 =	0.0000

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0215318	.0152396	1.41	0.158	-.0083373 .0514009
AGE	.0023769	.0009974	2.38	0.017	.000422 .0043318
SEX	.0347913	.0105603	3.29	0.001	.0140935 .055489
NonWhite	.2284994	.0253181	9.03	0.000	.1788768 .278122
householdszie	-.0042044	.0050182	-0.84	0.402	-.0140399 .0056311
SES	-.0390203	.0079318	-4.92	0.000	-.0545662 -.0234743
LE8_TOTALSCORE	-.0003429	.0000562	-6.10	0.000	-.0004531 -.0002327
_cons	-.0318808	.0723342	-0.44	0.659	-.1736532 .1098917
sigma2					
_cons	.9943916	.007365	135.02	0.000	.9799566 1.008827

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.235969	.1597013	7.74	0.000	.9229605 1.548978
ereri_cde	1.232846	.1595015	7.73	0.000	.920229 1.545463
ereri_intref	.0013026	.0046634	0.28	0.780	-.0078375 .0104428
ereri_intmed	.0019451	.003293	0.59	0.555	-.0045092 .0083993
ereri_pie	-.0001245	.0008213	-0.15	0.880	-.0017341 .0014852

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): zil17rb
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 -.07483 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 = -8931.933

Iteration 1: Log likelihood = -8842.1109

Iteration 2: Log likelihood = -8832.8686

Iteration 3: Log likelihood = -8832.8392

Iteration 4: Log likelihood = -8832.8392

Refining estimates:

Iteration 0: Log likelihood = -8832.8392

Cox regression with Breslow method for ties

No. of subjects = 35,905 Number of obs = 35,905

No. of failures = 955

Time at risk = 436,297.464

LR chi2(9) = 198.19

Log likelihood = -8832.8392

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.299951	.1662958	11.52	0.000	1.996058 2.65011
zil17rb		1.093238	.0433409	2.25	0.025	1.011508 1.181572
_infectionburXzil17rb_000		.954619	.0676673	-0.66	0.512	.8307943 1.096899
AGE		1.029807	.0130447	2.32	0.020	1.004555 1.055695
SEX		.7746356	.0512109	-3.86	0.000	.6804949 .8818
NonWhite		1.018906	.183683	0.10	0.917	.7156223 1.450722
householdsize		.9313765	.0401585	-1.65	0.099	.8559013 1.013507
SES		.8228241	.0409046	-3.92	0.000	.7464344 .9070315
LE8_TOTALSCORE		.9989175	.0003608	-3.00	0.003	.9982107 .9996249

-> Model for the mediator

Iteration 0: Log likelihood = **-49824.603**
 Iteration 1: Log likelihood = **-49824.603**

Linear regression (Maximum Likelihood) Number of obs = 35,905
 Wald chi2(7) = 2315.36
 Log likelihood = **-49824.603** Prob > chi2 = 0.0000

	zil17rb	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0386346	.0149441	2.59	0.010	.0093446 .0679245
AGE		.0150299	.0009757	15.40	0.000	.0131175 .0169423
SEX		-.2531623	.0103391	-24.49	0.000	-.2734265 -.2328981
NonWhite		-.466944	.0247861	-18.84	0.000	-.5155239 -.4183642
householdsize		-.009343	.0047768	-1.96	0.050	-.0187053 .0000194
SES		-.007962	.0077576	-1.03	0.305	-.0231666 .0072427
LE8_TOTALSCORE		.0017494	.0000551	31.77	0.000	.0016415 .0018573
_cons		-1.356505	.0705641	-19.22	0.000	-1.494808 -1.218202
sigma2						
_cons		.9393945	.0070111	133.99	0.000	.925653 .953136

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.297703	.1652265	7.85	0.000	.9738647 1.621541
ereri_cde	1.295725	.1655046	7.83	0.000	.9713424 1.620108
ereri_intref	-.0018102	.0056101	-0.32	0.747	-.0128058 .0091854
ereri_intmed	.0003375	.0054674	0.06	0.951	-.0103784 .0110533
ereri_pie	.00345	.0020369	1.69	0.090	-.0005424 .0074423

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): zil18
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 .04638 2.216 -.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 = -9059.7381
 Iteration 1: Log likelihood = -8971.5454
 Iteration 2: Log likelihood = -8962.5905
 Iteration 3: Log likelihood = -8962.558
 Iteration 4: Log likelihood = -8962.558
 Refining estimates:
 Iteration 0: Log likelihood = -8962.558

Cox regression with Breslow method for ties

No. of subjects =	36,312	Number of obs =	36,312
No. of failures =	968		
Time at risk =	441,007.997	LR chi2(9) =	194.36
Log likelihood =	-8962.558	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.262451	.1620566	11.40	0.000	1.966114 2.603452
zil18	.9762284	.0393221	-0.60	0.550	.9021222 1.056422
_infectionburXzil18_000	.9109255	.06587	-1.29	0.197	.7905541 1.049625
AGE	1.035683	.0130509	2.78	0.005	1.010417 1.06158
SEX	.7449264	.0493581	-4.44	0.000	.6542046 .8482291
NonWhite	1.105104	.1881071	0.59	0.557	.7916162 1.542737
householdsize	.9393752	.0393228	-1.49	0.135	.8653808 1.019696
SES	.8208445	.0405903	-3.99	0.000	.7450225 .904383
LE8_TOTALSCORE	.9989617	.0003587	-2.89	0.004	.9982588 .999665

-> Model for the mediator

Iteration 0: Log likelihood = -50112.458
 Iteration 1: Log likelihood = -50112.458

Linear regression (Maximum Likelihood)
 Number of obs = 36,312
 Wald chi2(7) = 2935.72
 Log likelihood = -50112.458 Prob > chi2 = 0.0000

	zil18	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.1033769	.0147384	7.01	0.000	.0744901 .1322636
AGE		.0039469	.0009613	4.11	0.000	.0020629 .005831
SEX		-.3646292	.0102054	-35.73	0.000	-.3846314 -.3446271
NonWhite		.0771788	.0244587	3.16	0.002	.0292406 .1251169
householdsize		-.0052118	.0046411	-1.12	0.261	-.0143081 .0038846
SES		-.077505	.0076609	-10.12	0.000	-.0925201 -.0624899
LE8_TOTALSCORE		-.0016854	.0000544	-30.99	0.000	-.001792 -.0015788
_cons		1.152242	.0694569	16.59	0.000	1.016109 1.288375
sigma2						
_cons		.9251749	.0068662	134.74	0.000	.9117174 .9386323

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.251864	.1615537	7.75	0.000	.935225 1.568504
ereri_cde	1.261677	.1620166	7.79	0.000	.9441304 1.579224
ereri_intref	.0176724	.0173101	1.02	0.307	-.0162547 .0515995
ereri_intmed	-.025001	.0155408	-1.61	0.108	-.0554604 .0054584
ereri_pie	-.002484	.0041687	-0.60	0.551	-.0106545 .0056864

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): zil18bp
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-9043.0741**
 Iteration 2: Log likelihood = **-9034.599**
 Iteration 3: Log likelihood = **-9034.5725**
 Iteration 4: Log likelihood = **-9034.5725**
 Refining estimates:
 Iteration 0: Log likelihood = **-9034.5725**

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	LR chi2(9) =	196.42
Log likelihood =	-9034.5725	Prob > chi2 =	0.0000

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.294012	.1700541	11.20	0.000	1.983794 2.652741
zil18bp	1.098807	.0421773	2.45	0.014	1.019174 1.184662
_infectionburXzil18bp_000	.909708	.0605625	-1.42	0.155	.7984257 1.0365
AGE	1.031005	.0129982	2.42	0.015	1.005841 1.056798
SEX	.7674461	.0499303	-4.07	0.000	.675567 .8718209
NonWhite	1.118132	.1903411	0.66	0.512	.8009254 1.560969
householdszie	.9361681	.0394447	-1.57	0.117	.861964 1.01676
SES	.8342576	.0412513	-3.66	0.000	.7572007 .9191563
LE8_TOTALSCORE	.9991135	.0003552	-2.49	0.013	.9984175 .99981

-> Model for the mediator

Iteration 0: Log likelihood = **-50456.948**
 Iteration 1: Log likelihood = **-50456.948**

Linear regression (Maximum Likelihood)	Number of obs =	36,596
	Wald chi2(7) =	3061.38
Log likelihood =	Prob > chi2 =	0.0000

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.2132996	.0146657	14.54	0.000	.1845553 .2420439
AGE	.0298589	.0009564	31.22	0.000	.0279843 .0317334
SEX	-.1396347	.0101513	-13.76	0.000	-.1595309 -.1197384
NonWhite	-.3685077	.0243137	-15.16	0.000	-.4161617 -.3208536
householdszie	-.0002522	.004625	-0.05	0.957	-.0093171 .0088127
SES	-.1353069	.0076205	-17.76	0.000	-.1502429 -.1203709
LE8_TOTALSCORE	-.0009916	.0000541	-18.31	0.000	-.0010977 -.0008855
_cons	-1.109059	.069133	-16.04	0.000	-1.244557 -.9735608
sigma2					
_cons	.9227791	.0068218	135.27	0.000	.9094087 .9361495

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.290838	.1651522	7.82	0.000	.9671461 1.614531
ereri_cde	1.292318	.1694896	7.62	0.000	.9601249 1.624512
ereri_intref	-.0012812	.0044326	-0.29	0.773	-.0099689 .0074065
ereri_intmed	-.0205002	.0280687	-0.73	0.465	-.0755138 .0345135
ereri_pie	.0203015	.0084718	2.40	0.017	.0036971 .0369059

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): zil18r1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -9074.3975

Iteration 2: Log likelihood = -9065.4374

Iteration 3: Log likelihood = -9065.4183

Iteration 4: Log likelihood = -9065.4183

Refining estimates:

Iteration 0: Log likelihood = -9065.4183

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

Log likelihood = -9065.4183

LR chi2(9) = 201.91

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.292785	.1642416	11.58	0.000	1.992454 2.638387
zil18r1		.9496087	.0386842	-1.27	0.204	.876737 1.028537
_infectionburXzil18r1_000		1.00092	.0699924	0.01	0.990	.8727226 1.147948
AGE		1.035883	.0129905	2.81	0.005	1.010733 1.06166
SEX		.7530566	.0488065	-4.38	0.000	.663224 .855057
NonWhite		1.059009	.1824979	0.33	0.739	.755463 1.484521
householdsize		.9361225	.0392063	-1.58	0.115	.862349 1.016207
SES		.8141577	.0400486	-4.18	0.000	.7393291 .8965599
LE8_TOTALSCORE		.9989376	.0003655	-2.90	0.004	.9982214 .9996543

-> Model for the mediator

Iteration 0: Log likelihood = **-50347.747**
 Iteration 1: Log likelihood = **-50347.747**

Linear regression (Maximum Likelihood) Number of obs = 36,824
 Wald chi2(7) = 4009.08
 Prob > chi2 = 0.0000
 Log likelihood = **-50347.747**

	zil18r1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.1454407	.0144491	10.07	0.000	.117121 .1737604
AGE		.0067878	.0009424	7.20	0.000	.0049406 .0086349
SEX		-.0535671	.0100048	-5.35	0.000	-.0731761 -.033958
NonWhite		.1641583	.0239329	6.86	0.000	.1172507 .211066
householdsize		.0022718	.0045612	0.50	0.618	-.0066679 .0112116
SES		-.0916892	.0075023	-12.22	0.000	-.1063934 -.0769849
LE8_TOTALSCORE		-.0028529	.0000533	-53.57	0.000	-.0029572 -.0027485
_cons		1.061593	.0681235	15.58	0.000	.9280738 1.195113
sigma2						
_cons		.9017934	.0066459	135.69	0.000	.8887676 .9148192

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.275773	.1622467	7.86	0.000	.9577758 1.593771
ereri_cde	1.289881	.1639656	7.87	0.000	.9685146 1.611248
ereri_intref	.002764	.0092168	0.30	0.764	-.0153005 .0208285
ereri_intmed	-.0093801	.0203006	-0.46	0.644	-.0491686 .0304084
ereri_pie	-.0074918	.005927	-1.26	0.206	-.0191085 .0041248

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): zill18rap
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 .04636 2.216 -.07431 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 = -8896.2995
Iteration 1: Log likelihood = -8808.0098
Iteration 2: Log likelihood = -8798.4856
Iteration 3: Log likelihood = -8798.4406
Iteration 4: Log likelihood = -8798.4406
Refining estimates:
Iteration 0: Log likelihood = -8798.4406

```

Cox regression with Breslow method for ties

No. of subjects =	35,938	Number of obs =	35,938
No. of failures =	951		
Time at risk =	436,699.195	LR chi2(9) =	195.72
Log likelihood =	-8798.4406	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.205726	.161556	10.80	0.000	1.91076 2.546226
zill18rap	.9602099	.0379875	-1.03	0.305	.8885692 1.037627
_infectionburXzill18rap_000	.9600304	.0721521	-0.54	0.587	.8285373 1.112392
AGE	1.037024	.0131708	2.86	0.004	1.011528 1.063162
SEX	.74367	.049117	-4.48	0.000	.653373 .8464462
NonWhite	.9639576	.1730859	-0.20	0.838	.6779821 1.370559
householdsize	.9414314	.0396254	-1.43	0.152	.8668842 1.022389
SES	.8130242	.04048	-4.16	0.000	.7374331 .8963639
LE8_TOTALSCORE	.9990391	.000358	-2.68	0.007	.9983377 .9997409

-> Model for the mediator

Iteration 0: Log likelihood = -50687.054	Number of obs = 35,938
Iteration 1: Log likelihood = -50687.054	Wald chi2(7) = 617.77
Log likelihood = -50687.054	Prob > chi2 = 0.0000

zil18rap	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	-.0156366	.0152741	-1.02	0.306	-.0455732 .0143001
AGE	-.0118783	.0009999	-11.88	0.000	-.013838 -.0099186
SEX	.2090655	.010574	19.77	0.000	.1883409 .2297901
NonWhite	-.1173796	.0253656	-4.63	0.000	-.1670952 -.067664
householdsize	.0049926	.0050108	1.00	0.319	-.0048284 .0148136
SES	-.0040656	.0079482	-0.51	0.609	-.0196438 .0115125
LE8_TOTALSCORE	.0001404	.0000563	2.50	0.013	.0000302 .0002507
_cons	.320515	.0724696	4.42	0.000	.1784773 .4625528
sigma2					
_cons	.9830733	.0073337	134.05	0.000	.9686995 .9974471

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.213748	.1605577	7.56	0.000	.8990606 1.528435
ereri_cde	1.204855	.1613461	7.47	0.000	.8886229 1.521088
ereri_intref	.0060768	.0110872	0.55	0.584	-.0156537 .0278073
ereri_intmed	.0021806	.0031293	0.70	0.486	-.0039527 .0083139
ereri_pie	.0006351	.0008765	0.72	0.469	-.0010828 .002353

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): zil19
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 2.219 -.07646 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 = **-8822.731**
 Iteration 1: Log likelihood = **-8733.3304**
 Iteration 2: Log likelihood = **-8719.3526**
 Iteration 3: Log likelihood = **-8719.0595**
 Iteration 4: Log likelihood = **-8719.059**
 Refining estimates:
 Iteration 0: Log likelihood = **-8719.059**

Cox regression with Breslow method for ties

No. of subjects =	35,495	Number of obs =	35,495
No. of failures =	945		
Time at risk =	431,160.993	LR chi2(9) =	207.34
Log likelihood =	-8719.059	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.301451	.1710672	11.21	0.000	1.989445 2.66239
zil19		1.130848	.0436572	3.19	0.001	1.048438 1.219735
_infectionburXzil19_000		.9407573	.0601623	-0.95	0.340	.829932 1.066382
AGE		1.03341	.0132011	2.57	0.010	1.007857 1.05961
SEX		.7873063	.0529729	-3.55	0.000	.6900358 .8982883
NonWhite		1.025823	.1818007	0.14	0.886	.7248009 1.451864
householdszie		.9270922	.0402709	-1.74	0.081	.8514293 1.009479
SES		.8360741	.0420575	-3.56	0.000	.7575762 .9227058
LE8_TOTALSCORE		.9991699	.0003619	-2.29	0.022	.9984607 .9998795

-> Model for the mediator

Iteration 0: Log likelihood = **-49135.978**
 Iteration 1: Log likelihood = **-49135.978**

Linear regression (Maximum Likelihood)	Number of obs =	35,495
	Wald chi2(7) =	2544.56
Log likelihood =	Prob > chi2 =	0.0000

	<u>zil19</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.1712242	.0149282	11.47	0.000	.1419655 .2004828
AGE		.0082517	.000976	8.45	0.000	.0063387 .0101647
SEX		-.3562854	.0103646	-34.38	0.000	-.3765995 -.3359712
NonWhite		.1093853	.0248042	4.41	0.000	.06077 .1580005
householdszie		.0011676	.0046926	0.25	0.804	-.0080298 .010365
SES		-.1242107	.0077767	-15.97	0.000	-.1394527 -.1089687
LE8_TOTALSCORE		-.0010741	.0000552	-19.45	0.000	-.0011824 -.0009659
_cons		.5453818	.0705156	7.73	0.000	.4071738 .6835899
sigma2						
_cons		.9330812	.0070041	133.22	0.000	.9193535 .946809

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.317135	.167718	7.85	0.000	.9884138 1.645856
ereri_cde	1.296108	.1699812	7.63	0.000	.962951 1.629265
ereri_intref	-.0034011	.0052551	-0.65	0.518	-.013701 .0068987
ereri_intmed	.0031499	.0212742	0.15	0.882	-.0385468 .0448465
ereri_pie	.0212782	.0070064	3.04	0.002	.007546 .0350105

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): zil1a
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

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

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

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 = **-8827.8278**

Iteration 2: Log likelihood = **-8820.1368**

Iteration 3: Log likelihood = **-8820.1208**

Refining estimates:

Iteration 0: Log likelihood = **-8820.1208**

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) = 186.42
Log likelihood =	-8820.1208	Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.222027	.1607748	11.03	0.000	1.928238 2.560578
zill1a	1.026402	.0356699	0.75	0.453	.9588185 1.09875
_infectionburXzill1a_000	.9718811	.0641391	-0.43	0.666	.8539615 1.106084
AGE	1.037024	.0131586	2.87	0.004	1.011552 1.063138
SEX	.7493565	.0492278	-4.39	0.000	.6588251 .8523281
NonWhite	1.055372	.1842681	0.31	0.758	.7495245 1.486023
householdsize	.9352725	.039788	-1.57	0.116	.860452 1.016599
SES	.8275529	.0411878	-3.80	0.000	.7506387 .9123482
LE8_TOTALSCORE	.999068	.0003584	-2.60	0.009	.9983658 .9997707

-> Model for the mediator

Iteration 0: Log likelihood = **-50726.081**
 Iteration 1: Log likelihood = **-50726.081**

Linear regression (Maximum Likelihood)
 Number of obs = 35,761
 Wald chi2(7) = 32.18
 Log likelihood = **-50726.081** Prob > chi2 = 0.0000

zill1a	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0091834	.0154459	0.59	0.552	-.02109 .0394567
AGE	-.0003099	.001006	-0.31	0.758	-.0022817 .0016618
SEX	-.0155633	.0106838	-1.46	0.145	-.0365031 .0053766
NonWhite	-.0267407	.0255631	-1.05	0.296	-.0768435 .0233622
householdsize	-.0095906	.0048595	-1.97	0.048	-.019115 -.0000661
SES	.0005646	.0080103	0.07	0.944	-.0151352 .0162645
LE8_TOTALSCORE	-.0002644	.0000569	-4.65	0.000	-.000376 -.0001529
_cons	.196106	.0726659	2.70	0.007	.0536835 .3385286
sigma2					
_cons	.9990731	.0074715	133.72	0.000	.9844293 1.013717

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.22131	.160696	7.60	0.000	.9063518 1.536269
ereri_cde	1.221653	.1607114	7.60	0.000	.9066643 1.536641
ereri_intref	-.0002924	.0009944	-0.29	0.769	-.0022414 .0016567
ereri_intmed	-.0002896	.0012842	-0.23	0.822	-.0028065 .0022274
ereri_pie	.0002393	.0005138	0.47	0.641	-.0007677 .0012464

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): zil1b
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 .04666 2.214 -.07644 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 = -8861.4047
 Iteration 1: Log likelihood = -8778.6092
 Iteration 2: Log likelihood = -8767.8153
 Iteration 3: Log likelihood = -8767.6346
 Iteration 4: Log likelihood = -8767.6343
 Refining estimates:
 Iteration 0: Log likelihood = -8767.6343

Cox regression with Breslow method for ties

No. of subjects =	35,596	Number of obs =	35,596
No. of failures =	948		
Time at risk =	432,459.512	LR chi2(9) =	187.54
Log likelihood =	-8767.6343	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.201781	.1606767	10.82	0.000	1.908345 2.540336
zil1b	.9596332	.0383008	-1.03	0.302	.8874261 1.037716
_infectionburXzil1b_000	1.137422	.0781456	1.87	0.061	.9941237 1.301375
AGE	1.039487	.013247	3.04	0.002	1.013845 1.065778
SEX	.7478676	.0492911	-4.41	0.000	.6572385 .8509938
NonWhite	1.050169	.1837529	0.28	0.780	.7452818 1.479782
householdsize	.9376746	.0397909	-1.52	0.129	.8628411 1.018998
SES	.8275586	.0412664	-3.80	0.000	.7505047 .9125235
LE8_TOTALSCORE	.999115	.0003607	-2.45	0.014	.9984083 .9998223

-> Model for the mediator

Iteration 0: Log likelihood = -50311.95
 Iteration 1: Log likelihood = -50311.95

Linear regression (Maximum Likelihood)	Number of obs = 35,596
Log likelihood = -50311.95	Wald chi2(7) = 394.34
	Prob > chi2 = 0.0000

	zil1b	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0398776	.0154082	2.59	0.010	.009678 .0700771
AGE		.0015346	.001003	1.53	0.126	-.0004314 .0035005
SEX		.0686093	.0106547	6.44	0.000	.0477264 .0894922
NonWhite		.0715856	.0254694	2.81	0.005	.0216666 .1215047
householdsize		-.0018803	.0048463	-0.39	0.698	-.0113789 .0076184
SES		-.0160644	.0079857	-2.01	0.044	-.031716 -.0004128
LE8_TOTALSCORE		-.0009781	.0000568	-17.23	0.000	-.0010894 -.0008669
_cons		.2864145	.0724693	3.95	0.000	.1443773 .4284517
sigma2						
_cons		.9890154	.0074134	133.41	0.000	.9744854 1.003545

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.214439	.1608365	7.55	0.000	.8992055 1.529673
ereri_cde	1.200499	.1604791	7.48	0.000	.885966 1.515033
ereri_intref	.0062213	.0102605	0.61	0.544	-.0138889 .0263315
ereri_intmed	.0093604	.00634	1.48	0.140	-.0030658 .0217866
ereri_pie	-.0016418	.0017107	-0.96	0.337	-.0049947 .0017112

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): zil1r1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-9011.8273**
 Iteration 2: Log likelihood = **-8998.024**
 Iteration 3: Log likelihood = **-8997.6361**
 Iteration 4: Log likelihood = **-8997.6351**
 Iteration 5: Log likelihood = **-8997.6351**
 Refining estimates:
 Iteration 0: Log likelihood = **-8997.6351**

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) =	206.03
Log likelihood =	-8997.6351	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.234657	.1636258	10.98	0.000	1.935906 2.579512
zil1r1		1.125958	.0434529	3.07	0.002	1.043933 1.214428
_infectionburXzil1r1_000		.9767088	.0629736	-0.37	0.715	.860763 1.108273
AGE		1.033779	.0130248	2.64	0.008	1.008564 1.059625
SEX		.774761	.0507362	-3.90	0.000	.6814372 .8808657
NonWhite		1.064606	.1811968	0.37	0.713	.7626294 1.486155
householdszie		.9413859	.0392377	-1.45	0.147	.8675389 1.021519
SES		.8288491	.040826	-3.81	0.000	.7525726 .9128565
LE8_TOTALSCORE		.9990507	.0003536	-2.68	0.007	.9983578 .9997441

-> Model for the mediator

Iteration 0: Log likelihood = **-51137.289**
 Iteration 1: Log likelihood = **-51137.289**

Linear regression (Maximum Likelihood)	Number of obs =	36,398
	Wald chi2(7) =	1031.83
Log likelihood =	-51137.289	Prob > chi2 = 0.0000

	<u>zil1r1</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.1315425	.015082	8.72	0.000	.1019824 .1611027
AGE		.0128906	.0009871	13.06	0.000	.0109558 .0148253
SEX		-.2232108	.0104517	-21.36	0.000	-.2436958 -.2027257
NonWhite		.0714536	.0250504	2.85	0.004	.0223556 .1205516
householdszie		-.0087076	.004965	-1.75	0.079	-.0184388 .0010237
SES		-.0973082	.0078482	-12.40	0.000	-.1126904 -.0819259
LE8_TOTALSCORE		.0001457	.0000556	2.62	0.009	.0000366 .0002547
_cons		-.5166093	.071594	-7.22	0.000	-.656931 -.3762876
sigma2						
_cons		.9724063	.0072082	134.90	0.000	.9582786 .9865341

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.258217	.1617779	7.78	0.000	.9411377 1.575296
ereri_cde	1.228899	.1624752	7.56	0.000	.9104537 1.547345
ereri_intref	.0012533	.0092857	0.13	0.893	-.0169464 .019453
ereri_intmed	.0123363	.0161282	0.76	0.444	-.0192744 .043947
ereri_pie	.0157279	.0054672	2.88	0.004	.0050123 .0264434

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): zil1r2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 .04639 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 = -9061.8808

Iteration 1: Log likelihood = -8973.6417

Iteration 2: Log likelihood = -8965.4176

Iteration 3: Log likelihood = -8965.3981

Iteration 4: Log likelihood = -8965.3981

Refining estimates:

Iteration 0: Log likelihood = -8965.3981

Cox regression with Breslow method for ties

No. of subjects = 36,384 Number of obs = 36,384

No. of failures = 968

Time at risk = 441,947.485

LR chi2(9) = 192.97

Log likelihood = -8965.3981

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.251737	.1617661	11.30	0.000	1.955991 2.5922
zil1r2	.9411921	.0363273	-1.57	0.116	.8726184 1.015155
_infectionburXzil1r2_000	1.064678	.0731394	0.91	0.362	.9305593 1.218128
AGE	1.035437	.013072	2.76	0.006	1.010131 1.061377
SEX	.7506752	.0489519	-4.40	0.000	.6606095 .8530203
NonWhite	1.057048	.1822461	0.32	0.748	.7539432 1.482009
householdsize	.941599	.039183	-1.45	0.148	.8678501 1.021615
SES	.8271387	.0408484	-3.84	0.000	.7508299 .911203
LE8_TOTALSCORE	.9989626	.0003587	-2.89	0.004	.9982598 .999666

-> Model for the mediator

Iteration 0: Log likelihood = -50937.804
 Iteration 1: Log likelihood = -50937.804

Linear regression (Maximum Likelihood)
 Number of obs = 36,384
 Wald chi2(7) = 1403.09
 Prob > chi2 = 0.0000
 Log likelihood = -50937.804

	zil1r2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.002008	.0150159	-0.13	0.894	-.0314386 .0274225
AGE		-.0152235	.0009797	-15.54	0.000	-.0171437 -.0133032
SEX		-.1994649	.0104002	-19.18	0.000	-.219849 -.1790808
NonWhite		-.1336779	.0249237	-5.36	0.000	-.1825274 -.0848284
householdsize		-.0150199	.0047308	-3.17	0.001	-.0242921 -.0057478
SES		.0299974	.0078054	3.84	0.000	.014699 .0452958
LE8_TOTALSCORE		-.0014919	.0000554	-26.93	0.000	-.0016005 -.0013833
_cons		2.010406	.0707838	28.40	0.000	1.871673 2.14914
sigma2						
_cons		.9628421	.0071386	134.88	0.000	.9488507 .9768336

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.247793	.1612816	7.74	0.000	.9316871 1.563899
ereri_cde	1.249547	.1613504	7.74	0.000	.9333057 1.565788
ereri_intref	-.0017441	.0022897	-0.76	0.446	-.0062318 .0027437
ereri_intmed	-.000131	.0010162	-0.13	0.897	-.0021228 .0018608
ereri_pie	.0001217	.0009135	0.13	0.894	-.0016687 .0019121

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): zillrap
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -9031.9105
Iteration 2: Log likelihood = -9023.8243
Iteration 3: Log likelihood = -9023.8076
Refining estimates:
Iteration 0: Log likelihood = -9023.8076

```

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) =	196.01
Log likelihood =	-9023.8076	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.242189	.160596	11.27	0.000	1.948522 2.580116
zillrap	1.069864	.0411138	1.76	0.079	.992242 1.153558
_infectionburXzillrap_000	.9880324	.0687342	-0.17	0.863	.8620964 1.132365
AGE	1.035479	.0130184	2.77	0.006	1.010275 1.061311
SEX	.7321233	.0486741	-4.69	0.000	.6426779 .8340173
NonWhite	1.118775	.1908676	0.66	0.511	.8008007 1.563008
householdsize	.9400705	.0393251	-1.48	0.140	.8660698 1.020394
SES	.8200835	.0404285	-4.02	0.000	.7445528 .9032763
LE8_TOTALSCORE	.9989549	.0003554	-2.94	0.003	.9982586 .9996517

-> Model for the mediator

Iteration 0: Log likelihood = -50174.681	Number of obs = 36,459
Iteration 1: Log likelihood = -50174.681	Wald chi2(7) = 3252.81
Log likelihood = -50174.681	Prob > chi2 = 0.0000

	zil1rap	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.069639	.0146431	-4.76	0.000	-.0983389 -.0409391
AGE		-.0022855	.0009584	-2.38	0.017	-.0041639 -.000407
SEX		.43652	.0101469	43.02	0.000	.4166325 .4564075
NonWhite		-.4681463	.0243271	-19.24	0.000	-.5158265 -.4204662
householdsize		-.008992	.0048218	-1.86	0.062	-.0184425 .0004585
SES		.0614595	.0076213	8.06	0.000	.0465221 .0763969
LE8_TOTALSCORE		.001214	.000054	22.47	0.000	.0011081 .0013199
_cons		-1.08259	.0695027	-15.58	0.000	-1.218813 -.9463674
sigma2						
_cons		.9180644	.0067996	135.02	0.000	.9047373 .9313914

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.231763	.159929	7.70	0.000	.9183082 1.545218
ereri_cde	1.238782	.1602135	7.73	0.000	.9247693 1.552795
ereri_intref	.0016223	.008456	0.19	0.848	-.0149511 .0181958
ereri_intmed	-.0039493	.0096407	-0.41	0.682	-.0228447 .0149462
ereri_pie	-.0046918	.0028396	-1.65	0.098	-.0102573 .0008738

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): zil1rl1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-9091.1167**
 Iteration 2: Log likelihood = **-9079.6536**
 Iteration 3: Log likelihood = **-9079.5408**
 Iteration 4: Log likelihood = **-9079.5408**
 Refining estimates:
 Iteration 0: Log likelihood = **-9079.5408**

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) =	209.00
Log likelihood =	-9079.5408	Prob > chi2 =	0.0000

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.24424	.163638	11.09	0.000	1.945379 2.589014
zil1rl1	1.160511	.0478862	3.61	0.000	1.070351 1.258266
_infectionburXzil1rl1_000	.9309962	.0675564	-0.99	0.324	.8075728 1.073283
AGE	1.034299	.0129861	2.69	0.007	1.009157 1.060067
SEX	.8115861	.0554929	-3.05	0.002	.7097951 .9279749
NonWhite	1.052931	.1813443	0.30	0.765	.7512753 1.475709
householdszie	.941423	.0393132	-1.45	0.148	.8674396 1.021716
SES	.8211536	.0402575	-4.02	0.000	.7459225 .9039721
LE8_TOTALSCORE	.9990782	.0003526	-2.61	0.009	.9983874 .9997695

-> Model for the mediator

Iteration 0: Log likelihood = **-49724.279**
 Iteration 1: Log likelihood = **-49724.279**

Linear regression (Maximum Likelihood)	Number of obs =	36,787
	Wald chi2(7) =	5295.54
Log likelihood =	Prob > chi2 =	0.0000

<u>zil1rl1</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0940564	.0142146	6.62	0.000	.0661964 .1219165
AGE	.0076105	.0009284	8.20	0.000	.005791 .0094301
SEX	-.6836227	.0098547	-69.37	0.000	-.7029376 -.6643077
NonWhite	-.1435989	.0235975	-6.09	0.000	-.1898491 -.0973487
householdszie	-.0145982	.0044908	-3.25	0.001	-.0234 -.0057963
SES	-.0073981	.0073945	-1.00	0.317	-.0218912 .0070949
LE8_TOTALSCORE	-.0003604	.0000525	-6.87	0.000	-.0004633 -.0002575
_cons	.7942825	.0671196	11.83	0.000	.6627304 .9258346
sigma2					
_cons	.8741392	.0064454	135.62	0.000	.8615065 .8867719

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.246806	.1604574	7.77	0.000	.9323151 1.561297
ereri_cde	1.234651	.1619076	7.63	0.000	.9173178 1.551984
ereri_intref	-.004134	.0086669	-0.48	0.633	-.0211207 .0128528
ereri_intmed	.0021892	.0133313	0.16	0.870	-.0239397 .0283182
ereri_pie	.0140998	.0044827	3.15	0.002	.0053138 .0228858

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): zil1rl2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

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

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

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 = **-8828.9937**

Iteration 2: Log likelihood = **-8819.5117**

Iteration 3: Log likelihood = **-8819.4503**

Iteration 4: Log likelihood = **-8819.4503**

Refining estimates:

Iteration 0: Log likelihood = **-8819.4503**

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) = **187.76**

Log likelihood = **-8819.4503** Prob > chi2 = **0.0000**

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.218919	.1606095	11.01	0.000	1.92544 2.557131
zillrl2		.9533638	.0386422	-1.18	0.239	.8805567 1.032191
_infectionburXzillrl2_000		1.001437	.071027	0.02	0.984	.8714697 1.150788
AGE		1.037522	.0131698	2.90	0.004	1.012028 1.063659
SEX		.7721675	.0535223	-3.73	0.000	.6740794 .8845288
NonWhite		1.056013	.1843723	0.31	0.755	.7499903 1.486904
householdsize		.9353691	.0397605	-1.57	0.116	.8605979 1.016637
SES		.827882	.0411678	-3.80	0.000	.7510018 .9126324
LE8_TOTALSCORE		.99905	.0003583	-2.65	0.008	.9983479 .9997525

-> Model for the mediator

Iteration 0: Log likelihood = **-49142.024**
 Iteration 1: Log likelihood = **-49142.024**

Linear regression (Maximum Likelihood) Number of obs = 35,761
 Wald chi2(7) = 3347.84
 Prob > chi2 = 0.0000
 Log likelihood = **-49142.024**

	zillrl2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0241215	.0147766	-1.63	0.103	-.0530832 .0048401
AGE		.0136153	.0009624	14.15	0.000	.011729 .0155017
SEX		.5795616	.0102209	56.70	0.000	.559529 .5995942
NonWhite		.0250729	.0244555	1.03	0.305	-.0228591 .0730048
householdsize		.0074806	.0046489	1.61	0.108	-.0016311 .0165924
SES		.0062008	.0076632	0.81	0.418	-.0088188 .0212204
LE8_TOTALSCORE		-.0003241	.0000545	-5.95	0.000	-.0004308 -.0002173
_cons		-1.557815	.0695174	-22.41	0.000	-1.694067 -1.421564
sigma2						
_cons		.9143713	.0068381	133.72	0.000	.900969 .9277737

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.221273	.1607457	7.60	0.000	.9062175 1.536329
ereri_cde	1.217843	.1604624	7.59	0.000	.9033425 1.532344
ereri_intref	.0009496	.0053958	0.18	0.860	-.009626 .0115253
ereri_intmed	.0013279	.0034313	0.39	0.699	-.0053974 .0080532
ereri_pie	.0011527	.0012072	0.95	0.340	-.0012134 .0035187

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): zillrn
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 2.216 -.07534 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 = -9071.2894
 Iteration 1: Log likelihood = -8982.0178
 Iteration 2: Log likelihood = -8973.4216
 Iteration 3: Log likelihood = -8973.3934
 Iteration 4: Log likelihood = -8973.3934
 Refining estimates:
 Iteration 0: Log likelihood = -8973.3934

Cox regression with Breslow method for ties

No. of subjects =	36,361	Number of obs =	36,361
No. of failures =	969		
Time at risk =	441,703.033	LR chi2(9) =	195.79
Log likelihood =	-8973.3934	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.231313	.1626247	11.01	0.000	1.934293 2.573941
zillrn	.9284297	.0402587	-1.71	0.087	.8527841 1.010785
_infectionburXzillrn_000	1.074561	.0752773	1.03	0.305	.9367005 1.23271
AGE	1.037362	.0130784	2.91	0.004	1.012043 1.063315
SEX	.7623512	.0498905	-4.15	0.000	.6705791 .8666828
NonWhite	1.05061	.1813997	0.29	0.775	.7489834 1.473707
householdsize	.9382884	.0393458	-1.52	0.129	.864256 1.018662
SES	.8186152	.0405019	-4.05	0.000	.7429605 .9019738
LE8_TOTALSCORE	.9988481	.0003725	-3.09	0.002	.9981182 .9995785

-> Model for the mediator

Iteration 0: Log likelihood = -48805.496
 Iteration 1: Log likelihood = -48805.496

Linear regression (Maximum Likelihood)
 Number of obs = 36,361
 Wald chi2(7) = 6026.33
 Log likelihood = -48805.496 Prob > chi2 = 0.0000

	zil1rn	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.1766468	.0141625	12.47	0.000	.1488887 .2044048
AGE		.0077431	.0009248	8.37	0.000	.0059305 .0095557
SEX		.1777186	.0098196	18.10	0.000	.1584725 .1969647
NonWhite		-.2517553	.023557	-10.69	0.000	-.2979261 -.2055845
householdsize		.0024245	.0044661	0.54	0.587	-.0063289 .0111779
SES		-.1117897	.0073693	-15.17	0.000	-.1262332 -.0973461
LE8_TOTALSCORE		-.0034668	.0000523	-66.27	0.000	-.0035693 -.0033643
_cons		.9699434	.0667939	14.52	0.000	.8390298 1.100857
sigma2						
_cons		.8578036	.0063619	134.84	0.000	.8453345 .8702726

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.221192	.1597595	7.64	0.000	.9080689 1.534314
ereri_cde	1.226163	.1620248	7.57	0.000	.9085999 1.543725
ereri_intref	-.0040491	.004975	-0.81	0.416	-.0137999 .0057018
ereri_intmed	.0121104	.023465	0.52	0.606	-.0338802 .0581011
ereri_pie	-.0130322	.0076309	-1.71	0.088	-.0279885 .001924

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): zil2
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8827.1077**
 Iteration 2: Log likelihood = **-8819.0531**
 Iteration 3: Log likelihood = **-8819.029**
 Iteration 4: Log likelihood = **-8819.029**
 Refining estimates:
 Iteration 0: Log likelihood = **-8819.029**

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) =	188.60
Log likelihood =	-8819.029	Prob > chi2 =	0.0000

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.221035	.1608661	11.02	0.000	1.9271 2.559804
zil2	1.056423	.0394036	1.47	0.141	.9819487 1.136546
_infectionburXzil2_000	.9908561	.0693555	-0.13	0.896	.863834 1.136556
AGE	1.036912	.0131569	2.86	0.004	1.011443 1.063023
SEX	.74781	.0491294	-4.42	0.000	.65746 .8505761
NonWhite	1.057751	.1846655	0.32	0.748	.7512391 1.489323
householdszie	.9344292	.0398932	-1.59	0.112	.8594218 1.015983
SES	.8274085	.0411783	-3.81	0.000	.7505118 .9121839
LE8_TOTALSCORE	.9990564	.0003582	-2.63	0.008	.9983547 .9997586

-> Model for the mediator

Iteration 0: Log likelihood = **-50739.087**
 Iteration 1: Log likelihood = **-50739.087**

Linear regression (Maximum Likelihood)	Number of obs =	35,761
	Wald chi2(7) =	6.15
Log likelihood =	-50739.087	Prob > chi2 = 0.5225

<u>zil2</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0214153	.0154515	1.39	0.166	-.0088691 .0516996
AGE	.0002155	.0010064	0.21	0.830	-.0017569 .002188
SEX	.0084427	.0106877	0.79	0.430	-.0125048 .0293902
NonWhite	-.0142394	.0255724	-0.56	0.578	-.0643605 .0358816
householdszie	.0012671	.0048613	0.26	0.794	-.0082608 .010795
SES	-.0031832	.0080132	-0.40	0.691	-.0188888 .0125223
LE8_TOTALSCORE	.0001014	.0000569	1.78	0.075	-.0000102 .000213
_cons	-.0820165	.0726923	-1.13	0.259	-.2244909 .0604578
sigma2					
_cons	.9998001	.0074769	133.72	0.000	.9851456 1.014455

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.222244	.1607682	7.60	0.000	.9071443 1.537344
ereri_cde	1.219396	.1606032	7.59	0.000	.9046198 1.534173
ereri_intref	.0006738	.0059436	0.11	0.910	-.0109755 .0123232
ereri_intmed	.0009978	.0030202	0.33	0.741	-.0049218 .0069173
ereri_pie	.0011761	.0011664	1.01	0.313	-.00111 .0034623

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): zil20
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -8827.3998

Iteration 2: Log likelihood = -8818.6164

Iteration 3: Log likelihood = -8818.5881

Iteration 4: Log likelihood = -8818.5881

Refining estimates:

Iteration 0: Log likelihood = -8818.5881

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 = -8818.5881

LR chi2(9) = 189.49

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.21447	.1606187	10.96	0.000	1.921016 2.552752
zil20	.9749553	.0384224	-0.64	0.520	.9024838 1.053247
_infectionburXzil20_000	.9109316	.0729368	-1.17	0.244	.7786305 1.065713
AGE	1.037129	.0131624	2.87	0.004	1.011649 1.06325
SEX	.7450505	.0490123	-4.47	0.000	.6549233 .8475806
NonWhite	1.054941	.1842119	0.31	0.759	.7491918 1.485469
householdsize	.9353762	.0397371	-1.57	0.116	.8606473 1.016594
SES	.8270097	.0411508	-3.82	0.000	.7501637 .9117277
LE8_TOTALSCORE	.9990404	.0003586	-2.67	0.007	.9983378 .9997435

-> Model for the mediator

Iteration 0: Log likelihood = -50693.235
 Iteration 1: Log likelihood = -50693.235

Linear regression (Maximum Likelihood)
 Number of obs = 35,761
 Wald chi2(7) = 97.99
 Log likelihood = -50693.235 Prob > chi2 = 0.0000

	zil20	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0063945	.0154317	0.41	0.679	-.0238511 .0366401
AGE		-.0047617	.0010051	-4.74	0.000	-.0067316 -.0027917
SEX		-.0774271	.010674	-7.25	0.000	-.0983477 -.0565064
NonWhite		-.0283713	.0255397	-1.11	0.267	-.0784281 .0216856
householdsize		.0025472	.004855	0.52	0.600	-.0069685 .012063
SES		-.0098601	.0080029	-1.23	0.218	-.0255455 .0058253
LE8_TOTALSCORE		-.0002312	.0000569	-4.07	0.000	-.0003427 -.0001198
_cons		.5148334	.0725992	7.09	0.000	.3725416 .6571252
sigma2						
_cons		.9972396	.0074578	133.72	0.000	.9826226 1.011857

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.227848	.1612814	7.61	0.000	.9117419 1.543953
ereri_cde	1.214053	.1605504	7.56	0.000	.8993802 1.528726
ereri_intref	.0154852	.0185738	0.83	0.404	-.0209189 .0518893
ereri_intmed	-.0015288	.0038312	-0.40	0.690	-.0090378 .0059803
ereri_pie	-.0001622	.0004654	-0.35	0.728	-.0010744 .0007501

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): zil20ra
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8834.8561
Iteration 2: Log likelihood = -8819.7697
Iteration 3: Log likelihood = -8818.5207
Iteration 4: Log likelihood = -8818.4696
Iteration 5: Log likelihood = -8818.4695
Refining estimates:
Iteration 0: Log likelihood = -8818.4695

```

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) =	189.72
Log likelihood =	-8818.4695	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.209821	.1603923	10.92	0.000	1.916795 2.547644
zil20ra	.9747945	.0390616	-0.64	0.524	.9011644 1.054441
_infectionburXzil20ra_000	1.130512	.0710358	1.95	0.051	.9995163 1.278676
AGE	1.036461	.0131489	2.82	0.005	1.011007 1.062555
SEX	.7491848	.0492071	-4.40	0.000	.6586904 .8521119
NonWhite	1.055356	.1842607	0.31	0.758	.7495195 1.485988
householdsize	.9351227	.03943	-1.59	0.112	.8609485 1.015687
SES	.8261804	.0411264	-3.84	0.000	.7493815 .9108498
LE8_TOTALSCORE	.9990644	.0003583	-2.61	0.009	.9983624 .9997669

-> Model for the mediator

Iteration 0: Log likelihood =	-50739.97	Number of obs =	35,761
Iteration 1: Log likelihood =	-50739.97	Wald chi2(7) =	4.38
Log likelihood =	-50739.97	Prob > chi2 =	0.7348

	zil20ra	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0087462	.0154519	-0.57	0.571	-.0390313
AGE		.0007051	.0010064	0.70	0.484	-.0012674
SEX		-.000637	.010688	-0.06	0.952	-.0215851
NonWhite		-.004657	.0255731	-0.18	0.855	-.0547793
householdsize		.0016193	.0048614	0.33	0.739	-.0079088
SES		.0074289	.0080134	0.93	0.354	-.008277
LE8_TOTALSCORE		-.0001012	.0000569	-1.78	0.075	-.0002129
_cons		.0076349	.0726941	0.11	0.916	-.134843
sigma2						
_cons		.9998495	.0074773	133.72	0.000	.9851943
						1.014505

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.217992	.1605244	7.59	0.000	.9033704
ereri_cde	1.209465	.1603347	7.54	0.000	.8952145
ereri_intref	.010413	.0106667	0.98	0.329	-.0104933
ereri_intmed	-.0021086	.0038587	-0.55	0.585	-.0096716
ereri_pie	.0002233	.0005278	0.42	0.672	-.0008111

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): zil22ra1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8827.0884**
 Iteration 2: Log likelihood = **-8819.3088**
 Iteration 3: Log likelihood = **-8819.2917**
 Iteration 4: Log likelihood = **-8819.2917**
 Refining estimates:
 Iteration 0: Log likelihood = **-8819.2917**

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) =	188.08
Log likelihood =	-8819.2917	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.226089	.1611628	11.05	0.000	1.931602 2.565471
zil22ra1		.9425012	.0387289	-1.44	0.150	.8695703 1.021549
_infectionburXzil22ra1_000		1.054911	.0741662	0.76	0.447	.9191188 1.210766
AGE		1.036954	.0131586	2.86	0.004	1.011481 1.063068
SEX		.7569926	.0500904	-4.21	0.000	.6649169 .8618187
NonWhite		1.052915	.183852	0.30	0.768	.747761 1.482598
householdsize		.9343025	.0398076	-1.59	0.111	.8594499 1.015674
SES		.8273292	.0411728	-3.81	0.000	.7504427 .9120932
LE8_TOTALSCORE		.9990604	.0003584	-2.62	0.009	.9983582 .9997631

-> Model for the mediator

Iteration 0: Log likelihood = **-50541.943**
 Iteration 1: Log likelihood = **-50541.943**

Linear regression (Maximum Likelihood)	Number of obs =	35,761
	Wald chi2(7) =	402.69
Log likelihood =	-50541.943	Prob > chi2 = 0.0000

	zil22ra1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.010383	.0153665	0.68	0.499	-.0197349 .0405009
AGE		.0020051	.0010008	2.00	0.045	.0000435 .0039667
SEX		.2100831	.0106289	19.77	0.000	.1892508 .2309155
NonWhite		-.0371197	.0254318	-1.46	0.144	-.0869652 .0127258
householdsize		-.0039462	.0048345	-0.82	0.414	-.0134217 .0055293
SES		.0012796	.0079691	0.16	0.872	-.0143396 .0168988
LE8_TOTALSCORE		-.0001378	.0000566	-2.43	0.015	-.0002488 -.0000268
_cons		-.3639793	.0722927	-5.03	0.000	-.5056703 -.2222882
sigma2						
_cons		.9888372	.0073949	133.72	0.000	.9743434 1.003331

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.221965	.160751	7.60	0.000	.9068988 1.537031
ereri_cde	1.22386	.1607845	7.61	0.000	.9087284 1.538992
ereri_intref	-.0017625	.0026318	-0.67	0.503	-.0069206 .0033957
ereri_intmed	.0004817	.0015586	0.31	0.757	-.0025731 .0035366
ereri_pie	-.0006147	.0010044	-0.61	0.541	-.0025833 .0013539

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): zil24
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -8831.4698

Iteration 2: Log likelihood = -8819.4121

Iteration 3: Log likelihood = -8819.0209

Iteration 4: Log likelihood = -8819.0181

Iteration 5: Log likelihood = -8819.0181

Refining estimates:

Iteration 0: Log likelihood = -8819.0181

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) = 188.63

Log likelihood = -8819.0181 Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.206099	.160308	10.89	0.000	1.91325 2.543772
zil24	1.00854	.0379144	0.23	0.821	.936901 1.085657
_infectionburXzil24_000	1.081529	.0680481	1.25	0.213	.956053 1.223473
AGE	1.036952	.0131589	2.86	0.004	1.011479 1.063066
SEX	.7489334	.0491984	-4.40	0.000	.6584558 .8518433
NonWhite	1.058584	.1848686	0.33	0.744	.7517497 1.490654
householdsize	.934887	.0397993	-1.58	0.114	.8600475 1.016239
SES	.8273641	.041165	-3.81	0.000	.7504914 .9121109
LE8_TOTALSCORE	.9990767	.0003588	-2.57	0.010	.9983738 .9997801

-> Model for the mediator

Iteration 0: Log likelihood = **-50734.434**
 Iteration 1: Log likelihood = **-50734.434**

Linear regression (Maximum Likelihood)
 Number of obs = 35,761
 Wald chi2(7) = 15.46
 Log likelihood = **-50734.434** Prob > chi2 = 0.0306

	zil24	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.009428	.0154495	0.61	0.542	-.0208524 .0397085
AGE		.0005587	.0010062	0.56	0.579	-.0014135 .0025309
SEX		.0052766	.0106863	0.49	0.621	-.0156682 .0262213
NonWhite		-.0807093	.0255691	-3.16	0.002	-.1308239 -.0305948
householdsize		.0047243	.0048606	0.97	0.331	-.0048024 .0142509
SES		-.0057411	.0080121	-0.72	0.474	-.0214446 .0099623
LE8_TOTALSCORE		-.0001102	.0000569	-1.94	0.053	-.0002218 1.38e-06
_cons		.0050322	.0726829	0.07	0.945	-.1374236 .147488
sigma2						
_cons		.99954	.007475	133.72	0.000	.9848893 1.014191

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.215944	.1604138	7.58	0.000	.9015391 1.53035
ereri_cde	1.206069	.160303	7.52	0.000	.8918805 1.520257
ereri_intref	.0080613	.0095805	0.84	0.400	-.0107161 .0268387
ereri_intmed	.0017342	.0030538	0.57	0.570	-.0042511 .0077194
ereri_pie	.0000802	.000378	0.21	0.832	-.0006607 .0008211

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): zil2ra
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 .04674 2.216 -.07422 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 = -8991.6093
 Iteration 1: Log likelihood = -8902.9463
 Iteration 2: Log likelihood = -8892.5997
 Iteration 3: Log likelihood = -8892.494
 Iteration 4: Log likelihood = -8892.494
 Refining estimates:
 Iteration 0: Log likelihood = -8892.494

Cox regression with Breslow method for ties

No. of subjects =	36,179	Number of obs =	36,179
No. of failures =	961		
Time at risk =	439,642.729	LR chi2(9) =	198.23
Log likelihood =	-8892.494	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.232009	.1665075	10.76	0.000	1.928397 2.583423
zil2ra	1.097567	.0420994	2.43	0.015	1.018079 1.183261
_infectionburXzil2ra_000	.9635751	.0642985	-0.56	0.578	.8454455 1.09821
AGE	1.03496	.0131145	2.71	0.007	1.009573 1.060986
SEX	.7601889	.0498393	-4.18	0.000	.6685213 .864426
NonWhite	1.084909	.1872397	0.47	0.637	.7735494 1.521593
householdsize	.9436929	.0393747	-1.39	0.165	.8695911 1.024109
SES	.8245122	.0409158	-3.89	0.000	.7480951 .9087352
LE8_TOTALSCORE	.9991568	.0003579	-2.35	0.019	.9984555 .9998586

-> Model for the mediator

Iteration 0: Log likelihood = -50198.108	Number of obs = 36,179
Iteration 1: Log likelihood = -50198.108	Wald chi2(7) = 2347.35
Log likelihood = -50198.108	Prob > chi2 = 0.0000

	zil2ra	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.1934604	.0148676	13.01	0.000	.1643204 .2226004
AGE		.0171675	.0009702	17.70	0.000	.015266 .0190691
SEX		-.142064	.0102981	-13.80	0.000	-.162248 -.1218801
NonWhite		-.352009	.0246002	-14.31	0.000	-.4002244 -.3037936
householdsize		-.0130219	.0046804	-2.78	0.005	-.0221953 -.0038485
SES		-.1327193	.0077326	-17.16	0.000	-.1478749 -.1175638
LE8_TOTALSCORE		-.0012512	.0000548	-22.82	0.000	-.0013587 -.0011438
_cons		-.1807878	.0700996	-2.58	0.010	-.3181804 -.0433952
sigma2						
_cons		.9390457	.0069819	134.50	0.000	.9253614 .95273

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.25271	.1630057	7.69	0.000	.9332244 1.572195
ereri_cde	1.230079	.1659917	7.41	0.000	.9047409 1.555416
ereri_intref	-.0016389	.0038985	-0.42	0.674	-.0092798 .006002
ereri_intmed	.0060963	.024719	0.25	0.805	-.042352 .0545446
ereri_pie	.0181736	.0076857	2.36	0.018	.0031098 .0332373

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): zil2rb
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8828.866**
 Iteration 2: Log likelihood = **-8819.8415**
 Iteration 3: Log likelihood = **-8819.708**
 Iteration 4: Log likelihood = **-8819.7071**
 Iteration 5: Log likelihood = **-8819.7071**
 Refining estimates:
 Iteration 0: Log likelihood = **-8819.7071**

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) =	187.25
Log likelihood =	-8819.7071	Prob > chi2 =	0.0000

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.21789	.1605495	11.00	0.000	1.924522 2.555978
zil2rb	1.022267	.0386551	0.58	0.560	.949244 1.100908
_infectionburXzil2rb_000	1.028143	.0614126	0.46	0.642	.9145556 1.155839
AGE	1.037016	.0131591	2.86	0.004	1.011543 1.063131
SEX	.7466904	.0491257	-4.44	0.000	.6563553 .8494585
NonWhite	1.060833	.1852986	0.34	0.735	.753295 1.493924
householdszie	.9354494	.0397906	-1.57	0.117	.8606237 1.016781
SES	.826717	.0411396	-3.82	0.000	.7498923 .9114123
LE8_TOTALSCORE	.9990601	.0003585	-2.62	0.009	.9983576 .9997631

-> Model for the mediator

Iteration 0: Log likelihood = **-50667.899**
 Iteration 1: Log likelihood = **-50667.899**

Linear regression (Maximum Likelihood)	Number of obs =	35,761
	Wald chi2(7) =	148.83
Log likelihood =	-50667.899	Prob > chi2 = 0.0000

<u>zil2rb</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	-.0071583	.0154208	-0.46	0.643	-.0373824 .0230659
AGE	-.0020123	.0010044	-2.00	0.045	-.0039808 -.0000437
SEX	.100748	.0106664	9.45	0.000	.0798421 .1216538
NonWhite	-.1493035	.0255216	-5.85	0.000	-.1993248 -.0992821
householdszie	-.0017851	.0048516	-0.37	0.713	-.0112941 .0077238
SES	.0154856	.0079972	1.94	0.053	-.0001887 .0311599
LE8_TOTALSCORE	.000111	.0000568	1.95	0.051	-3.53e-07 .0002224
_cons	-.0755582	.0725478	-1.04	0.298	-.2177492 .0666328
sigma2					
_cons	.9958276	.0074472	133.72	0.000	.9812313 1.010424

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.219362	.160585	7.59	0.000	.9046208 1.534103
ereri_cde	1.217569	.1605147	7.59	0.000	.902966 1.532172
ereri_intref	.0025835	.0052884	0.49	0.625	-.0077815 .0129486
ereri_intmed	-.0006333	.0015741	-0.40	0.687	-.0037185 .0024518
ereri_pie	-.0001576	.0004342	-0.36	0.717	-.0010087 .0006934

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): zil32
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -8944.2332

Iteration 2: Log likelihood = -8935.8586

Iteration 3: Log likelihood = -8935.8407

Iteration 4: Log likelihood = -8935.8407

Refining estimates:

Iteration 0: Log likelihood = -8935.8407

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 = -8935.8407

LR chi2(9) = 201.19

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.2708	.1632787	11.41	0.000	1.972306 2.614468
zil32	1.116147	.0423781	2.89	0.004	1.036103 1.202375
_infectionburXzil32_000	.9180745	.0623512	-1.26	0.208	.8036526 1.048787
AGE	1.030979	.0130084	2.42	0.016	1.005795 1.056792
SEX	.7339921	.0487399	-4.66	0.000	.6444189 .8360157
NonWhite	1.028822	.1777114	0.16	0.869	.7333477 1.443347
householdsize	.9341979	.0397457	-1.60	0.110	.8594574 1.015438
SES	.8177557	.0403558	-4.08	0.000	.7423647 .9008031
LE8_TOTALSCORE	.9989633	.0003558	-2.91	0.004	.9982661 .999661

-> Model for the mediator

Iteration 0: Log likelihood = **-50608.81**
 Iteration 1: Log likelihood = **-50608.81**

Linear regression (Maximum Likelihood) Number of obs = **36,352**
 Wald chi2(7) = **1996.80**
 Log likelihood = **-50608.81** Prob > chi2 = **0.0000**

	zil32	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr	.0501667	.0149148	3.36	0.001	.0209343	.0793992
AGE	.0192654	.0009736	19.79	0.000	.0173572	.0211736
SEX	.3639893	.0103229	35.26	0.000	.3437568	.3842218
NonWhite	.3360379	.0247371	13.58	0.000	.2875541	.3845218
householdsize	-.0155052	.0047777	-3.25	0.001	-.0248694	-.006141
SES	.010418	.0077427	1.35	0.178	-.0047574	.0255933
LE8_TOTALSCORE	.000646	.000055	11.75	0.000	.0005383	.0007537
_cons	-2.027677	.0704314	-28.79	0.000	-2.16572	-1.889634
sigma2						
_cons	.9479045	.007031	134.82	0.000	.934124	.961685

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.262591	.162044	7.79	0.000	.9449907 1.580191
ereri_cde	1.264514	.1622438	7.79	0.000	.9465222 1.582506
ereri_intref	-.0046918	.0041966	-1.12	0.264	-.012917 .0035334
ereri_intmed	-.0027591	.0067633	-0.41	0.683	-.016015 .0104967
ereri_pie	.0055277	.0025266	2.19	0.029	.0005755 .0104798

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): zil33
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8828.0727
Iteration 2: Log likelihood = -8820.1181
Iteration 3: Log likelihood = -8820.0967
Iteration 4: Log likelihood = -8820.0967
Refining estimates:
Iteration 0: Log likelihood = -8820.0967

```

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) =	186.47
Log likelihood =	-8820.0967	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.214451	.1607969	10.95	0.000	1.920694 2.553136
zil33	.9779993	.0377057	-0.58	0.564	.9068207 1.054765
_infectionburXzil33_000	1.054729	.0758622	0.74	0.459	.9160463 1.214407
AGE	1.037021	.0131613	2.86	0.004	1.011544 1.063141
SEX	.7493802	.0492343	-4.39	0.000	.6588374 .852366
NonWhite	1.052756	.1838517	0.29	0.768	.7476102 1.482451
householdsize	.9349339	.0397948	-1.58	0.114	.8601024 1.016276
SES	.8267231	.0411461	-3.82	0.000	.7498867 .9114325
LE8_TOTALSCORE	.9990665	.0003583	-2.60	0.009	.9983645 .9997691

-> Model for the mediator

Iteration 0: Log likelihood =	-50706.49	Number of obs =	35,761
Iteration 1: Log likelihood =	-50706.49	Wald chi2(7) =	71.41
Log likelihood =	-50706.49	Prob > chi2 =	0.0000

	zil33	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0428836	.0154374	2.78	0.005	.0126268 .0731403
AGE		.0050394	.0010055	5.01	0.000	.0030687 .0070101
SEX		.026563	.010678	2.49	0.013	.0056346 .0474915
NonWhite		-.0337048	.0255491	-1.32	0.187	-.0837802 .0163705
householdsize		-.0099161	.0048568	-2.04	0.041	-.0194353 -.0003968
SES		-.0183605	.0080059	-2.29	0.022	-.0340517 -.0026693
LE8_TOTALSCORE		.0001032	.0000569	1.81	0.070	-8.28e-06 .0002147
_cons		-.3794078	.0726261	-5.22	0.000	-.5217524 -.2370633
sigma2						
_cons		.9979791	.0074633	133.72	0.000	.9833513 1.012607

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.217216	.1604894	7.58	0.000	.9026629 1.53177
ereri_cde	1.21399	.1607389	7.55	0.000	.8989479 1.529033
ereri_intref	.000277	.0035719	0.08	0.938	-.0067239 .0072778
ereri_intmed	.0039027	.0061579	0.63	0.526	-.0081666 .015972
ereri_pie	-.0009535	.001687	-0.57	0.572	-.00426 .0023529

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): zil34
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

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

```
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 .04684 2.215 -.07399 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 = **-8796.3455**
 Iteration 1: Log likelihood = **-8713.4258**
 Iteration 2: Log likelihood = **-8700.2353**
 Iteration 3: Log likelihood = **-8700.0033**
 Iteration 4: Log likelihood = **-8700.0031**
 Refining estimates:
 Iteration 0: Log likelihood = **-8700.0031**

Cox regression with Breslow method for ties

No. of subjects =	35,544	Number of obs =	35,544
No. of failures =	940		
Time at risk =	431,741.054	LR chi2(9) =	192.68
Log likelihood =	-8700.0031	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.219239	.1620919	10.91	0.000	1.923237 2.560798
zil34		1.012635	.0392985	0.32	0.746	.938468 1.092664
_infectionburXzil34_000		.8585428	.0606317	-2.16	0.031	.7475646 .9859961
AGE		1.037741	.0132371	2.90	0.004	1.012119 1.064013
SEX		.7470193	.0494316	-4.41	0.000	.6561549 .8504667
NonWhite		1.091958	.1881568	0.51	0.610	.7789942 1.530656
householdszie		.9305475	.0399791	-1.68	0.094	.8553984 1.012299
SES		.8099182	.0404714	-4.22	0.000	.7343564 .893255
LE8_TOTALSCORE		.9992277	.000361	-2.14	0.032	.9985204 .9999355

-> Model for the mediator

Iteration 0: Log likelihood = **-50413.867**
 Iteration 1: Log likelihood = **-50413.867**

Linear regression (Maximum Likelihood)	Number of obs =	35,544
	Wald chi2(7) =	40.79
Log likelihood =	-50413.867	Prob > chi2 = 0.0000

	zil34	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0219262	.0154702	1.42	0.156	-.0083948 .0522472
AGE		.0018733	.001013	1.85	0.064	-.0001121 .0038588
SEX		.0609259	.010717	5.68	0.000	.0399211 .0819308
NonWhite		-.0181055	.0255805	-0.71	0.479	-.0682423 .0320313
householdszie		-.0012451	.0050819	-0.25	0.806	-.0112054 .0087152
SES		-.0027943	.0080514	-0.35	0.729	-.0185747 .0129861
LE8_TOTALSCORE		-.0000732	.0000571	-1.28	0.200	-.0001852 .0000388
_cons		-.1690221	.0734328	-2.30	0.021	-.3129477 -.0250965
sigma2						
_cons		.9988256	.0074924	133.31	0.000	.9841407 1.01351

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.235051	.1628535	7.58	0.000	.9158644 1.554238
ereri_cde	1.219189	.1620843	7.52	0.000	.90151 1.536869
ereri_intref	.0227316	.0189386	1.20	0.230	-.0143874 .0598506
ereri_intmed	-.0071449	.0058998	-1.21	0.226	-.0187083 .0044185
ereri_pie	.0002753	.000873	0.32	0.752	-.0014358 .0019865

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): zil3ra
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

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

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

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 = **-8831.6941**

Iteration 2: Log likelihood = **-8817.2828**

Iteration 3: Log likelihood = **-8816.9687**

Iteration 4: Log likelihood = **-8816.9683**

Refining estimates:

Iteration 0: Log likelihood = **-8816.9683**

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) = **192.73**

Log likelihood = **-8816.9683** Prob > chi2 = **0.0000**

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.197978	.1600488	10.82	0.000	1.905644 2.535156
zil3ra	.9333909	.0371937	-1.73	0.084	.8632665 1.009212
_infectionburXzil3ra_000	1.197515	.0828309	2.61	0.009	1.045693 1.37138
AGE	1.037014	.0131622	2.86	0.004	1.011535 1.063135
SEX	.7431585	.0503954	-4.38	0.000	.6506679 .8487964
NonWhite	1.059117	.1850204	0.33	0.742	.7520468 1.491567
householdsize	.9347031	.0397551	-1.59	0.112	.8599438 1.015962
SES	.826137	.0411283	-3.84	0.000	.7493349 .9108109
LE8_TOTALSCORE	.9990682	.0003584	-2.60	0.009	.9983659 .9997709

-> Model for the mediator

Iteration 0: Log likelihood = **-49577.306**
 Iteration 1: Log likelihood = **-49577.306**

Linear regression (Maximum Likelihood) Number of obs = 35,761
 Wald chi2(7) = 2407.27
 Prob > chi2 = 0.0000
 Log likelihood = **-49577.306**

	zil3ra	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0049236	.0149576	0.33	0.742	-.0243927 .0342399
AGE		-.0013201	.0009742	-1.36	0.175	-.0032295 .0005894
SEX		-.4955197	.0103461	-47.89	0.000	-.5157976 -.4752418
NonWhite		.1089016	.024755	4.40	0.000	.0603827 .1574205
householdsize		-.0031337	.0047059	-0.67	0.505	-.012357 .0060897
SES		-.0431244	.007757	-5.56	0.000	-.0583279 -.0279209
LE8_TOTALSCORE		-.000153	.0000551	-2.78	0.006	-.000261 -.000045
_cons		.9121051	.0703687	12.96	0.000	.774185 1.050025
sigma2						
_cons		.9369038	.0070066	133.72	0.000	.9231712 .9506365

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.206796	.1598521	7.55	0.000	.8934919 1.520101
ereri_cde	1.195258	.1596895	7.48	0.000	.8822723 1.508244
ereri_intref	.0103292	.0135617	0.76	0.446	-.0162513 .0369097
ereri_intmed	.0015485	.0047499	0.33	0.744	-.0077611 .0108581
ereri_pie	-.0003393	.0010492	-0.32	0.746	-.0023957 .001717

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): zil4
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8828.1642
Iteration 2: Log likelihood = -8819.4654
Iteration 3: Log likelihood = -8819.4373
Iteration 4: Log likelihood = -8819.4373
Refining estimates:
Iteration 0: Log likelihood = -8819.4373

```

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) =	187.79
Log likelihood =	-8819.4373	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.217931	.1606381	11.00	0.000	1.924412 2.556219
zil4	.9964508	.0376179	-0.09	0.925	.9253827 1.072977
_infectionburXzil4_000	1.094309	.0823694	1.20	0.231	.9442115 1.268266
AGE	1.037166	.0131613	2.88	0.004	1.011688 1.063285
SEX	.748609	.0491758	-4.41	0.000	.6581729 .8514714
NonWhite	1.054178	.1840962	0.30	0.763	.7486255 1.484443
householdsize	.9355747	.039794	-1.57	0.117	.8607423 1.016913
SES	.8271012	.0411688	-3.81	0.000	.7502228 .9118576
LE8_TOTALSCORE	.9990637	.0003582	-2.61	0.009	.9983618 .9997661

-> Model for the mediator

Iteration 0: Log likelihood =	-50736.39	Number of obs =	35,761
Iteration 1: Log likelihood =	-50736.39	Wald chi2(7) =	11.54
Log likelihood =	-50736.39	Prob > chi2 =	0.1166

	zil4	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0057218	.0154503	-0.37	0.711	-.0360039 .0245603
AGE		.0006468	.0010063	0.64	0.520	-.0013255 .0026191
SEX		.0010518	.0106869	0.10	0.922	-.0198941 .0219977
NonWhite		-.0593674	.0255705	-2.32	0.020	-.1094847 -.0092501
householdsize		.0098747	.0048609	2.03	0.042	.0003475 .0194019
SES		.0061323	.0080126	0.77	0.444	-.0095721 .0218366
LE8_TOTALSCORE		-.000069	.0000569	-1.21	0.226	-.0001806 .0000426
_cons		-.0238498	.0726868	-0.33	0.743	-.1663134 .1186137
sigma2						
_cons		.9996493	.0074758	133.72	0.000	.984997 1.014302

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.225297	.1610433	7.61	0.000	.9096581 1.540936
ereri_cde	1.217927	.1606375	7.58	0.000	.9030834 1.532771
ereri_intref	.0084724	.0126942	0.67	0.505	-.0164079 .0333526
ereri_intmed	-.0011228	.0031518	-0.36	0.722	-.0073003 .0050546
ereri_pie	.0000203	.0002229	0.09	0.927	-.0004165 .0004572

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): zil4r
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8946.6281**
 Iteration 2: Log likelihood = **-8935.6644**
 Iteration 3: Log likelihood = **-8935.5362**
 Iteration 4: Log likelihood = **-8935.5361**
 Refining estimates:
 Iteration 0: Log likelihood = **-8935.5361**

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) =	201.80
Log likelihood =	-8935.5361	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.26086	.1677851	10.99	0.000	1.954805 2.614832
zil4r		1.113365	.0426246	2.80	0.005	1.03288 1.200122
_infectionburXzil4r_000		.9553799	.0633333	-0.69	0.491	.8389748 1.087936
AGE		1.030081	.0129991	2.35	0.019	1.004915 1.055876
SEX		.7746554	.0508116	-3.89	0.000	.6812023 .8809293
NonWhite		1.082263	.1866891	0.46	0.647	.771794 1.517624
householdszie		.935321	.0396764	-1.58	0.115	.8607017 1.01641
SES		.8266921	.0408928	-3.85	0.000	.7503063 .9108544
LE8_TOTALSCORE		.9990528	.0003554	-2.66	0.008	.9983565 .9997497

-> Model for the mediator

Iteration 0: Log likelihood = **-50731.203**
 Iteration 1: Log likelihood = **-50731.203**

Linear regression (Maximum Likelihood)	Number of obs =	36,352
	Wald chi2(7) =	1739.44
Log likelihood =	Prob > chi2 =	0.0000

	zil4r	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.1850567	.0149651	12.37	0.000	.1557257 .2143878
AGE		.0209218	.0009769	21.42	0.000	.0190072 .0228365
SEX		-.1975036	.0103577	-19.07	0.000	-.2178043 -.1772028
NonWhite		-.2292816	.0248205	-9.24	0.000	-.277929 -.1806343
householdszie		-.0091364	.0047939	-1.91	0.057	-.0185322 .0002594
SES		-.1012323	.0077688	-13.03	0.000	-.1164588 -.0860058
LE8_TOTALSCORE		-.000451	.0000551	-8.18	0.000	-.0005591 -.0003429
_cons		-.7333427	.0706689	-10.38	0.000	-.8718512 -.5948342
sigma2						
_cons		.954309	.0070785	134.82	0.000	.9404355 .9681826

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.2811	.1643565	7.79	0.000	.9589675 1.603233
ereri_cde	1.2574	.1669348	7.53	0.000	.9302135 1.584586
ereri_intref	-.0022139	.0050024	-0.44	0.658	-.0120184 .0075906
ereri_intmed	.0058431	.0236976	0.25	0.805	-.0406034 .0522895
ereri_pie	.0200715	.0074106	2.71	0.007	.005547 .034596

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): zil5
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

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

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

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 = **-8825.6693**

Iteration 2: Log likelihood = **-8817.9271**

Iteration 3: Log likelihood = **-8817.9106**

Iteration 4: Log likelihood = **-8817.9106**

Refining estimates:

Iteration 0: Log likelihood = **-8817.9106**

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) = **190.84**

Log likelihood = **-8817.9106** Prob > chi2 = **0.0000**

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.235386	.1620394	11.10	0.000	1.939324 2.576646
zil5	.9155853	.0375449	-2.15	0.032	.8448781 .9922099
_infectionburXzil5_000	1.115834	.08339	1.47	0.142	.9637992 1.291852
AGE	1.036566	.0131536	2.83	0.005	1.011103 1.06267
SEX	.7527578	.0495126	-4.32	0.000	.6617098 .8563336
NonWhite	1.053957	.1840571	0.30	0.763	.748469 1.48413
householdszie	.9343687	.0398098	-1.59	0.111	.8595119 1.015745
SES	.8262959	.0411279	-3.83	0.000	.7494939 .9109679
LE8_TOTALSCORE	.9990717	.0003582	-2.59	0.010	.9983699 .999774

-> Model for the mediator

Iteration 0: Log likelihood = **-50666.799**
 Iteration 1: Log likelihood = **-50666.799**

Linear regression (Maximum Likelihood)
 Number of obs = 35,761
 Wald chi2(7) = 151.04
 Prob > chi2 = 0.0000
 Log likelihood = **-50666.799**

	zil5	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0011475	.0154203	0.07	0.941	-.0290757 .0313707
AGE		-.0054687	.0010043	-5.45	0.000	-.0074372 -.0035002
SEX		.1109231	.0106661	10.40	0.000	.0900179 .1318283
NonWhite		-.0493475	.0255208	-1.93	0.053	-.0993673 .0006724
householdszie		.0000562	.0048515	0.01	0.991	-.0094524 .0095649
SES		-.0095388	.007997	-1.19	0.233	-.0252126 .0061351
LE8_TOTALSCORE		1.12e-06	.0000568	0.02	0.984	-.0001103 .0001125
_cons		.1601184	.0725455	2.21	0.027	.0179318 .302305
sigma2						
_cons		.9957662	.0074468	133.72	0.000	.9811709 1.010362

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.227271	.1611772	7.61	0.000	.9113693 1.543172
ereri_cde	1.230594	.1611915	7.63	0.000	.9146648 1.546524
ereri_intref	-.0033782	.0047136	-0.72	0.474	-.0126167 .0058603
ereri_intmed	.0001559	.0021018	0.07	0.941	-.0039635 .0042753
ereri_pie	-.0001012	.0013606	-0.07	0.941	-.002768 .0025656

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): zil5ra
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8946.8979
Iteration 2: Log likelihood = -8936.8018
Iteration 3: Log likelihood = -8936.73
Iteration 4: Log likelihood = -8936.73
Refining estimates:
Iteration 0: Log likelihood = -8936.73

```

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) =	199.42
Log likelihood =	-8936.73	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.271592	.1652323	11.28	0.000	1.969768 2.619663
zil5ra	1.096411	.0416113	2.43	0.015	1.017814 1.181077
_infectionburXzil5ra_000	.9575405	.0637845	-0.65	0.515	.8403423 1.091084
AGE	1.030215	.0130149	2.36	0.018	1.00502 1.056042
SEX	.7747984	.0510096	-3.88	0.000	.6810031 .8815122
NonWhite	.9998783	.1738406	-0.00	0.999	.7111411 1.405849
householdsize	.9324452	.0397471	-1.64	0.101	.8577079 1.013695
SES	.8201185	.0405546	-4.01	0.000	.7443633 .9035834
LE8_TOTALSCORE	.9990489	.0003554	-2.68	0.007	.9983526 .9997456

-> Model for the mediator

Iteration 0: Log likelihood = -50796.43	Number of obs = 36,352
Iteration 1: Log likelihood = -50796.43	Wald chi2(7) = 1602.98
Log likelihood = -50796.43	Prob > chi2 = 0.0000

	zil5ra	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.048078	.014992	3.21	0.001	.0186943 .0774617
AGE		.019286	.0009786	19.71	0.000	.0173679 .0212041
SEX		-.1827945	.0103763	-17.62	0.000	-.2031317 -.1624574
NonWhite		.694424	.0248651	27.93	0.000	.6456893 .7431587
householdsize		.0084177	.0048025	1.75	0.080	-.0009949 .0178304
SES		-.0171867	.0077827	-2.21	0.027	-.0324406 -.0019329
LE8_TOTALSCORE		-.0002293	.0000552	-4.15	0.000	-.0003376 -.000121
_cons		-.8249538	.0707958	-11.65	0.000	-.963711 -.6861965
sigma2						
_cons		.9577399	.0071039	134.82	0.000	.9438164 .9716633

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.270922	.1633936	7.78	0.000	.9506763 1.591167
ereri_cde	1.26722	.1643146	7.71	0.000	.9451698 1.589271
ereri_intref	-.0016046	.005822	-0.28	0.783	-.0130154 .0098063
ereri_intmed	.000871	.0062696	0.14	0.890	-.0114173 .0131592
ereri_pie	.004435	.0022978	1.93	0.054	-.0000687 .0089387

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): zil6
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8969.8463**
 Iteration 2: Log likelihood = **-8958.5559**
 Iteration 3: Log likelihood = **-8958.3857**
 Iteration 4: Log likelihood = **-8958.3855**
 Refining estimates:
 Iteration 0: Log likelihood = **-8958.3855**

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) =	198.46
Log likelihood =	-8958.3855	Prob > chi2 =	0.0000

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.247616	.1674748	10.87	0.000	1.942215 2.60104
zil6	1.080159	.0388372	2.14	0.032	1.00666 1.159025
_infectionburXzil6_000	.9753632	.0630247	-0.39	0.699	.8593391 1.107052
AGE	1.029863	.0129926	2.33	0.020	1.004711 1.055646
SEX	.7546575	.0491715	-4.32	0.000	.6641831 .8574563
NonWhite	1.08856	.1851676	0.50	0.618	.7799385 1.519304
householdszie	.9374648	.0393317	-1.54	0.124	.8634606 1.017812
SES	.8239662	.040738	-3.92	0.000	.7478679 .9078078
LE8_TOTALSCORE	.9992194	.0003615	-2.16	0.031	.9985111 .9999282

-> Model for the mediator

Iteration 0: Log likelihood = **-49501.825**
 Iteration 1: Log likelihood = **-49501.825**

Linear regression (Maximum Likelihood)	Number of obs =	36,264
	Wald chi2(7) =	4126.48
Log likelihood =	Prob > chi2 =	0.0000

<u>zil6</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.1904801	.0145211	13.12	0.000	.1620192 .2189409
AGE	.0202709	.0009482	21.38	0.000	.0184125 .0221294
SEX	-.0205362	.0100586	-2.04	0.041	-.0402507 -.0008218
NonWhite	.0130801	.0240686	0.54	0.587	-.0340935 .0602538
householdszie	-.002881	.0045745	-0.63	0.529	-.011847 .0060849
SES	-.1360645	.0075438	-18.04	0.000	-.1508502 -.1212789
LE8_TOTALSCORE	-.0024788	.0000536	-46.28	0.000	-.0025838 -.0023738
_cons	.0218626	.0685274	0.32	0.750	-.1124485 .1561738
sigma2					
_cons	.8978105	.0066675	134.66	0.000	.8847425 .9108785

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.268273	.1638759	7.74	0.000	.947082 1.589464
ereri_cde	1.246832	.167189	7.46	0.000	.9191476 1.574516
ereri_intref	-.0009851	.0029155	-0.34	0.735	-.0066993 .0047291
ereri_intmed	.00763	.0240611	0.32	0.751	-.0395288 .0547888
ereri_pie	.014796	.0070423	2.10	0.036	.0009933 .0285987

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): zil6r
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 -.07593 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 = -9025.9309

Iteration 1: Log likelihood = -8937.1577

Iteration 2: Log likelihood = -8929.0701

Iteration 3: Log likelihood = -8929.0527

Iteration 4: Log likelihood = -8929.0527

Refining estimates:

Iteration 0: Log likelihood = -8929.0527

Cox regression with Breslow method for ties

No. of subjects = 36,243 Number of obs = 36,243

No. of failures = 965

Time at risk = 440,355.063

Log likelihood = -8929.0527

LR chi2(9) = 193.76

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.236403	.1608753	11.19	0.000	1.942312 2.575023
zil6r	.9347781	.0361808	-1.74	0.081	.8664879 1.00845
_infectionburXzil6r_000	1.086554	.0766527	1.18	0.239	.9462417 1.247673
AGE	1.036104	.0131226	2.80	0.005	1.010701 1.062146
SEX	.761123	.0499032	-4.16	0.000	.6693382 .865494
NonWhite	1.047176	.1811786	0.27	0.790	.7460153 1.469912
householdsize	.9341526	.0396573	-1.60	0.109	.8595715 1.015205
SES	.8226541	.0407102	-3.94	0.000	.7466109 .9064424
LE8_TOTALSCORE	.9990263	.0003568	-2.73	0.006	.9983272 .9997259

-> Model for the mediator

Iteration 0: Log likelihood = **-50999.099**
 Iteration 1: Log likelihood = **-50999.099**

Linear regression (Maximum Likelihood) Number of obs = 36,243
 Wald chi2(7) = 864.12
 Log likelihood = **-50999.099** Prob > chi2 = 0.0000

zil6r	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0415533	.0151592	2.74	0.006	.0118418 .0712649
AGE	.0070012	.0009884	7.08	0.000	.0050639 .0089385
SEX	.149314	.0104956	14.23	0.000	.128743 .1698851
NonWhite	-.5340597	.025117	-21.26	0.000	-.5832882 -.4848313
householdsize	.0027615	.0047718	0.58	0.563	-.006591 .012114
SES	-.0148528	.0078754	-1.89	0.059	-.0302883 .0005827
LE8_TOTALSCORE	-.0006593	.000056	-11.78	0.000	-.0007691 -.0005496
_cons	-.3080837	.0714546	-4.31	0.000	-.4481323 -.1680352
sigma2					
_cons	.9766858	.0072553	134.62	0.000	.9624656 .9909061

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.23208	.1602648	7.69	0.000	.9179667 1.546193
ereri_cde	1.23318	.1604077	7.69	0.000	.9187862 1.547573
ereri_intref	-.0025429	.0030984	-0.82	0.412	-.0086157 .0035299
ereri_intmed	.0042419	.0059194	0.72	0.474	-.0073598 .0158436
ereri_pie	-.0027987	.0019005	-1.47	0.141	-.0065235 .0009262

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): zil6st
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8976.2701
 Iteration 2: Log likelihood = -8965.7933
 Iteration 3: Log likelihood = -8965.7321
 Iteration 4: Log likelihood = -8965.7321
 Refining estimates:
 Iteration 0: Log likelihood = -8965.7321

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) =	198.19
Log likelihood =	-8965.7321	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.266347	.1635209	11.34	0.000	1.967482 2.610611
zil6st	1.028953	.0400111	0.73	0.463	.9534463 1.110439
_infectionburXzil6st_000	1.031115	.0726473	0.43	0.664	.8981229 1.183801
AGE	1.032966	.0130211	2.57	0.010	1.007758 1.058805
SEX	.7473657	.0487717	-4.46	0.000	.6576356 .8493388
NonWhite	1.009125	.1786033	0.05	0.959	.7133325 1.42757
householdsize	.9279618	.0398642	-1.74	0.082	.8530283 1.009478
SES	.828162	.0409787	-3.81	0.000	.751617 .9125023
LE8_TOTALSCORE	.9990835	.0003563	-2.57	0.010	.9983854 .999782

-> Model for the mediator

Iteration 0: Log likelihood = -51417.964
 Iteration 1: Log likelihood = -51417.964

Linear regression (Maximum Likelihood) Number of obs = 36,441
 Log likelihood = -51417.964 Wald chi2(7) = 582.76
 Prob > chi2 = 0.0000

	zil6st	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0732868	.0151617	4.83	0.000	.0435704 .1030033
AGE		.0126897	.0009902	12.81	0.000	.0107489 .0146305
SEX		.0501657	.0105065	4.77	0.000	.0295735 .070758
NonWhite		-.1629992	.0251571	-6.48	0.000	-.2123063 -.1136921
householdsize		-.0162612	.0047813	-3.40	0.001	-.0256324 -.0068899
SES		-.0447998	.0078842	-5.68	0.000	-.0602526 -.0293471
LE8_TOTALSCORE		-.0006497	.000056	-11.60	0.000	-.0007595 -.00054
_cons		-.4852697	.0715687	-6.78	0.000	-.6255419 -.3449976
sigma2						
_cons		.9842328	.0072915	134.98	0.000	.9699417 .9985239

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.2785	.1628488	7.85	0.000	.9593223 1.597678
ereri_cde	1.266208	.1634678	7.75	0.000	.9458167 1.586599
ereri_intref	.0024314	.0064655	0.38	0.707	-.0102407 .0151035
ereri_intmed	.0077672	.0103101	0.75	0.451	-.0124403 .0279747
ereri_pie	.0020939	.0028885	0.72	0.469	-.0035674 .0077552

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): zil7
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

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

```
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 = **-8947.8659**
 Iteration 2: Log likelihood = **-8936.5349**
 Iteration 3: Log likelihood = **-8936.4548**
 Iteration 4: Log likelihood = **-8936.4547**
 Refining estimates:
 Iteration 0: Log likelihood = **-8936.4547**

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) =	199.97
Log likelihood =	-8936.4547	Prob > chi2 =	0.0000

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.243767	.1617324	11.21	0.000	1.948151 2.584241
zil7	.9369984	.0369401	-1.65	0.099	.8673236 1.01227
_infectionburXzil7_000	.9396443	.0690411	-0.85	0.397	.8136184 1.085191
AGE	1.031952	.0130022	2.50	0.013	1.00678 1.057753
SEX	.7591788	.0495126	-4.22	0.000	.668082 .862697
NonWhite	1.052965	.1815376	0.30	0.765	.7510373 1.476272
householdszie	.9315571	.0397429	-1.66	0.097	.8568302 1.012801
SES	.8193515	.0404632	-4.03	0.000	.7437624 .9026228
LE8_TOTALSCORE	.9989598	.0003557	-2.92	0.003	.9982628 .9996573

-> Model for the mediator

Iteration 0: Log likelihood = **-51475.242**
 Iteration 1: Log likelihood = **-51475.242**

Linear regression (Maximum Likelihood)	Number of obs =	36,352
	Wald chi2(7) =	211.64
Log likelihood =	Prob > chi2 =	0.0000

<u>zil7</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0061509	.0152746	0.40	0.687	-.0237867 .0360885
AGE	-.004254	.0009971	-4.27	0.000	-.0062083 -.0022998
SEX	-.0124037	.0105719	-1.17	0.241	-.0331242 .0083168
NonWhite	-.0923289	.0253338	-3.64	0.000	-.1419821 -.0426756
householdszie	-.0063881	.004893	-1.31	0.192	-.0159781 .003202
SES	-.0003451	.0079294	-0.04	0.965	-.0158865 .0151963
LE8_TOTALSCORE	-.0007427	.0000563	-13.20	0.000	-.0008531 -.0006324
_cons	.6644405	.0721302	9.21	0.000	.5230679 .8058132
sigma2					
_cons	.9941844	.0073742	134.82	0.000	.9797312 1.008638

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.255519	.1615105	7.77	0.000	.9389643 1.572074
ereri_cde	1.241083	.1612898	7.69	0.000	.9249607 1.557205
ereri_intref	.0162033	.0179878	0.90	0.368	-.0190522 .0514589
ereri_intmed	-.001367	.0035115	-0.39	0.697	-.0082493 .0055154
ereri_pie	-.0004002	.0010227	-0.39	0.696	-.0024047 .0016043

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): zil7r
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-9034.2423**

Iteration 2: Log likelihood = **-9025.6501**

Iteration 3: Log likelihood = **-9025.6207**

Iteration 4: Log likelihood = **-9025.6207**

Refining estimates:

Iteration 0: Log likelihood = **-9025.6207**

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 = **-9025.6207**

LR chi2(9) = 192.39

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.235923	.1606964	11.20	0.000	1.942141
	zil7r	.9828364	.03851	-0.44	0.659	.9101837
_infectionburXzil7r_000		1.011961	.0710197	0.17	0.865	.881914
	AGE	1.035107	.013014	2.74	0.006	1.009911
	SEX	.7552199	.0493571	-4.30	0.000	.6644213
	NonWhite	1.090401	.185465	0.51	0.611	.7812793
	householdsize	.9389216	.0393242	-1.50	0.132	.8649263
	SES	.8248839	.040605	-3.91	0.000	.7490182
	LE8_TOTALSCORE	.999037	.0003569	-2.70	0.007	.9983378
						.9997367

-> Model for the mediator

Iteration 0: Log likelihood = -50940.328
Iteration 1: Log likelihood = -50940.328

Linear regression (Maximum Likelihood) Number of obs = 36,459
Log likelihood = -50940.328 Wald chi2(7) = 1619.44
Prob > chi2 = 0.0000

	zil7r	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0368982	.0149538	-2.47	0.014	-.0662072
AGE		-.0057261	.0009787	-5.85	0.000	-.0076444
SEX		.2171668	.0103622	20.96	0.000	.1968573
NonWhite		.1946589	.0248433	7.84	0.000	.1459669
householdsiz		-.0070582	.0049241	-1.43	0.152	-.0167093
SES		.0612294	.007783	7.87	0.000	.045975
LE8_TOTALSCORE		.0015044	.0000552	27.27	0.000	.0013963
_cons		-.7246011	.0709777	-10.21	0.000	-.8637148
sigma2						
_cons		.9574447	.0070913	135.02	0.000	.943546
						.9713434

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.236217	.1602366	7.71	0.000	.9221589 1.550275
ereri_cde	1.235855	.1606633	7.69	0.000	.9209607 1.550749
ereri_intref	-.0000854	.0004496	-0.19	0.849	-.0009666 .0007958
ereri_intmed	-.0001916	.0050403	-0.04	0.970	-.0100704 .0096872
ereri_pie	.000639	.0014697	0.43	0.664	-.0022415 .0035196

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): zilkap
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 .04679 2.215 -.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 = -8807.9452
Iteration 1: Log likelihood = -8721.4679
Iteration 2: Log likelihood = -8713.7481
Iteration 3: Log likelihood = -8713.7274
Iteration 4: Log likelihood = -8713.7274
Refining estimates:
Iteration 0: Log likelihood = -8713.7274

```

Cox regression with Breslow method for ties

No. of subjects =	35,545	Number of obs =	35,545
No. of failures =	942		
Time at risk =	431,767.526	LR chi2(9) =	188.44
Log likelihood =	-8713.7274	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.221894	.1620026	10.95	0.000	1.926019 2.563222
zilkap	.9265581	.0371723	-1.90	0.057	.8564925 1.002356
_infectionburXzilkap_000	1.091947	.0799751	1.20	0.230	.9459295 1.260504
AGE	1.03745	.0132198	2.89	0.004	1.01186 1.063686
SEX	.7474108	.0494038	-4.40	0.000	.656591 .8507927
NonWhite	1.093676	.1884414	0.52	0.603	.7802355 1.533033
householdsize	.9301735	.0401702	-1.68	0.094	.8546813 1.012334
SES	.8152009	.0406928	-4.09	0.000	.7392218 .8989893
LE8_TOTALSCORE	.9991636	.000362	-2.31	0.021	.9984543 .9998733

-> Model for the mediator

Iteration 0: Log likelihood = -50267.902	Number of obs = 35,545
Iteration 1: Log likelihood = -50267.902	Wald chi2(7) = 337.12
Log likelihood = -50267.902	Prob > chi2 = 0.0000

	zilkap	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0173504	.0153998	1.13	0.260	-.0128325 .0475334
AGE		-.0013294	.0010085	-1.32	0.187	-.0033061 .0006473
SEX		-.0290765	.0106723	-2.72	0.006	-.049994 -.0081591
NonWhite		.0076326	.0254862	0.30	0.765	-.0423193 .0575846
householdsize		-.0007455	.0050617	-0.15	0.883	-.0106663 .0091753
SES		-.0134461	.008015	-1.68	0.093	-.0291552 .0022629
LE8_TOTALSCORE		-.0009612	.0000569	-16.90	0.000	-.0010727 -.0008497
_cons		.6034361	.0731136	8.25	0.000	.4601361 .7467361
sigma2						
_cons		.9905768	.0074304	133.31	0.000	.9760134 1.00514

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.21563	.1613409	7.53	0.000	.8994073 1.531852
ereri_cde	1.218154	.1613851	7.55	0.000	.9018451 1.534463
ereri_intref	-.0029737	.003414	-0.87	0.384	-.0096649 .0037176
ereri_intmed	.0017717	.0029188	0.61	0.544	-.003949 .0074924
ereri_pie	-.0013226	.0013636	-0.97	0.332	-.0039952 .00135

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): zimpa1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8893.8223**
 Iteration 2: Log likelihood = **-8884.851**
 Iteration 3: Log likelihood = **-8884.8081**
 Iteration 4: Log likelihood = **-8884.8081**
 Refining estimates:
 Iteration 0: Log likelihood = **-8884.8081**

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) =	201.28
Log likelihood =	-8884.8081	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.203556	.1600194	10.88	0.000	1.911222 2.540606
zimpa1		.9025571	.0358629	-2.58	0.010	.8349345 .9756566
_infectionburXzimpa1_000		1.01304	.0750043	0.17	0.861	.8762028 1.171247
AGE		1.037364	.0131065	2.90	0.004	1.011991 1.063373
SEX		.7452495	.0488046	-4.49	0.000	.6554786 .847315
NonWhite		1.024072	.1788007	0.14	0.892	.7272983 1.441944
householdszie		.9428928	.0394257	-1.41	0.160	.8687015 1.02342
SES		.8094061	.0400711	-4.27	0.000	.7345582 .8918807
LE8_TOTALSCORE		.9989816	.0003562	-2.86	0.004	.9982837 .9996801

-> Model for the mediator

Iteration 0: Log likelihood = **-51258.191**
 Iteration 1: Log likelihood = **-51258.191**

Linear regression (Maximum Likelihood)	Number of obs =	36,164
	Wald chi2(7) =	111.78
Log likelihood =	Prob > chi2 =	0.0000

	<u>zimpa1</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0306654	.0153354	-2.00	0.046	-.0607221 -.0006087
AGE		-.0035314	.0010034	-3.52	0.000	-.005498 -.0015648
SEX		.0534377	.0106152	5.03	0.000	.0326324 .0742431
NonWhite		.0558036	.0254536	2.19	0.028	.0059155 .1056918
householdszie		-.0007057	.0050342	-0.14	0.889	-.0105725 .0091611
SES		-.0129606	.0079796	-1.62	0.104	-.0286003 .002679
LE8_TOTALSCORE		-.0004281	.0000565	-7.58	0.000	-.0005388 -.0003174
_cons		.3472388	.0727204	4.77	0.000	.2047095 .4897681
sigma2						
_cons		.9968911	.0074135	134.47	0.000	.9823609 1.011421

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.206999	.1591055	7.59	0.000	.8951584 1.51884
ereri_cde	1.197789	.1590305	7.53	0.000	.8860952 1.509483
ereri_intref	.0031566	.0122878	0.26	0.797	-.0209272 .0272403
ereri_intmed	.0029046	.0046439	0.63	0.532	-.0061972 .0120064
ereri_pie	.0031489	.0019954	1.58	0.115	-.000762 .0070598

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): zing1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -8713.834

Iteration 2: Log likelihood = -8705.5556

Iteration 3: Log likelihood = -8705.5149

Iteration 4: Log likelihood = -8705.5149

Refining estimates:

Iteration 0: Log likelihood = -8705.5149

Cox regression with Breslow method for ties

No. of subjects = 35,544 Number of obs = 35,544

No. of failures = 941

Time at risk = 431,747.414

LR chi2(9) = 186.37

Log likelihood = -8705.5149

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.21416	.1615035	10.90	0.000	1.919205 2.554445
zing1	.9754233	.038334	-0.63	0.527	.9031107 1.053526
_infectionburXzing1_000	1.062902	.0757198	0.86	0.392	.924389 1.22217
AGE	1.038503	.0132419	2.96	0.003	1.012871 1.064783
SEX	.7453929	.0492985	-4.44	0.000	.6547701 .8485583
NonWhite	1.091075	.1880257	0.51	0.613	.7783352 1.529477
householdsize	.9314487	.0401558	-1.65	0.100	.8559782 1.013573
SES	.8167363	.0408142	-4.05	0.000	.7405347 .9007792
LE8_TOTALSCORE	.9991845	.0003621	-2.25	0.024	.9984749 .9998945

-> Model for the mediator

Iteration 0: Log likelihood = -50265.516
 Iteration 1: Log likelihood = -50265.516

Linear regression (Maximum Likelihood)
 Number of obs = 35,544
 Wald chi2(7) = 339.08
 Log likelihood = -50265.516 Prob > chi2 = 0.0000

	zing1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr	.0344382	.0153997	2.24	0.025	.0042555	.064621
AGE	-.0015201	.0010086	-1.51	0.132	-.0034969	.0004567
SEX	-.0719687	.0106714	-6.74	0.000	-.0928842	-.0510531
NonWhite	-.05471	.0254745	-2.15	0.032	-.1046391	-.0047808
householdsize	.0030812	.0050619	0.61	0.543	-.0068399	.0130023
SES	-.019052	.0080181	-2.38	0.017	-.0347672	-.0033369
LE8_TOTALSCORE	-.0008657	.0000569	-15.22	0.000	-.0009772	-.0007542
_cons	.6244434	.0731198	8.54	0.000	.4811312	.7677557
sigma2						
_cons	.9905226	.0074301	133.31	0.000	.9759598	1.005085

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.217021	.161471	7.54	0.000	.9005436 1.533498
ereri_cde	1.213643	.1614269	7.52	0.000	.8972522 1.530034
ereri_intref	.0006219	.0042926	0.14	0.885	-.0077915 .0090354
ereri_intmed	.0036126	.0050068	0.72	0.471	-.0062005 .0134256
ereri_pie	-.0008566	.0014054	-0.61	0.542	-.0036112 .001898

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): zinhbc
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -9029.6006
 Iteration 2: Log likelihood = -9016.4818
 Iteration 3: Log likelihood = -9016.2992
 Iteration 4: Log likelihood = -9016.2991
 Refining estimates:
 Iteration 0: Log likelihood = -9016.2991

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) =	211.03
Log likelihood =	-9016.2991	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.279782	.1628438	11.54	0.000	1.981948 2.622372
zinhbc	.8879081	.0355525	-2.97	0.003	.8208907 .9603969
_infectionburXzinhbc_000	.9158207	.0654462	-1.23	0.219	.7961265 1.05351
AGE	1.037369	.0130575	2.91	0.004	1.01209 1.063279
SEX	.7472246	.0485711	-4.48	0.000	.6578417 .8487523
NonWhite	1.126559	.1916527	0.70	0.484	.8071336 1.572397
householdsize	.9398926	.0393376	-1.48	0.139	.8658699 1.020243
SES	.8167203	.0401373	-4.12	0.000	.7417226 .8993012
LE8_TOTALSCORE	.9985657	.00037	-3.87	0.000	.9978407 .9992913

-> Model for the mediator

Iteration 0: Log likelihood = -49248.826	Number of obs = 36,459
Iteration 1: Log likelihood = -49248.826	Wald chi2(7) = 5321.82
Log likelihood = -49248.826	Prob > chi2 = 0.0000

zinhb	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0938265	.0142759	6.57	0.000	.0658463 .1218067
AGE	.0145045	.0009344	15.52	0.000	.0126731 .0163358
SEX	-.0638625	.0098924	-6.46	0.000	-.0832513 -.0444736
NonWhite	.2442013	.0237171	10.30	0.000	.1977167 .2906859
householdsize	.0067626	.0047009	1.44	0.150	-.0024509 .0159761
SES	-.0733097	.0074302	-9.87	0.000	-.0878725 -.0587468
LE8_TOTALSCORE	-.0032938	.0000527	-62.54	0.000	-.0033971 -.0031906
_cons	.828706	.0677599	12.23	0.000	.695899 .961513
sigma2					
_cons	.8726013	.0064629	135.02	0.000	.8599342 .8852683

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.266681	.1638916	7.73	0.000	.9454596 1.587903
ereri_cde	1.269945	.1618402	7.85	0.000	.9527435 1.587146
ereri_intref	.0411519	.0280501	1.47	0.142	-.0138253 .0961291
ereri_intmed	-.0333225	.0152982	-2.18	0.029	-.0633064 -.0033387
ereri_pie	-.0110928	.0040767	-2.72	0.007	-.019083 -.0031025

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): zinpp1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8965.5799**
 Iteration 2: Log likelihood = **-8955.9552**
 Iteration 3: Log likelihood = **-8955.9113**
 Iteration 4: Log likelihood = **-8955.9113**
 Refining estimates:
 Iteration 0: Log likelihood = **-8955.9113**

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) =	203.41
Log likelihood =	-8955.9113	Prob > chi2 =	0.0000

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.259785	.162147	11.36	0.000	1.963318 2.60102
zinpp1	.8931228	.035817	-2.82	0.005	.8256108 .9661554
_infectionburXzinpp1_000	1.027689	.0752755	0.37	0.709	.8902528 1.186342
AGE	1.032688	.0130029	2.55	0.011	1.007514 1.05849
SEX	.7496474	.0488185	-4.42	0.000	.6598194 .8517046
NonWhite	1.067385	.1816557	0.38	0.702	.76464 1.489996
householdszie	.9360365	.0393851	-1.57	0.116	.8619403 1.016502
SES	.8181198	.0403108	-4.07	0.000	.7428072 .9010683
LE8_TOTALSCORE	.999012	.0003551	-2.78	0.005	.9983162 .9997082

-> Model for the mediator

Iteration 0: Log likelihood = **-51353.775**
 Iteration 1: Log likelihood = **-51353.775**

Linear regression (Maximum Likelihood)	Number of obs =	36,264	
	Wald chi2(7) =	204.80	
Log likelihood =	-51353.775	Prob > chi2 =	0.0000

<u>zinpp1</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0036671	.0152819	0.24	0.810	-.0262849 .0336191
AGE	.0031354	.0009979	3.14	0.002	.0011796 .0050912
SEX	-.04664	.0105856	-4.41	0.000	-.0673874 -.0258926
NonWhite	-.1730921	.0253297	-6.83	0.000	-.2227375 -.1234468
householdszie	-.0032135	.0048142	-0.67	0.504	-.0126492 .0062222
SES	-.0068221	.0079391	-0.86	0.390	-.0223824 .0087383
LE8_TOTALSCORE	-.0005723	.0000564	-10.15	0.000	-.0006827 -.0004618
_cons	.1834617	.0721179	2.54	0.011	.0421133 .3248101
sigma2					
_cons	.9943568	.0073845	134.66	0.000	.9798835 1.00883

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.252955	.1612807	7.77	0.000	.9368507 1.569059
ereri_cde	1.251737	.160931	7.78	0.000	.9363175 1.567156
ereri_intref	.0019269	.012669	0.15	0.879	-.022904 .0267577
ereri_intmed	-.0002939	.0013348	-0.22	0.826	-.0029101 .0023223
ereri_pie	-.0004144	.0017329	-0.24	0.811	-.0038108 .0029819

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): zinpppl1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -8967.8338

Iteration 2: Log likelihood = -8959.3161

Iteration 3: Log likelihood = -8959.2953

Iteration 4: Log likelihood = -8959.2953

Refining estimates:

Iteration 0: Log likelihood = -8959.2953

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 = -8959.2953

LR chi2(9) = 196.64

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.260548	.1620088	11.38	0.000	1.964309 2.601463
zinpp1		.9385347	.0363285	-1.64	0.101	.8699661 1.012508
_infectionburXzinpp1_000		1.017012	.0721823	0.24	0.812	.8849368 1.1688
AGE		1.032164	.0129879	2.52	0.012	1.007019 1.057936
SEX		.7496042	.0488333	-4.42	0.000	.659751 .8516947
NonWhite		1.091405	.1856515	0.51	0.607	.7819765 1.523274
householdsize		.9370018	.0393115	-1.55	0.121	.8630356 1.017307
SES		.8160896	.0402492	-4.12	0.000	.7408954 .8989153
LE8_TOTALSCORE		.9990111	.0003558	-2.78	0.005	.9983139 .9997087

-> Model for the mediator

Iteration 0: Log likelihood = -51272.286
 Iteration 1: Log likelihood = -51272.286

Linear regression (Maximum Likelihood)
 Number of obs = 36,264
 Wald chi2(7) = 369.07
 Log likelihood = -51272.286 Prob > chi2 = 0.0000

	zinpp1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0183738	.0152476	1.21	0.228	-.011511 .0482586
AGE		-.003342	.0009956	-3.36	0.001	-.0052934 -.0013906
SEX		-.0552718	.0105618	-5.23	0.000	-.0759726 -.0345709
NonWhite		.071656	.0252729	2.84	0.005	.0221221 .1211899
householdsize		-.0020784	.0048034	-0.43	0.665	-.0114929 .0073361
SES		-.0251959	.0079213	-3.18	0.001	-.0407213 -.0096705
LE8_TOTALSCORE		-.0008996	.0000562	-15.99	0.000	-.0010098 -.0007893
_cons		.73307	.071956	10.19	0.000	.5920389 .8741012
sigma2						
_cons		.989898	.0073514	134.66	0.000	.9754896 1.004306

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.256444	.1614907	7.78	0.000	.9399281 1.57296
ereri_cde	1.257836	.1615503	7.79	0.000	.9412035 1.574469
ereri_intref	.0005393	.0070146	0.08	0.939	-.0132091 .0142878
ereri_intmed	-.0007666	.0026529	-0.29	0.773	-.0059661 .0044329
ereri_pie	-.0011649	.0011992	-0.97	0.331	-.0035152 .0011855

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): zipcef1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8883.2355
Iteration 2: Log likelihood = -8875.149
Iteration 3: Log likelihood = -8875.1218
Iteration 4: Log likelihood = -8875.1218
Refining estimates:
Iteration 0: Log likelihood = -8875.1218

```

Cox regression with Breslow method for ties

No. of subjects =	36,107	Number of obs =	36,107
No. of failures =	959		
Time at risk =	438,771.909	LR chi2(9) =	200.41
Log likelihood =	-8875.1218	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.208714	.1596357	10.96	0.000	1.916984 2.544839
zipcef1	.907289	.0350999	-2.51	0.012	.8410379 .9787588
_infectionburXzipcef1_000	1.013648	.0721686	0.19	0.849	.881626 1.165441
AGE	1.037111	.0131036	2.88	0.004	1.011744 1.063115
SEX	.7336876	.048101	-4.72	0.000	.6452171 .834289
NonWhite	1.021011	.178253	0.12	0.905	.7251433 1.437598
householdsize	.9439125	.0393234	-1.39	0.166	.8699028 1.024219
SES	.8080252	.0400552	-4.30	0.000	.7332116 .8904724
LE8_TOTALSCORE	.9989004	.0003584	-3.07	0.002	.9981982 .9996031

-> Model for the mediator

Iteration 0: Log likelihood =	-50770.031	Number of obs =	36,107
Iteration 1: Log likelihood =	-50770.031	Wald chi2(7) =	938.15
Linear regression (Maximum Likelihood)		Prob > chi2 =	0.0000
Log likelihood =	-50770.031		

zipcef1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0000434	.0151757	0.00	0.998	-.0297004 .0297873
AGE	-.003176	.0009929	-3.20	0.001	-.005122 -.00123
SEX	-.1422671	.0105044	-13.54	0.000	-.1628553 -.121679
NonWhite	.0115823	.0251905	0.46	0.646	-.0377902 .0609548
householdsize	-.0016658	.0049807	-0.33	0.738	-.0114279 .0080962
SES	-.0264278	.0078969	-3.35	0.001	-.0419053 -.0109502
LE8_TOTALSCORE	-.0013855	.0000559	-24.79	0.000	-.0014951 -.001276
_cons	1.103895	.0719677	15.34	0.000	.9628409 1.244949
sigma2					
_cons	.9746486	.0072538	134.36	0.000	.9604314 .9888659

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.206066	.1590524	7.58	0.000	.8943288 1.517803
ereri_cde	1.20315	.1587704	7.58	0.000	.8919658 1.514334
ereri_intref	.0029237	.0113912	0.26	0.797	-.0194026 .02525
ereri_intmed	-3.80e-06	.0013274	-0.00	0.998	-.0026055 .0025979
ereri_pie	-4.23e-06	.0014765	-0.00	0.998	-.0028982 .0028897

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): ziqgap2
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8965.4888**
 Iteration 2: Log likelihood = **-8957.0745**
 Iteration 3: Log likelihood = **-8957.0558**
 Iteration 4: Log likelihood = **-8957.0558**
 Refining estimates:
 Iteration 0: Log likelihood = **-8957.0558**

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) =	201.12
Log likelihood =	-8957.0558	Prob > chi2 =	0.0000

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.266426	.1624219	11.42	0.000	1.969431 2.608208
ziqgap2	.8981065	.0359398	-2.69	0.007	.8303573 .9713833
_infectionburXziqgap2_000	1.068882	.0785886	0.91	0.365	.9254348 1.234564
AGE	1.032556	.0129879	2.55	0.011	1.007411 1.058328
SEX	.7488843	.0487812	-4.44	0.000	.6591265 .8508651
NonWhite	1.094361	.1861628	0.53	0.596	.7840824 1.527422
householdsize	.936082	.0393313	-1.57	0.116	.8620828 1.016433
SES	.8149956	.040194	-4.15	0.000	.7399044 .8977076
LE8_TOTALSCORE	.9989839	.0003563	-2.85	0.004	.9982858 .9996825

-> Model for the mediator

Iteration 0: Log likelihood = **-51229.93**
 Iteration 1: Log likelihood = **-51229.93**

Linear regression (Maximum Likelihood)	Number of obs =	36,264
	Wald chi2(7) =	454.74
Log likelihood =	Prob > chi2 =	0.0000

ziqgap2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0520161	.0152298	3.42	0.001	.0221662 .0818661
AGE	.0031868	.0009945	3.20	0.001	.0012376 .0051359
SEX	-.0611979	.0105495	-5.80	0.000	-.0818745 -.0405212
NonWhite	.0526412	.0252434	2.09	0.037	.0031651 .1021173
householdsize	-.0003309	.0047978	-0.07	0.945	-.0097344 .0090726
SES	-.0212994	.007912	-2.69	0.007	-.0368067 -.0057921
LE8_TOTALSCORE	-.0009793	.0000562	-17.43	0.000	-.0010894 -.0008692
_cons	.3817757	.071872	5.31	0.000	.2409092 .5226422
sigma2					
_cons	.9875883	.0073342	134.66	0.000	.9732135 1.001963

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.249525	.1610565	7.76	0.000	.9338596 1.56519
ereri_cde	1.258247	.1612068	7.81	0.000	.942287 1.574206
ereri_intref	-.0039365	.0080094	-0.49	0.623	-.0196347 .0117617
ereri_intmed	.000789	.0075534	0.10	0.917	-.0140154 .0155933
ereri_pie	-.0055744	.0026332	-2.12	0.034	-.0107354 -.0004135

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): zirag2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8821.0112**

Iteration 2: Log likelihood = **-8813.6028**

Iteration 3: Log likelihood = **-8813.5852**

Iteration 4: Log likelihood = **-8813.5852**

Refining estimates:

Iteration 0: Log likelihood = **-8813.5852**

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) = 183.65

Log likelihood = -8813.5852

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.201879	.15986	10.87	0.000	1.909831 2.538587
zirag2	.9520216	.0380473	-1.23	0.219	.8802962 1.029591
_infectionburXzirag2_000	1.064978	.077772	0.86	0.389	.9229538 1.228857
AGE	1.037578	.0131795	2.90	0.004	1.012066 1.063734
SEX	.7540761	.0495541	-4.30	0.000	.6629464 .8577326
NonWhite	1.116191	.1899103	0.65	0.518	.7996762 1.557985
householdsize	.9381966	.0396785	-1.51	0.131	.8635641 1.019279
SES	.8334285	.0414624	-3.66	0.000	.7559999 .9187871
LE8_TOTALSCORE	.9989817	.0003581	-2.84	0.004	.9982801 .9996838

-> Model for the mediator

Iteration 0: Log likelihood = **-50662.878**
 Iteration 1: Log likelihood = **-50662.878**

Linear regression (Maximum Likelihood)
 Number of obs = 35,755
 Wald chi2(7) = 141.82
 Log likelihood = **-50662.878** Prob > chi2 = 0.0000

	zirag2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.017553	.0154087	1.14	0.255	-.0126475 .0477535
AGE		-.0022106	.0010057	-2.20	0.028	-.0041818 -.0002394
SEX		.03779	.0106701	3.54	0.000	.0168769 .0587031
NonWhite		.0581165	.0255498	2.27	0.023	.0080397 .1081932
householdsize		-.0044934	.0048658	-0.92	0.356	-.0140301 .0050434
SES		-.0163685	.0080122	-2.04	0.041	-.0320721 -.0006648
LE8_TOTALSCORE		-.0005613	.0000568	-9.87	0.000	-.0006727 -.0004499
_cons		.3597535	.0727143	4.95	0.000	.217236 .502271
sigma2						
_cons		.9960214	.0074493	133.71	0.000	.9814211 1.010622

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.199633	.1595768	7.52	0.000	.886868 1.512398
ereri_cde	1.200289	.1595729	7.52	0.000	.887532 1.513046
ereri_intref	-.0011886	.002595	-0.46	0.647	-.0062747 .0038975
ereri_intmed	.0013949	.0027507	0.51	0.612	-.0039964 .0067862
ereri_pie	-.0008627	.0010316	-0.84	0.403	-.0028846 .0011593

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): zirak1
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8823.5668
 Iteration 2: Log likelihood = -8815.5467
 Iteration 3: Log likelihood = -8815.5235
 Iteration 4: Log likelihood = -8815.5235
 Refining estimates:
 Iteration 0: Log likelihood = -8815.5235

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 = -8815.5235	LR chi2(9) = 195.62 Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.232294	.1621476	11.06	0.000	1.936077 2.573833
zirak1	.8889176	.0358415	-2.92	0.003	.8213736 .9620159
_infectionburXzirak1_000	1.054896	.0777773	0.72	0.469	.9129579 1.218902
AGE	1.037781	.0131582	2.92	0.003	1.012309 1.063893
SEX	.7464402	.0490528	-4.45	0.000	.6562326 .849048
NonWhite	1.059995	.1850569	0.33	0.739	.7528325 1.492481
householdsize	.9348058	.0397155	-1.59	0.113	.8601176 1.01598
SES	.8257572	.0410692	-3.85	0.000	.7490619 .9103052
LE8_TOTALSCORE	.9989732	.0003594	-2.86	0.004	.998269 .9996779

-> Model for the mediator

Iteration 0: Log likelihood = -50535.092
 Iteration 1: Log likelihood = -50535.092

Linear regression (Maximum Likelihood)

Log likelihood = -50535.092	Number of obs = 35,761
	Wald chi2(7) = 416.54
	Prob > chi2 = 0.0000

	zirak1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0106404	.0153636	0.69	0.489	-.0194717 .0407525
AGE		-.0036367	.0010007	-3.63	0.000	-.005598 -.0016755
SEX		-.0663097	.0106269	-6.24	0.000	-.0871381 -.0454814
NonWhite		.055485	.025427	2.18	0.029	.0056491 .105321
householdsize		-.0058615	.0048336	-1.21	0.225	-.0153352 .0036122
SES		-.0223594	.0079676	-2.81	0.005	-.0379756 -.0067432
LE8_TOTALSCORE		-.0009717	.0000566	-17.16	0.000	-.0010827 -.0008608
_cons		.8140086	.0722788	11.26	0.000	.6723447 .9556725
sigma2						
_cons		.9884584	.0073921	133.72	0.000	.9739702 1.002947

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.219891	.1606591	7.59	0.000	.9050051 1.534777
ereri_cde	1.223666	.1607389	7.61	0.000	.9086239 1.538709
ereri_intref	-.0022557	.0100844	-0.22	0.823	-.0220208 .0175095
ereri_intmed	-.0002674	.0015742	-0.17	0.865	-.0033527 .0028179
ereri_pie	-.0012521	.0018569	-0.67	0.500	-.0048916 .0023874

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): zirak4
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

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

```
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 = **-8946.0022**
 Iteration 2: Log likelihood = **-8937.5609**
 Iteration 3: Log likelihood = **-8937.542**
 Iteration 4: Log likelihood = **-8937.542**
 Refining estimates:
 Iteration 0: Log likelihood = **-8937.542**

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) =	197.79
Log likelihood =	-8937.542	Prob > chi2 =	0.0000

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.263084	.162237	11.39	0.000	1.966434 2.604486
zirak4	.9221512	.0351191	-2.13	0.033	.8558252 .9936174
_infectionburXzirak4_000	1.046621	.0743079	0.64	0.521	.9106596 1.202882
AGE	1.032755	.0130117	2.56	0.011	1.007565 1.058575
SEX	.7600956	.0495765	-4.21	0.000	.668882 .8637479
NonWhite	1.054623	.1817666	0.31	0.758	.7522996 1.47844
householdszie	.9332342	.0397221	-1.62	0.104	.8585393 1.014428
SES	.8185345	.0404282	-4.05	0.000	.7430112 .9017343
LE8_TOTALSCORE	.9989639	.0003564	-2.91	0.004	.9982656 .9996626

-> Model for the mediator

Iteration 0: Log likelihood = **-51445.589**
 Iteration 1: Log likelihood = **-51445.589**

Linear regression (Maximum Likelihood)	Number of obs =	36,352
	Wald chi2(7) =	271.34
Log likelihood =	-51445.589	Prob > chi2 = 0.0000

<u>zirak4</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	-.0024705	.0152621	-0.16	0.871	-.0323836 .0274427
AGE	-.0007803	.0009963	-0.78	0.433	-.002733 .0011723
SEX	.0003988	.0105633	0.04	0.970	-.0203048 .0211024
NonWhite	-.0230597	.0253131	-0.91	0.362	-.0726725 .0265531
householdszie	-.0024505	.004889	-0.50	0.616	-.0120328 .0071318
SES	-.0181459	.007923	-2.29	0.022	-.0336746 -.0026171
LE8_TOTALSCORE	-.0008664	.0000562	-15.40	0.000	-.0009766 -.0007561
_cons	.4855786	.0720714	6.74	0.000	.3443212 .626836
sigma2					
_cons	.9925639	.0073622	134.82	0.000	.9781342 1.006994

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.257361	.1616389	7.78	0.000	.9405548 1.574168
ereri_cde	1.259008	.1616017	7.79	0.000	.9422745 1.575742
ereri_intref	-.0018446	.0056102	-0.33	0.742	-.0128405 .0091512
ereri_intmed	-2.39e-06	.0003478	-0.01	0.995	-.0006841 .0006793
ereri_pie	.0002002	.0012408	0.16	0.872	-.0022316 .0026321

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): zislr2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 .04696 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 = -8605.6989

Iteration 1: Log likelihood = -8521.0701

Iteration 2: Log likelihood = -8513.288

Iteration 3: Log likelihood = -8513.2689

Iteration 4: Log likelihood = -8513.2689

Refining estimates:

Iteration 0: Log likelihood = -8513.2689

Cox regression with Breslow method for ties

No. of subjects = 35,090 Number of obs = 35,090

No. of failures = 922

Time at risk = 426,218.891

LR chi2(9) = 184.86

Log likelihood = -8513.2689 Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.239372	.1648592	10.95	0.000	1.938484 2.586965
zislr2	.9427612	.0378154	-1.47	0.142	.8714829 1.019869
_infectionburXzislr2_000	1.086098	.0781629	1.15	0.251	.9432158 1.250626
AGE	1.037288	.0133863	2.84	0.005	1.011381 1.06386
SEX	.7542468	.0505257	-4.21	0.000	.6614439 .8600704
NonWhite	1.034813	.1861696	0.19	0.849	.727319 1.472307
householdsize	.9240888	.041341	-1.76	0.078	.8465128 1.008774
SES	.8139823	.0411531	-4.07	0.000	.7371912 .8987725
LE8_TOTALSCORE	.999224	.0003652	-2.12	0.034	.9985085 .99994

-> Model for the mediator

Iteration 0: Log likelihood = **-49626.302**
 Iteration 1: Log likelihood = **-49626.302**

Linear regression (Maximum Likelihood) Number of obs = 35,090
 Wald chi2(7) = 329.03
 Log likelihood = **-49626.302** Prob > chi2 = 0.0000

	zislr2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr	-.0190568	.0155071	-1.23	0.219	-.0494502	.0113366
AGE	-.0071241	.0010174	-7.00	0.000	-.0091182	-.0051299
SEX	.1153148	.010743	10.73	0.000	.0942589	.1363707
NonWhite	.2536247	.0256203	9.90	0.000	.2034098	.3038395
householdsize	-.0160087	.0051829	-3.09	0.002	-.0261671	-.0058504
SES	-.0384264	.0080747	-4.76	0.000	-.0542526	-.0226003
LE8_TOTALSCORE	-.0000572	.0000573	-1.00	0.318	-.0001694	.000055
_cons	.3042414	.073858	4.12	0.000	.1594824	.4490003
sigma2						
_cons	.990682	.0074792	132.46	0.000	.976023	1.005341

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.235622	.1644458	7.51	0.000	.9133145 1.55793
ereri_cde	1.237434	.1644982	7.52	0.000	.9150239 1.559845
ereri_intref	-.0008042	.0042043	-0.19	0.848	-.0090446 .0074361
ereri_intmed	-.0021317	.0031806	-0.67	0.503	-.0083655 .0041022
ereri_pie	.0011239	.0011929	0.94	0.346	-.0012141 .0034619

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): zism1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8945.4473
Iteration 2: Log likelihood = -8936.1319
Iteration 3: Log likelihood = -8936.0909
Iteration 4: Log likelihood = -8936.0909
Refining estimates:
Iteration 0: Log likelihood = -8936.0909

```

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) =	200.69
Log likelihood =	-8936.0909	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.263287	.1623951	11.38	0.000	1.966365 2.605043
zism1	.9044474	.035892	-2.53	0.011	.8367665 .9776024
_infectionburXzism1_000	1.027192	.0720978	0.38	0.702	.8951721 1.178682
AGE	1.033871	.0130474	2.64	0.008	1.008612 1.059762
SEX	.7852364	.05216	-3.64	0.000	.6893799 .8944215
NonWhite	1.048238	.1807401	0.27	0.785	.7476417 1.469692
householdsize	.9307435	.0397557	-1.68	0.093	.8559963 1.012018
SES	.8154579	.0402867	-4.13	0.000	.7401998 .8983678
LE8_TOTALSCORE	.998858	.0003602	-3.17	0.002	.9981522 .9995642

-> Model for the mediator

Iteration 0: Log likelihood = -50311.026	Number of obs = 36,352
Iteration 1: Log likelihood = -50311.026	Wald chi2(7) = 2630.26
Log likelihood = -50311.026	Prob > chi2 = 0.0000

	zism1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0711873	.0147931	4.81	0.000	.0421933 .1001813
AGE		.0158302	.0009657	16.39	0.000	.0139376 .0177229
SEX		.3219061	.0102387	31.44	0.000	.3018386 .3419735
NonWhite		-.0911964	.0245353	-3.72	0.000	-.1392847 -.0431081
householdsize		-.0114549	.0047388	-2.42	0.016	-.0207427 -.0021671
SES		-.0647049	.0076795	-8.43	0.000	-.0797564 -.0496533
LE8_TOTALSCORE		-.001779	.0000545	-32.63	0.000	-.0018858 -.0016721
_cons		-.5401221	.0698568	-7.73	0.000	-.6770388 -.4032053
sigma2						
_cons		.9325012	.0069167	134.82	0.000	.9189446 .9460577

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.245968	.161534	7.71	0.000	.9293676 1.562569
ereri_cde	1.256114	.1615761	7.77	0.000	.9394308 1.572798
ereri_intref	.0016529	.0111969	0.15	0.883	-.0202926 .0235984
ereri_intmed	-.0046748	.0099869	-0.47	0.640	-.0242488 .0148992
ereri_pie	-.0071239	.0031691	-2.25	0.025	-.0133353 -.0009126

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): zitga11
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8942.1121**
 Iteration 2: Log likelihood = **-8930.5579**
 Iteration 3: Log likelihood = **-8930.4415**
 Iteration 4: Log likelihood = **-8930.4415**
 Refining estimates:
 Iteration 0: Log likelihood = **-8930.4415**

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) = 211.99
Prob > chi2 = 0.0000
Log likelihood = -8930.4415

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.272813	.167116	11.17	0.000	1.967779 2.625132
zitga11	.8451486	.0334168	-4.26	0.000	.7821264 .913249
_infectionburXzitga11_000	1.105992	.075648	1.47	0.141	.9672334 1.264657
AGE	1.031606	.012994	2.47	0.013	1.00645 1.057391
SEX	.7994762	.0530972	-3.37	0.001	.7018964 .9106218
NonWhite	1.087717	.1875786	0.49	0.626	.7757556 1.525131
householdszie	.935242	.0396738	-1.58	0.115	.8606276 1.016325
SES	.8336937	.0412788	-3.67	0.000	.7565904 .9186544
LE8_TOTALSCORE	.9992482	.0003596	-2.09	0.037	.9985436 .9999533

-> Model for the mediator

Iteration 0: Log likelihood = **-50335.661**
 Iteration 1: Log likelihood = **-50335.661**

Linear regression (Maximum Likelihood) Number of obs = **36,352**
 Wald chi2(7) = **2577.46**
Log likelihood = -50335.661 Prob > chi2 = **0.0000**

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	-.1609651	.0148032	-10.87	0.000	-.1899788 -.1319515
AGE	.0036643	.0009663	3.79	0.000	.0017704 .0055583
SEX	.3074536	.0102456	30.01	0.000	.2873725 .3275346
NonWhite	.206865	.0245519	8.43	0.000	.1587441 .2549858
householdszie	.0070654	.004742	1.49	0.136	-.0022287 .0163595
SES	.0822183	.0076847	10.70	0.000	.0671565 .09728
LE8_TOTALSCORE	.0017079	.0000546	31.31	0.000	.0016009 .0018148
_cons	-1.543116	.0699041	-22.07	0.000	-1.680125 -1.406106
sigma2					
_cons	.9337659	.0069261	134.82	0.000	.920191 .9473408

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.27742	.1632773	7.82	0.000	.957402 1.597437
ereri_cde	1.260827	.1649749	7.64	0.000	.9374822 1.584172
ereri_intref	-.008018	.0072965	-1.10	0.272	-.022319 .006283
ereri_intmed	-.0028407	.021502	-0.13	0.895	-.0449838 .0393024
ereri_pie	.0274513	.007022	3.91	0.000	.0136883 .0412142

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): zitga5
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

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

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

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 = **-9029.7776**

Iteration 2: Log likelihood = **-9021.6011**

Iteration 3: Log likelihood = **-9021.5814**

Iteration 4: Log likelihood = **-9021.5814**

Refining estimates:

Iteration 0: Log likelihood = **-9021.5814**

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 = **-9021.5814**

LR chi2(9) = **200.47**

Prob > chi2 = **0.0000**

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.239119	.1605746	11.24	0.000	1.945515 2.577031
zitga5	.8947254	.0364715	-2.73	0.006	.8260235 .9691412
_infectionburXzitga5_000	1.055628	.0737463	0.77	0.438	.920547 1.210531
AGE	1.036433	.0130322	2.85	0.004	1.011203 1.062293
SEX	.7716215	.050578	-3.96	0.000	.678594 .8774021
NonWhite	1.064815	.1811801	0.37	0.712	.7628526 1.486304
householdsize	.9387827	.0392385	-1.51	0.131	.8649425 1.018927
SES	.8172525	.0402877	-4.09	0.000	.7419847 .9001555
LE8_TOTALSCORE	.9988048	.0003631	-3.29	0.001	.9980935 .9995167

-> Model for the mediator

Iteration 0: Log likelihood = **-49961.507**
 Iteration 1: Log likelihood = **-49961.507**

Linear regression (Maximum Likelihood) Number of obs = 36,459
 Wald chi2(7) = 3719.92
 Log likelihood = **-49961.507** Prob > chi2 = 0.0000

	zitga5	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr	.0928772	.0145577	6.38	0.000	.0643447	.1214098
AGE	.0141156	.0009528	14.81	0.000	.0122481	.0159831
SEX	.2007467	.0100877	19.90	0.000	.1809751	.2205182
NonWhite	-.1561357	.0241852	-6.46	0.000	-.2035379	-.1087335
householdsize	-.008916	.0047937	-1.86	0.063	-.0183114	.0004794
SES	-.0940838	.0075768	-12.42	0.000	-.1089342	-.0792335
LE8_TOTALSCORE	-.002617	.0000537	-48.73	0.000	-.0027222	-.0025117
_cons	.1600383	.0690975	2.32	0.021	.0246097	.2954669
sigma2						
_cons	.9073912	.0067206	135.02	0.000	.8942191	.9205633

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.216536	.1590195	7.65	0.000	.9048634 1.528208
ereri_cde	1.230414	.1595436	7.71	0.000	.9177146 1.543114
ereri_intref	-.0020917	.009477	-0.22	0.825	-.0206662 .0164828
ereri_intmed	-.0015083	.0125919	-0.12	0.905	-.0261879 .0231713
ereri_pie	-.0102783	.0040754	-2.52	0.012	-.018266 -.0022907

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): zitga6
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8947.2905
 Iteration 2: Log likelihood = -8936.187
 Iteration 3: Log likelihood = -8936.1224
 Iteration 4: Log likelihood = -8936.1224
 Refining estimates:
 Iteration 0: Log likelihood = -8936.1224

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 = -8936.1224	LR chi2(9) = 200.63
	Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.243374	.1627145	11.14	0.000	1.94609 2.58607
zitga6	.9172622	.0374235	-2.12	0.034	.8467695 .9936234
_infectionburXzitga6_000	.9745466	.0748117	-0.34	0.737	.838416 1.13278
AGE	1.031727	.0130068	2.48	0.013	1.006546 1.057537
SEX	.7652143	.0499686	-4.10	0.000	.6732858 .8696944
NonWhite	1.052375	.181359	0.30	0.767	.7507242 1.475233
householdsize	.9312791	.0398904	-1.66	0.096	.8562873 1.012838
SES	.8215156	.0405727	-3.98	0.000	.7457221 .9050127
LE8_TOTALSCORE	.9990051	.0003551	-2.80	0.005	.9983093 .9997013

-> Model for the mediator

Iteration 0: Log likelihood = -51505.14
 Iteration 1: Log likelihood = -51505.14

Linear regression (Maximum Likelihood)
 Number of obs = 36,352
 Wald chi2(7) = 151.54
 Log likelihood = -51505.14 Prob > chi2 = 0.0000

	zitga6	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0360365	.0152871	-2.36	0.018	-.0659987 -.0060743
AGE		-.0074141	.0009979	-7.43	0.000	-.00937 -.0054583
SEX		.0727515	.0105806	6.88	0.000	.0520139 .0934891
NonWhite		-.0559747	.0253546	-2.21	0.027	-.1056688 -.0062805
householdsize		-.0000873	.004897	-0.02	0.986	-.0096852 .0095107
SES		.0215682	.007936	2.72	0.007	.006014 .0371224
LE8_TOTALSCORE		-.0002783	.0000563	-4.94	0.000	-.0003887 -.0001678
_cons		.4835469	.0721896	6.70	0.000	.3420579 .6250359
sigma2						
_cons		.9958211	.0073864	134.82	0.000	.9813441 1.010298

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.257915	.1617812	7.78	0.000	.9408295 1.575
ereri_cde	1.2393	.1619721	7.65	0.000	.9218401 1.556759
ereri_intref	.0095089	.0158733	0.60	0.549	-.0216022 .0406199
ereri_intmed	.0059895	.0060603	0.99	0.323	-.0058884 .0178674
ereri_pie	.003117	.0019822	1.57	0.116	-.000768 .007002

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): zitgam
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-9030.0101**
 Iteration 2: Log likelihood = **-9016.4975**
 Iteration 3: Log likelihood = **-9016.3412**
 Iteration 4: Log likelihood = **-9016.3412**
 Refining estimates:
 Iteration 0: Log likelihood = **-9016.3412**

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) =	210.95
Log likelihood =	-9016.3412	Prob > chi2 =	0.0000

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.220018	.1613796	10.97	0.000	1.925219 2.559958
zitgam	.8588083	.034538	-3.78	0.000	.7937142 .9292408
_infectionburXzitgam_000	1.025426	.072443	0.36	0.722	.8928315 1.177711
AGE	1.035536	.0130096	2.78	0.005	1.010349 1.061351
SEX	.7997628	.0531564	-3.36	0.001	.7020789 .9110379
NonWhite	1.164612	.1985601	0.89	0.371	.8337889 1.626697
householdszie	.9384299	.0392569	-1.52	0.129	.8645575 1.018614
SES	.82826	.0407131	-3.83	0.000	.7521871 .9120266
LE8_TOTALSCORE	.9990922	.0003554	-2.55	0.011	.9983958 .999789

-> Model for the mediator

Iteration 0: Log likelihood = **-50724.196**
 Iteration 1: Log likelihood = **-50724.196**

Linear regression (Maximum Likelihood)	Number of obs =	36,459
	Wald chi2(7) =	2073.59
Log likelihood =	Prob > chi2 =	0.0000

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	-.0874818	.0148654	-5.88	0.000	-.1166175 -.0583461
AGE	.0057442	.000973	5.90	0.000	.0038373 .0076511
SEX	.3888278	.010301	37.75	0.000	.3686383 .4090173
NonWhite	.5034743	.0246965	20.39	0.000	.4550701 .5518786
householdszie	.0048401	.004895	0.99	0.323	-.0047539 .0144341
SES	.0026269	.007737	0.34	0.734	-.0125374 .0177911
LE8_TOTALSCORE	.0005784	.0000548	10.55	0.000	.000471 .0006859
_cons	-1.252334	.0705582	-17.75	0.000	-1.390626 -1.114043
sigma2					
_cons	.9461601	.0070077	135.02	0.000	.9324252 .959895

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.238088	.1598245	7.75	0.000	.9248375 1.551338
ereri_cde	1.208954	.1595424	7.58	0.000	.8962562 1.521651
ereri_intref	.0043866	.0148472	0.30	0.768	-.0247133 .0334864
ereri_intmed	.0113431	.0121565	0.93	0.351	-.0124832 .0351693
ereri_pie	.0134046	.004239	3.16	0.002	.0050962 .021713

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): zitgav
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -9120.6872

Iteration 2: Log likelihood = -9084.5095

Iteration 3: Log likelihood = -9082.3692

Iteration 4: Log likelihood = -9082.3565

Iteration 5: Log likelihood = -9082.3565

Refining estimates:

Iteration 0: Log likelihood = -9082.3565

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) = 237.51

Log likelihood = -9082.3565 Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.172962	.1590777	10.60	0.000	1.882511 2.508226
zitgav	.8142049	.0316834	-5.28	0.000	.7544156 .8787326
_infectionburXzitgav_000	.9745929	.0643329	-0.39	0.697	.8563186 1.109203
AGE	1.037617	.0130005	2.95	0.003	1.012447 1.063413
SEX	.8366302	.0556046	-2.68	0.007	.734447 .95303
NonWhite	1.07117	.182002	0.40	0.686	.7677696 1.494464
householdsize	.9348067	.0389198	-1.62	0.105	.8615546 1.014287
SES	.8415904	.0413054	-3.51	0.000	.7644052 .9265692
LE8_TOTALSCORE	.9993765	.0003553	-1.75	0.079	.9986804 1.000073

-> Model for the mediator

Iteration 0: Log likelihood = -50554.313
 Iteration 1: Log likelihood = -50554.313

Linear regression (Maximum Likelihood)
 Number of obs = 36,726
 Wald chi2(7) = 3250.10
 Log likelihood = -50554.313 Prob > chi2 = 0.0000

	zitgav	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr	-.1683363	.0146104	-11.52	0.000	-.1969722	-.1397004
AGE	.0242948	.0009529	25.50	0.000	.0224272	.0261625
SEX	.3916388	.0101107	38.74	0.000	.3718222	.4114553
NonWhite	-.0314377	.0241908	-1.30	0.194	-.0788507	.0159753
householdsize	-.010558	.0046035	-2.29	0.022	-.0195807	-.0015353
SES	.0815353	.0075833	10.75	0.000	.0666723	.0963983
LE8_TOTALSCORE	.0013547	.0000538	25.16	0.000	.0012492	.0014602
_cons	-2.685531	.0689101	-38.97	0.000	-2.820593	-2.55047
sigma2						
_cons	.9186739	.0067794	135.51	0.000	.9053866	.9319613

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.269562	.1616685	7.85	0.000	.9526977 1.586426
ereri_cde	1.15595	.1565451	7.38	0.000	.8491269 1.462772
ereri_intref	.0269505	.0228722	1.18	0.239	-.0178783 .0717792
ereri_intmed	.0514561	.0226124	2.28	0.023	.0071366 .0957755
ereri_pie	.0352059	.0074598	4.72	0.000	.020585 .0498269

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): zitgb1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 -.07557 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 = -9072.0755
Iteration 1: Log likelihood = -8983.9626
Iteration 2: Log likelihood = -8972.2341
Iteration 3: Log likelihood = -8972.1247
Iteration 4: Log likelihood = -8972.1247
Refining estimates:
Iteration 0: Log likelihood = -8972.1247

```

Cox regression with Breslow method for ties

No. of subjects =	36,424	Number of obs =	36,424
No. of failures =	969		
Time at risk =	442,511.586	LR chi2(9) =	199.90
Log likelihood =	-8972.1247	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.243087	.1609167	11.26	0.000	1.948866 2.581728
zitgb1	.9151913	.0370669	-2.19	0.029	.8453501 .9908025
_infectionburXzitgb1_000	1.000341	.0721228	0.00	0.996	.8685162 1.152174
AGE	1.03525	.0130539	2.75	0.006	1.009979 1.061154
SEX	.7874051	.0529904	-3.55	0.000	.6901039 .8984253
NonWhite	1.079397	.1859143	0.44	0.657	.7701423 1.512834
householdszie	.9354559	.0394984	-1.58	0.114	.8611573 1.016165
SES	.8293702	.0409703	-3.79	0.000	.7528349 .9136864
LE8_TOTALSCORE	.9990284	.0003554	-2.73	0.006	.9983321 .9997252

-> Model for the mediator

Iteration 0: Log likelihood =	-50618.492	Number of obs =	36,424
Iteration 1: Log likelihood =	-50618.492	Wald chi2(7) =	2192.29
Linear regression (Maximum Likelihood)		Prob > chi2 =	0.0000
Log likelihood =	-50618.492		

	zitgb1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0469192	.0148552	-3.16	0.002	-.0760347 -.0178036
AGE		.0179873	.0009692	18.56	0.000	.0160877 .0198868
SEX		.4359678	.0102872	42.38	0.000	.4158053 .4561304
NonWhite		.1017486	.0246262	4.13	0.000	.0534822 .150015
householdsize		-.0083004	.0046825	-1.77	0.076	-.0174779 .0008771
SES		.0227898	.0077243	2.95	0.003	.0076505 .037929
LE8_TOTALSCORE		.0002869	.0000549	5.23	0.000	.0001794 .0003945
_cons		-1.871628	.0700511	-26.72	0.000	-2.008926 -1.734331
sigma2						
_cons		.943203	.0069892	134.95	0.000	.9295044 .9569015

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.252339	.1610508	7.78	0.000	.936685 1.567993
ereri_cde	1.239207	.1603545	7.73	0.000	.9249176 1.553496
ereri_intref	.0038221	.0108291	0.35	0.724	-.0174025 .0250467
ereri_intmed	.0051434	.0068734	0.75	0.454	-.0083283 .018615
ereri_pie	.0041667	.0023214	1.79	0.073	-.0003832 .0087166

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): zitgb1bp1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8803.9095**
 Iteration 2: Log likelihood = **-8784.5902**
 Iteration 3: Log likelihood = **-8783.77**
 Iteration 4: Log likelihood = **-8783.7668**
 Refining estimates:
 Iteration 0: Log likelihood = **-8783.7668**

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) =	196.86
Log likelihood =	-8783.7668	Prob > chi2 =	0.0000

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.231302	.1622281	11.04	0.000	1.934957 2.573034
zitgb1bp1	1.012748	.0389628	0.33	0.742	.9391905 1.092067
_infectionburXzitgb1bp1_000	1.197845	.0844695	2.56	0.010	1.04322 1.37539
AGE	1.037208	.0131916	2.87	0.004	1.011673 1.063388
SEX	.7477281	.0491954	-4.42	0.000	.6572649 .8506422
NonWhite	1.095614	.1864929	0.54	0.592	.7848159 1.529491
householdsize	.9397701	.0397	-1.47	0.141	.8650936 1.020893
SES	.8273706	.0413	-3.80	0.000	.7502578 .9124093
LE8_TOTALSCORE	.9992519	.0003589	-2.08	0.037	.9985487 .9999555

-> Model for the mediator

Iteration 0: Log likelihood = **-50457.554**
 Iteration 1: Log likelihood = **-50457.554**

Linear regression (Maximum Likelihood)	Number of obs =	35,573
	Wald chi2(7) =	35.71
Log likelihood =	-50457.554	Prob > chi2 = 0.0000

<u>zitgb1bp1</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	-.0306813	.0154826	-1.98	0.048	-.0610267 -.000336
AGE	.0008133	.0010096	0.81	0.420	-.0011655 .002792
SEX	-.0204504	.0107131	-1.91	0.056	-.0414478 .000547
NonWhite	-.0243433	.0256034	-0.95	0.342	-.074525 .0258385
householdsize	.0002198	.0048759	0.05	0.964	-.0093369 .0097764
SES	.0043279	.0080352	0.54	0.590	-.0114207 .0200765
LE8_TOTALSCORE	-.0002891	.000057	-5.07	0.000	-.0004009 -.0001773
_cons	.1323251	.0729644	1.81	0.070	-.0106826 .2753327
sigma2					
_cons	.9989691	.0074904	133.37	0.000	.9842881 1.01365

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.261409	.1634652	7.72	0.000	.9410229 1.581795
ereri_cde	1.231137	.1621991	7.59	0.000	.9132325 1.549041
ereri_intref	.0437159	.0264662	1.65	0.099	-.0081568 .0955886
ereri_intmed	-.0130555	.0079193	-1.65	0.099	-.0285771 .0024662
ereri_pie	-.0003886	.0011961	-0.32	0.745	-.0027329 .0019557

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): zitgb1bp2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8818.384**

Iteration 2: Log likelihood = **-8811.1283**

Iteration 3: Log likelihood = **-8811.1125**

Iteration 4: Log likelihood = **-8811.1125**

Refining estimates:

Iteration 0: Log likelihood = **-8811.1125**

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) = 188.60

Log likelihood = -8811.1125

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.205773	.1603651	10.88	0.000	1.91283 2.543579
zitgb1bp2		.9080246	.034774	-2.52	0.012	.8423638 .9788036
_infectionburXzitgb1bp2_000		1.067972	.0766621	0.92	0.360	.9278081 1.22931
AGE		1.037624	.013178	2.91	0.004	1.012115 1.063777
SEX		.7568046	.0497498	-4.24	0.000	.6653169 .8608727
NonWhite		1.114461	.1895505	0.64	0.524	.7985284 1.555391
householdsize		.938197	.0396688	-1.51	0.131	.8635821 1.019259
SES		.8312015	.0413579	-3.72	0.000	.7539685 .9163458
LE8_TOTALSCORE		.9989503	.0003581	-2.93	0.003	.9982486 .9996525

-> Model for the mediator

Iteration 0: Log likelihood = **-50623.954**
 Iteration 1: Log likelihood = **-50623.954**

Linear regression (Maximum Likelihood)
 Number of obs = 35,755
 Wald chi2(7) = 220.06
 Log likelihood = **-50623.954** Prob > chi2 = 0.0000

	zitgb1bp2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0021147	.0153919	-0.14	0.891	-.0322824 .0280529
AGE		-.0027345	.0010046	-2.72	0.006	-.0047036 -.0007655
SEX		.0617695	.0106585	5.80	0.000	.0408792 .0826598
NonWhite		.0134909	.025522	0.53	0.597	-.0365313 .0635131
householdsize		-.0008473	.0048605	-0.17	0.862	-.0103736 .0086791
SES		-.0379526	.0080035	-4.74	0.000	-.0536392 -.022266
LE8_TOTALSCORE		-.0006533	.0000568	-11.50	0.000	-.0007646 -.000542
_cons		.3957509	.0726352	5.45	0.000	.2533884 .5381133
sigma2						
_cons		.9938551	.0074331	133.71	0.000	.9792865 1.008424

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.196808	.1593873	7.51	0.000	.8844143 1.509201
ereri_cde	1.200242	.159463	7.53	0.000	.8877001 1.512784
ereri_intref	-.0035768	.0054342	-0.66	0.510	-.0142276 .007074
ereri_intmed	-.0000613	.0005345	-0.11	0.909	-.0011089 .0009862
ereri_pie	.0002041	.0014876	0.14	0.891	-.0027115 .0031197

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): zitgb2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 .04644 2.217 -.07559 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 = -9011.4021
Iteration 1: Log likelihood = -8920.3774
Iteration 2: Log likelihood = -8910.4524
Iteration 3: Log likelihood = -8910.3895
Iteration 4: Log likelihood = -8910.3895
Refining estimates:
Iteration 0: Log likelihood = -8910.3895

```

Cox regression with Breslow method for ties

No. of subjects = 36,241	Number of obs = 36,241
No. of failures = 963	
Time at risk = 440,231.31	LR chi2(9) = 202.03
Log likelihood = -8910.3895	Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.227816	.1602794	11.13	0.000	1.934817 2.565185
zitgb2	.8976059	.0368179	-2.63	0.008	.8282685 .9727477
_infectionburXzitgb2_000	1.041402	.0737039	0.57	0.567	.9065165 1.196358
AGE	1.039905	.0131716	3.09	0.002	1.014407 1.066044
SEX	.7833174	.0529645	-3.61	0.000	.6860935 .8943187
NonWhite	1.055468	.1846192	0.31	0.758	.7491275 1.487081
householdsize	.9446035	.0391482	-1.38	0.169	.8709081 1.024535
SES	.816592	.0403767	-4.10	0.000	.7411687 .8996905
LE8_TOTALSCORE	.999029	.0003563	-2.72	0.006	.9983308 .9997275

-> Model for the mediator

```

Iteration 0: Log likelihood = -50061.162
Iteration 1: Log likelihood = -50061.162

Linear regression (Maximum Likelihood)
Number of obs = 36,241
Wald chi2(7) = 2829.18
Prob > chi2 = 0.0000
Log likelihood = -50061.162

```

	zitgb2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0372367	.0147549	-2.52	0.012	-.0661558
AGE		.0156301	.0009634	16.22	0.000	.0137418
SEX		.4930714	.0102271	48.21	0.000	.4730267
NonWhite		.4111544	.0244982	16.78	0.000	.3631388
householdsize		.0029394	.0046494	0.63	0.527	-.0061733
SES		-.0172805	.0076722	-2.25	0.024	-.0323178
LE8_TOTALSCORE		-.0000612	.0000545	-1.12	0.261	-.000168
_cons		-1.686482	.0696708	-24.21	0.000	-1.823034
sigma2						
_cons		.9275616	.0068906	134.61	0.000	.9140563

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.226525	.1600411	7.66	0.000	.9128502
ereri_cde	1.221872	.15942	7.66	0.000	.9094151
ereri_intref	-.0009332	.0083497	-0.11	0.911	-.0172983
ereri_intmed	.0015551	.0051356	0.30	0.762	-.0085104
ereri_pie	.0040306	.0022165	1.82	0.069	-.0003136

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): zitgb5
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -9045.4998
 Iteration 2: Log likelihood = -9033.0143
 Iteration 3: Log likelihood = -9032.9013
 Iteration 4: Log likelihood = -9032.9013
 Refining estimates:
 Iteration 0: Log likelihood = -9032.9013

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) =	198.68
Log likelihood =	-9032.9013	Prob > chi2 =	0.0000

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.243066	.1603259	11.30	0.000	1.949851 2.580374
zitgb5	.9427988	.0376886	-1.47	0.141	.8717501 1.019638
_infectionburXzitgb5_000	.9388281	.0685308	-0.86	0.387	.8136764 1.083229
AGE	1.035315	.0130216	2.76	0.006	1.010105 1.061154
SEX	.7802767	.0509745	-3.80	0.000	.6865004 .886863
NonWhite	1.067698	.1838691	0.38	0.704	.7618372 1.496354
householdszie	.9313184	.0394616	-1.68	0.093	.8570996 1.011964
SES	.8225535	.0405079	-3.97	0.000	.7468707 .9059055
LE8_TOTALSCORE	.9990815	.0003539	-2.59	0.009	.998388 .9997754

-> Model for the mediator

Iteration 0: Log likelihood = -51431.193
 Iteration 1: Log likelihood = -51431.193

Linear regression (Maximum Likelihood)	Number of obs =	36,540	
	Wald chi2(7) =	842.20	
Log likelihood =	-51431.193	Prob > chi2 =	0.0000

<u>zitgb5</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	-.0373177	.0151063	-2.47	0.013	-.0669256 -.0077098
AGE	.0184073	.0009851	18.68	0.000	.0164764 .0203381
SEX	.2170259	.0104558	20.76	0.000	.1965329 .237519
NonWhite	.0035713	.0250593	0.14	0.887	-.0455441 .0526867
householdszie	-.0020734	.004761	-0.44	0.663	-.0114047 .0072579
SES	-.0149625	.0078488	-1.91	0.057	-.0303458 .0004208
LE8_TOTALSCORE	.0003293	.0000557	5.91	0.000	.0002202 .0004384
_cons	-1.596572	.0712368	-22.41	0.000	-1.736193 -1.45695
sigma2					
_cons	.9774438	.0072314	135.17	0.000	.9632705 .991617

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.265175	.1619639	7.81	0.000	.9477319 1.582619
ereri_cde	1.241338	.1601392	7.75	0.000	.927471 1.555205
ereri_intref	.0135457	.0159377	0.85	0.395	-.0176917 .0447831
ereri_intmed	.008091	.0063776	1.27	0.205	-.0044089 .0205908
ereri_pie	.0022005	.0017408	1.26	0.206	-.0012114 .0056125

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): zitgb6
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -8828.7088

Iteration 2: Log likelihood = -8820.0226

Iteration 3: Log likelihood = -8819.985

Iteration 4: Log likelihood = -8819.985

Refining estimates:

Iteration 0: Log likelihood = -8819.985

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 = -8819.985

LR chi2(9) = 186.69

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.21562	.1604611	10.98	0.000	1.922423 2.553533
zitgb6	.9669912	.0387381	-0.84	0.402	.8939702 1.045977
_infectionburXzitgb6_000	1.053229	.0753356	0.73	0.468	.9154567 1.211735
AGE	1.037088	.013165	2.87	0.004	1.011603 1.063215
SEX	.7395872	.0512555	-4.35	0.000	.6456524 .8471885
NonWhite	1.053549	.1839647	0.30	0.765	.7482088 1.483497
householdsize	.9350519	.0398242	-1.58	0.115	.860167 1.016456
SES	.8276014	.0411772	-3.80	0.000	.7507059 .9123733
LE8_TOTALSCORE	.9990763	.0003586	-2.57	0.010	.9983737 .9997794

-> Model for the mediator

Iteration 0: Log likelihood = **-48640.914**
 Iteration 1: Log likelihood = **-48640.914**

Linear regression (Maximum Likelihood) Number of obs = 35,761
 Wald chi2(7) = 4459.39
 Log likelihood = **-48640.914** Prob > chi2 = 0.0000

	zitgb6	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0093982	.014571	-0.64	0.519	-.0379568 .0191605
AGE		.0038357	.000949	4.04	0.000	.0019757 .0056958
SEX		-.6600443	.0100787	-65.49	0.000	-.6797981 -.6402905
NonWhite		-.0611799	.0241152	-2.54	0.011	-.1084448 -.0139149
householdsize		-.0020414	.0045843	-0.45	0.656	-.0110263 .0069436
SES		.0159674	.0075565	2.11	0.035	.0011569 .030778
LE8_TOTALSCORE		.0006058	.0000537	11.28	0.000	.0005006 .0007111
_cons		.4856692	.06855	7.08	0.000	.3513136 .6200248
sigma2						
_cons		.8891013	.0066491	133.72	0.000	.8760694 .9021333

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.214608	.1604012	7.57	0.000	.9002278 1.528989
ereri_cde	1.215064	.1604147	7.57	0.000	.9006569 1.529471
ereri_intref	-.0000748	.0027188	-0.03	0.978	-.0054035 .005254
ereri_intmed	-.0006963	.0016977	-0.41	0.682	-.0040237 .0026311
ereri_pie	.0003155	.0006174	0.51	0.609	-.0008946 .0015256

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): zitgb7
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -9111.9317
Iteration 2: Log likelihood = -9103.2506
Iteration 3: Log likelihood = -9103.231
Iteration 4: Log likelihood = -9103.231
Refining estimates:
Iteration 0: Log likelihood = -9103.231

```

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) =	195.76
Log likelihood =	-9103.231	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.259919	.1606529	11.47	0.000	1.965996 2.597784
zitgb7	.9628862	.0375226	-0.97	0.332	.8920817 1.039311
_infectionburXzitgb7_000	1.028137	.0717862	0.40	0.691	.8966409 1.178917
AGE	1.034162	.0129525	2.68	0.007	1.009085 1.059863
SEX	.7618486	.0494776	-4.19	0.000	.6707924 .8652653
NonWhite	1.078265	.1833	0.44	0.658	.7727259 1.504617
householdsize	.9329911	.0392746	-1.65	0.099	.8591043 1.013233
SES	.8218165	.0402759	-4.00	0.000	.74655 .9046714
LE8_TOTALSCORE	.9990883	.0003535	-2.58	0.010	.9983957 .9997813

-> Model for the mediator

Iteration 0: Log likelihood = -51919.341	Number of obs = 36,726
Iteration 1: Log likelihood = -51919.341	Wald chi2(7) = 386.21
Linear regression (Maximum Likelihood)	Prob > chi2 = 0.0000
Log likelihood = -51919.341	

	zitgb7	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0254681	.0151637	1.68	0.093	-.0042521 .0551883
AGE		.0011379	.000989	1.15	0.250	-.0008004 .0030763
SEX		.1851215	.0104936	17.64	0.000	.1645545 .2056884
NonWhite		.0710973	.0251068	2.83	0.005	.0218889 .1203058
householdsize		-.0053104	.0047778	-1.11	0.266	-.0146748 .004054
SES		-.0219753	.0078705	-2.79	0.005	-.0374011 -.0065494
LE8_TOTALSCORE		-.0003597	.0000559	-6.44	0.000	-.0004692 -.0002501
_cons		-.1685586	.0715195	-2.36	0.018	-.3087343 -.0283828
sigma2						
_cons		.9895665	.0073025	135.51	0.000	.9752539 1.003879

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.257633	.1604426	7.84	0.000	.9431712 1.572095
ereri_cde	1.258859	.1604829	7.84	0.000	.9443186 1.5734
ereri_intref	-.0006472	.0023796	-0.27	0.786	-.0053111 .0040166
ereri_intmed	.0003836	.0034894	0.11	0.912	-.0064556 .0072227
ereri_pie	-.0009627	.0011451	-0.84	0.401	-.0032072 .0012817

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): zith3
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-9041.325**
 Iteration 2: Log likelihood = **-9031.2636**
 Iteration 3: Log likelihood = **-9031.2075**
 Iteration 4: Log likelihood = **-9031.2075**
 Refining estimates:
 Iteration 0: Log likelihood = **-9031.2075**

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	LR chi2(9) =	203.15
Log likelihood =	-9031.2075	Prob > chi2 =	0.0000

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.23776	.1636127	11.02	0.000	1.939002 2.58255
zitih3	1.137788	.0464755	3.16	0.002	1.050249 1.232624
_infectionburXzitih3_000	.9784569	.0722378	-0.29	0.768	.8466404 1.130796
AGE	1.029851	.0129767	2.33	0.020	1.004729 1.055602
SEX	.7166308	.0480292	-4.97	0.000	.628416 .817229
NonWhite	1.093107	.1858059	0.52	0.600	.7833859 1.52528
householdszie	.9363409	.0393603	-1.56	0.118	.8622886 1.016753
SES	.8405703	.0415908	-3.51	0.000	.7628818 .9261702
LE8_TOTALSCORE	.9989935	.0003539	-2.84	0.004	.9983001 .9996874

-> Model for the mediator

Iteration 0: Log likelihood = **-49777.798**
 Iteration 1: Log likelihood = **-49777.798**

Linear regression (Maximum Likelihood)	Number of obs =	36,596
	Wald chi2(7) =	4560.96
Log likelihood =	Prob > chi2 =	0.0000

<u>zitih3</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0869022	.0143961	6.04	0.000	.0586864 .115118
AGE	.0219468	.0009388	23.38	0.000	.0201067 .0237869
SEX	.5706879	.0099647	57.27	0.000	.5511575 .5902183
NonWhite	-.0027308	.0238667	-0.11	0.909	-.0495086 .044047
householdszie	-.0085434	.00454	-1.88	0.060	-.0174416 .0003549
SES	-.1302968	.0074804	-17.42	0.000	-.1449582 -.1156354
LE8_TOTALSCORE	.0005947	.0000531	11.19	0.000	.0004905 .0006989
_cons	-2.494983	.0678619	-36.77	0.000	-2.62799 -2.361977
sigma2					
_cons	.889157	.0065732	135.27	0.000	.8762737 .9020402

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.254153	.1611786	7.78	0.000	.9382484 1.570057
ereri_cde	1.230537	.162277	7.58	0.000	.9124796 1.548594
ereri_intref	.0026931	.0122043	0.22	0.825	-.0212268 .026613
ereri_intmed	.0096418	.0127063	0.76	0.448	-.015262 .0345457
ereri_pie	.011281	.0040519	2.78	0.005	.0033394 .0192227

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): zitm2a
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -8948.3356

Iteration 2: Log likelihood = -8939.8779

Iteration 3: Log likelihood = -8939.8599

Iteration 4: Log likelihood = -8939.8599

Refining estimates:

Iteration 0: Log likelihood = -8939.8599

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 = -8939.8599

LR chi2(9) = 193.16

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.263395	.1626675	11.37	0.000	1.966009 2.605764
zitm2a	1.01237	.0388322	0.32	0.749	.9390505 1.091413
_infectionburXzitm2a_000	.9714849	.066739	-0.42	0.674	.8491027 1.111506
AGE	1.032447	.0130201	2.53	0.011	1.007241 1.058284
SEX	.7591105	.0495421	-4.22	0.000	.6679635 .8626949
NonWhite	1.057141	.1822049	0.32	0.747	.7540897 1.481982
householdsize	.9333233	.0397078	-1.62	0.105	.8586539 1.014486
SES	.8197815	.0405173	-4.02	0.000	.7440942 .9031675
LE8_TOTALSCORE	.9990145	.0003557	-2.77	0.006	.9983176 .9997119

-> Model for the mediator

Iteration 0: Log likelihood = -51440.857
 Iteration 1: Log likelihood = -51440.857

Linear regression (Maximum Likelihood)
 Number of obs = 36,352
 Wald chi2(7) = 280.87
 Log likelihood = -51440.857 Prob > chi2 = 0.0000

	zitm2a	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr	.0489523	.0152601	3.21	0.001	.0190431	.0788616
AGE	.0110834	.0009961	11.13	0.000	.009131	.0130358
SEX	-.0655997	.0105619	-6.21	0.000	-.0863006	-.0448987
NonWhite	-.0061768	.0253098	-0.24	0.807	-.0557831	.0434296
householdsize	-.0030192	.0048884	-0.62	0.537	-.0126002	.0065618
SES	-.0448885	.0079219	-5.67	0.000	-.0604152	-.0293618
LE8_TOTALSCORE	.0003764	.0000562	6.69	0.000	.0002662	.0004866
_cons	-.7582518	.072062	-10.52	0.000	-.8994907	-.6170128
sigma2						
_cons	.9923055	.0073603	134.82	0.000	.9778795	1.006731

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.262137	.1623368	7.77	0.000	.9439627 1.580311
ereri_cde	1.263405	.1626581	7.77	0.000	.9446012 1.582209
ereri_intref	.0005748	.0030335	0.19	0.850	-.0053707 .0065203
ereri_intmed	-.0024449	.0066481	-0.37	0.713	-.015475 .0105851
ereri_pie	.000602	.0018882	0.32	0.750	-.0030988 .0043028

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): zivd
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8733.918
Iteration 2: Log likelihood = -8725.4116
Iteration 3: Log likelihood = -8725.3757
Iteration 4: Log likelihood = -8725.3757
Refining estimates:
Iteration 0: Log likelihood = -8725.3757

```

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) =	188.38
Log likelihood =	-8725.3757	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.202571	.1611267	10.79	0.000	1.908364 2.542135
zivd	1.060506	.0386873	1.61	0.107	.9873271 1.139108
_infectionburXzivd_000	.8702303	.0650638	-1.86	0.063	.751611 1.00757
AGE	1.037536	.0132141	2.89	0.004	1.011957 1.063761
SEX	.7479994	.0493983	-4.40	0.000	.6571846 .8513637
NonWhite	1.089967	.1878495	0.50	0.617	.777524 1.527964
householdsize	.9299999	.0402497	-1.68	0.094	.8543651 1.01233
SES	.8158695	.0407439	-4.07	0.000	.7397966 .8997649
LE8_TOTALSCORE	.9991955	.0003604	-2.23	0.026	.9984893 .9999022

-> Model for the mediator

Iteration 0: Log likelihood = -50508.394	Number of obs = 35,601
Iteration 1: Log likelihood = -50508.394	Wald chi2(7) = 13.48
Log likelihood = -50508.394	Prob > chi2 = 0.0613

	zivd	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0113168	.0154628	-0.73	0.464	-.0416234 .0189897
AGE		-.0030151	.0010124	-2.98	0.003	-.0049994 -.0010308
SEX		-.0118707	.010712	-1.11	0.268	-.0328658 .0091245
NonWhite		-.0117621	.02556	-0.46	0.645	-.0618587 .0383345
householdsize		.0036034	.0050818	0.71	0.478	-.0063568 .0135636
SES		-.012385	.008047	-1.54	0.124	-.0281569 .0033869
LE8_TOTALSCORE		.0000159	.0000571	0.28	0.781	-.000096 .0001278
_cons		.1848886	.0733959	2.52	0.012	.0410352 .328742
sigma2						
_cons		.9995935	.0074922	133.42	0.000	.9849092 1.014278

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.207386	.1607123	7.51	0.000	.8923955 1.522376
ereri_cde	1.200387	.1607913	7.47	0.000	.8852422 1.515533
ereri_intref	.0049946	.0115769	0.43	0.666	-.0176956 .0276849
ereri_intmed	.0026684	.0040165	0.66	0.506	-.0052038 .0105406
ereri_pie	-.0006646	.0009971	-0.67	0.505	-.0026189 .0012897

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): zjam2
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

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

```
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 = **-9070.7905**
 Iteration 2: Log likelihood = **-9062.7888**
 Iteration 3: Log likelihood = **-9062.7721**
 Refining estimates:
 Iteration 0: Log likelihood = **-9062.7721**

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 = **-9062.7721** LR chi2(9) = **195.27**
 Prob > chi2 = **0.0000**

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.266213	.1648588	11.25	0.000	1.965074 2.6135
zjam2		1.046993	.04049	1.19	0.235	.9705667 1.129437
_infectionburXzjam2_000		.9223301	.0601193	-1.24	0.215	.8117147 1.048019
AGE		1.033211	.0130043	2.60	0.009	1.008034 1.059016
SEX		.7557258	.0490483	-4.32	0.000	.6654559 .8582408
NonWhite		1.084077	.1843379	0.47	0.635	.7768202 1.512863
householdszie		.9330039	.0394605	-1.64	0.101	.8587816 1.013641
SES		.8185288	.0402477	-4.07	0.000	.7433267 .9013391
LE8_TOTALSCORE		.9990373	.0003542	-2.72	0.007	.9983434 .9997318

-> Model for the mediator

Iteration 0: Log likelihood = **-51255.274**
 Iteration 1: Log likelihood = **-51255.274**

Linear regression (Maximum Likelihood) Number of obs = **36,751**
 Log likelihood = **-51255.274** Wald chi2(7) = **1827.25**
 Prob > chi2 = **0.0000**

	zjam2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.1553979	.0148606	10.46	0.000	.1262716 .1845242
AGE		.0305118	.0009724	31.38	0.000	.0286058 .0324177
SEX		-.091833	.010294	-8.92	0.000	-.112009 -.0716571
NonWhite		.0880299	.0246955	3.56	0.000	.0396275 .1364322
householdszie		.0010994	.0048897	0.22	0.822	-.0084843 .0106831
SES		-.0832985	.0077307	-10.77	0.000	-.0984505 -.0681466
LE8_TOTALSCORE		-.000521	.0000548	-9.50	0.000	-.0006284 -.0004135
_cons		-1.469124	.0705095	-20.84	0.000	-1.60732 -1.330927
sigma2						
_cons		.9526094	.0070274	135.56	0.000	.9388359 .9663829

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.256925	.1623817	7.74	0.000	.9386624 1.575187
ereri_cde	1.266196	.164753	7.69	0.000	.9432858 1.589106
ereri_intref	.003013	.0067234	0.45	0.654	-.0101647 .0161906
ereri_intmed	-.0194458	.0197638	-0.98	0.325	-.0581822 .0192907
ereri_pie	.0071617	.0060916	1.18	0.240	-.0047776 .019101

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): zjchain
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -8828.0472

Iteration 2: Log likelihood = -8819.9446

Iteration 3: Log likelihood = -8819.9192

Iteration 4: Log likelihood = -8819.9192

Refining estimates:

Iteration 0: Log likelihood = -8819.9192

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) = 186.82

Log likelihood = -8819.9192 Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.218584	.1611465	10.97	0.000	1.924195 2.558013
zjchain		1.033113	.0400665	0.84	0.401	.9574948 1.114704
_infectionburXzjchain_000		.9960385	.0689418	-0.06	0.954	.8696799 1.140756
AGE		1.036593	.0131597	2.83	0.005	1.011118 1.062709
SEX		.746015	.0491093	-4.45	0.000	.6557132 .8487527
NonWhite		1.051159	.1835702	0.29	0.775	.7464796 1.480194
householdsize		.9349321	.0397667	-1.58	0.114	.8601513 1.016214
SES		.82829	.0412294	-3.78	0.000	.7512985 .9131714
LE8_TOTALSCORE		.9990771	.0003586	-2.57	0.010	.9983745 .9997801

-> Model for the mediator

Iteration 0: Log likelihood = -50495.45
 Iteration 1: Log likelihood = -50495.45

Linear regression (Maximum Likelihood)
 Number of obs = 35,761
 Wald chi2(7) = 496.84
 Log likelihood = -50495.45 Prob > chi2 = 0.0000

	zjchain	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0412808	.0153466	2.69	0.007	.0112021 .0713595
AGE		.0079217	.0009995	7.93	0.000	.0059626 .0098807
SEX		.2006673	.0106151	18.90	0.000	.179862 .2214725
NonWhite		.0392978	.0253988	1.55	0.122	-.010483 .0890785
householdsize		.0078493	.0048283	1.63	0.104	-.0016139 .0173126
SES		-.0442216	.0079588	-5.56	0.000	-.0598205 -.0286227
LE8_TOTALSCORE		-.0002556	.0000566	-4.52	0.000	-.0003665 -.001448
_cons		-.6840866	.0721988	-9.48	0.000	-.8255936 -.5425797
sigma2						
_cons		.9862694	.0073757	133.72	0.000	.9718132 1.000726

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.22099	.1607985	7.59	0.000	.905831 1.536149
ereri_cde	1.218174	.1610557	7.56	0.000	.9025102 1.533837
ereri_intref	.0001953	.0030439	0.06	0.949	-.0057706 .0061613
ereri_intmed	.0012756	.005513	0.23	0.817	-.0095297 .012081
ereri_pie	.0013457	.0016795	0.80	0.423	-.001946 .0046374

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): zjun
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8829.6692
 Iteration 2: Log likelihood = -8819.759
 Iteration 3: Log likelihood = -8819.5989
 Iteration 4: Log likelihood = -8819.5984
 Iteration 5: Log likelihood = -8819.5984
 Refining estimates:
 Iteration 0: Log likelihood = -8819.5984

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) =	187.47
Log likelihood =	-8819.5984	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.204885	.1606639	10.85	0.000	1.911443 2.543377
zjun	1.01874	.0396395	0.48	0.633	.9439367 1.099471
_infectionburXzjun_000	1.052238	.0727514	0.74	0.461	.9188873 1.204941
AGE	1.036675	.0131539	2.84	0.005	1.011212 1.06278
SEX	.7489695	.0492065	-4.40	0.000	.6584778 .8518971
NonWhite	1.055893	.1843461	0.31	0.755	.7499124 1.486721
householdsize	.9364521	.0397861	-1.55	0.122	.8616313 1.01777
SES	.8274305	.0411743	-3.81	0.000	.7505409 .9121971
LE8_TOTALSCORE	.9990802	.0003584	-2.57	0.010	.998378 .999783

-> Model for the mediator

Iteration 0: Log likelihood =	-50684.904	Number of obs =	35,761
Iteration 1: Log likelihood =	-50684.904	Wald chi2(7) =	114.70
Log likelihood =	-50684.904	Prob > chi2 =	0.0000

	zjun	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0666108	.0154281	4.32	0.000	.0363723 .0968493
AGE		.0028876	.0010049	2.87	0.004	.0009182 .0048571
SEX		-.0219737	.0106715	-2.06	0.039	-.0428894 -.0010579
NonWhite		-.102023	.0255337	-4.00	0.000	-.1520682 -.0519779
householdsize		.0000159	.0048539	0.00	0.997	-.0094976 .0095294
SES		-.0307264	.008001	-3.84	0.000	-.0464081 -.0150446
LE8_TOTALSCORE		-.0002908	.0000569	-5.11	0.000	-.0004023 -.0001794
_cons		-.0014228	.0725823	-0.02	0.984	-.1436814 .1408358
sigma2						
_cons		.9967751	.0074543	133.72	0.000	.9821649 1.011385

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.219027	.1606211	7.59	0.000	.9042149 1.533838
ereri_cde	1.204884	.1606552	7.50	0.000	.8900061 1.519763
ereri_intref	.003895	.007603	0.51	0.608	-.0110067 .0187967
ereri_intmed	.0090096	.0090631	0.99	0.320	-.0087537 .0267729
ereri_pie	.0012375	.0026109	0.47	0.636	-.0038797 .0063547

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): zkazald1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8969.2386**
 Iteration 2: Log likelihood = **-8960.2925**
 Iteration 3: Log likelihood = **-8960.2631**
 Iteration 4: Log likelihood = **-8960.2631**
 Refining estimates:
 Iteration 0: Log likelihood = **-8960.2631**

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) =	194.71
Log likelihood =	-8960.2631	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.251602	.1620914	11.27	0.000	1.955304 2.592801
zkazald1		1.041127	.0413863	1.01	0.311	.9630906 1.125486
_infectionburXzkazald1_000		.9920957	.0692655	-0.11	0.910	.8652168 1.137581
AGE		1.031412	.0129915	2.46	0.014	1.006261 1.057191
SEX		.7572504	.0495845	-4.25	0.000	.6660443 .8609459
NonWhite		1.089307	.1853105	0.50	0.615	.7804508 1.520389
householdsize		.9368671	.0393825	-1.55	0.121	.8627729 1.017324
SES		.8173241	.0403138	-4.09	0.000	.7420097 .900283
LE8_TOTALSCORE		.999048	.0003552	-2.68	0.007	.9983521 .9997444

-> Model for the mediator

Iteration 0: Log likelihood = **-51158.622**
 Iteration 1: Log likelihood = **-51158.622**

Linear regression (Maximum Likelihood)	Number of obs =	36,264
	Wald chi2(7) =	599.43
Log likelihood =	-51158.622	Prob > chi2 = 0.0000

	zkazald1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.081542	.0151999	5.36	0.000	.0517508 .1113333
AGE		.0062639	.0009925	6.31	0.000	.0043186 .0082092
SEX		-.2214901	.0105288	-21.04	0.000	-.2421261 -.200854
NonWhite		-.0694228	.0251938	-2.76	0.006	-.1188017 -.0200439
householdsize		.0069738	.0047884	1.46	0.145	-.0024112 .0163589
SES		-.0108648	.0078965	-1.38	0.169	-.0263416 .004612
LE8_TOTALSCORE		.0005031	.0000561	8.97	0.000	.0003932 .000613
_cons		-.3140503	.0717308	-4.38	0.000	-.4546401 -.1734605
sigma2						
_cons		.983712	.0073054	134.66	0.000	.9693937 .9980304

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.257115	.1616063	7.78	0.000	.9403728 1.573858
ereri_cde	1.251174	.1619865	7.72	0.000	.9336859 1.568661
ereri_intref	-7.68e-06	.0028863	-0.00	0.998	-.0056647 .0056493
ereri_intmed	.0026576	.0110539	0.24	0.810	-.0190076 .0243228
ereri_pie	.0032918	.0033097	0.99	0.320	-.003195 .0097787

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): zkcnip4
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -8734.1211

Iteration 2: Log likelihood = -8726.6425

Iteration 3: Log likelihood = -8726.627

Refining estimates:

Iteration 0: Log likelihood = -8726.627

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) = 185.87
Log likelihood =	-8726.627	Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.214693	.1612253	10.92	0.000	1.920205 2.554343
zkcnip4		1.046676	.0376605	1.27	0.205	.9754058 1.123155
_infectionburXzkcnip4_000		.964629	.0694738	-0.50	0.617	.8376367 1.110874
AGE		1.037454	.0132107	2.89	0.004	1.011881 1.063672
SEX		.7465113	.0493294	-4.42	0.000	.6558266 .8497354
NonWhite		1.090678	.1879284	0.50	0.614	.7780921 1.528841
householdszie		.9303399	.0401313	-1.67	0.094	.8549172 1.012416
SES		.815363	.0407223	-4.09	0.000	.7393307 .8992143
LE8_TOTALSCORE		.9991906	.0003606	-2.24	0.025	.9984842 .9998976

-> Model for the mediator

Iteration 0: Log likelihood = -50485.66
 Iteration 1: Log likelihood = -50485.66

Linear regression (Maximum Likelihood)
 Number of obs = 35,601
 Wald chi2(7) = 58.99
 Log likelihood = -50485.66 Prob > chi2 = 0.0000

	zkcnip4	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0210817	.0154529	1.36	0.172	-.0092055 .0513689
AGE		.0002286	.0010118	0.23	0.821	-.0017544 .0022116
SEX		.0733635	.0107052	6.85	0.000	.0523817 .0943453
NonWhite		.0259269	.0255436	1.02	0.310	-.0241377 .0759915
householdszie		.00189	.0050786	0.37	0.710	-.0080639 .0118438
SES		.0101053	.0080419	1.26	0.209	-.0056566 .0258671
LE8_TOTALSCORE		.0001203	.0000571	2.11	0.035	8.43e-06 .0002321
_cons		-.193818	.0733491	-2.64	0.008	-.3375796 -.0500564
sigma2						
_cons		.9983177	.0074826	133.42	0.000	.9836521 1.012983

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.213177	.1611641	7.53	0.000	.8973008 1.529052
ereri_cde	1.213594	.1610579	7.54	0.000	.8979258 1.529261
ereri_intref	-.0008651	.001792	-0.48	0.629	-.0043773 .002647
ereri_intmed	-.000514	.0030332	-0.17	0.865	-.0064589 .005431
ereri_pie	.0009622	.0010365	0.93	0.353	-.0010694 .0029938

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): zkdr
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -9037.597
 Iteration 2: Log likelihood = -9026.2045
 Iteration 3: Log likelihood = -9026.0153
 Iteration 4: Log likelihood = -9026.0151
 Refining estimates:
 Iteration 0: Log likelihood = -9026.0151

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 = -9026.0151	LR chi2(9) = 212.46
	Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.258254	.1651079	11.14	0.000	1.956766 2.606194
zkdr	.8543786	.0324414	-4.14	0.000	.7931029 .9203884
_infectionburXzkdr_000	1.047848	.072896	0.67	0.502	.9142867 1.20092
AGE	1.02953	.0129575	2.31	0.021	1.004445 1.055242
SEX	.7851562	.0511271	-3.71	0.000	.6910799 .8920391
NonWhite	1.052191	.1812378	0.30	0.768	.7507178 1.474729
householdsize	.928062	.0394244	-1.76	0.079	.8539209 1.00864
SES	.8240285	.040553	-3.93	0.000	.748259 .9074705
LE8_TOTALSCORE	.9988287	.0003566	-3.28	0.001	.99813 .9995279

-> Model for the mediator

Iteration 0: Log likelihood = -51141.747
 Iteration 1: Log likelihood = -51141.747

Linear regression (Maximum Likelihood)

Number of obs = 36,540
Wald chi2(7) = 1439.15
Prob > chi2 = 0.0000

Log likelihood = -51141.747

	zkdr	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0666237	.0149871	-4.45	0.000	-.0959979
AGE		-.0180495	.0009774	-18.47	0.000	-.0199651
SEX		.060885	.0103733	5.87	0.000	.0405536
NonWhite		-.078696	.0248616	-3.17	0.002	-.1274239
householdsize		-.015672	.0047234	-3.32	0.001	-.0249296
SES		.0097106	.0077868	1.25	0.212	-.0055513
LE8_TOTALSCORE		-.0017924	.0000552	-32.45	0.000	-.0019006
_cons		1.938818	.0706747	27.43	0.000	1.800298
sigma2						
_cons		.9620805	.0071177	135.17	0.000	.9481299
						.976031

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.262271	.1618164	7.80	0.000	.945117
ereri_cde	1.245161	.1627973	7.65	0.000	.9260839
ereri_intref	.0004959	.0137313	0.04	0.971	-.0264169
ereri_intmed	.0060744	.0092428	0.66	0.511	-.0120411
ereri_pie	.0105405	.0034952	3.02	0.003	.0036899
					.017391

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): zkel
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8738.752**
 Iteration 2: Log likelihood = **-8724.1989**
 Iteration 3: Log likelihood = **-8723.9667**
 Iteration 4: Log likelihood = **-8723.9666**
 Refining estimates:
 Iteration 0: Log likelihood = **-8723.9666**

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) =	191.20
Log likelihood =	-8723.9666	Prob > chi2 =	0.0000

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.184748	.1610844	10.60	0.000	1.89078 2.524419
_zkel	1.041375	.0413774	1.02	0.308	.9633539 1.125714
_infectionburXzkel_000	1.115016	.0808624	1.50	0.133	.9672771 1.28532
AGE	1.036645	.0132128	2.82	0.005	1.011069 1.062868
SEX	.7684349	.0516767	-3.92	0.000	.6735415 .8766975
NonWhite	1.090147	.1878762	0.50	0.616	.7776584 1.528204
householdszie	.9316349	.0401445	-1.64	0.100	.8561841 1.013735
SES	.8135807	.0406199	-4.13	0.000	.7377384 .8972199
LE8_TOTALSCORE	.9992211	.0003604	-2.16	0.031	.9985149 .9999277

-> Model for the mediator

Iteration 0: Log likelihood = **-49534.271**
 Iteration 1: Log likelihood = **-49534.271**

Linear regression (Maximum Likelihood)	Number of obs =	35,601
	Wald chi2(7) =	2016.78
Log likelihood =	Prob > chi2 =	0.0000

<u>zkel</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0023782	.0150454	0.16	0.874	-.0271103 .0318668
AGE	.0087676	.0009851	8.90	0.000	.0068369 .0106984
SEX	-.4386407	.0104229	-42.08	0.000	-.4590692 -.4182122
NonWhite	.070547	.0248701	2.84	0.005	.0218026 .1192914
householdszie	-.0047921	.0049447	-0.97	0.332	-.0144835 .0048992
SES	.0225387	.0078298	2.88	0.004	.0071925 .0378849
LE8_TOTALSCORE	-.000318	.0000556	-5.72	0.000	-.0004269 -.0002091
_cons	.3115364	.0714149	4.36	0.000	.1715657 .451507
sigma2					
_cons	.9463611	.0070932	133.42	0.000	.9324588 .9602635

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.206936	.1608726	7.50	0.000	.8916313 1.52224
ereri_cde	1.183842	.1608783	7.36	0.000	.8685267 1.499158
ereri_intref	.0223093	.0190099	1.17	0.241	-.0149494 .059568
ereri_intmed	.0006876	.0043639	0.16	0.875	-.0078654 .0092406
ereri_pie	.0000964	.0006173	0.16	0.876	-.0011135 .0013063

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): zkifbp
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -8968.0786

Iteration 2: Log likelihood = -8958.8334

Iteration 3: Log likelihood = -8958.7943

Iteration 4: Log likelihood = -8958.7943

Refining estimates:

Iteration 0: Log likelihood = -8958.7943

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) = 197.64

Log likelihood = -8958.7943 Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.2536	.1615964	11.33	0.000	1.958126 2.59366
zkifbp	.9382031	.0356613	-1.68	0.093	.8708483 1.010767
_infectionburXzkifbp_000	.9897212	.070418	-0.15	0.885	.8608956 1.137824
AGE	1.031921	.0129877	2.50	0.013	1.006777 1.057693
SEX	.7532617	.04907	-4.35	0.000	.6629728 .8558468
NonWhite	1.091854	.1857222	0.52	0.605	.7823063 1.523885
householdsize	.9362073	.0393536	-1.57	0.117	.8621675 1.016605
SES	.8154382	.0402194	-4.14	0.000	.7403 .8982028
LE8_TOTALSCORE	.9990132	.0003553	-2.78	0.006	.998317 .9997098

-> Model for the mediator

Iteration 0: Log likelihood = -51333.754
 Iteration 1: Log likelihood = -51333.754

Linear regression (Maximum Likelihood)
 Number of obs = 36,264
 Wald chi2(7) = 245.09
 Log likelihood = -51333.754 Prob > chi2 = 0.0000

	zkifbp	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr	-.0008299	.0152735	-0.05	0.957	-.0307654	.0291056
AGE	-.0014086	.0009973	-1.41	0.158	-.0033634	.0005461
SEX	.0401269	.0105798	3.79	0.000	.0193909	.0608628
NonWhite	.041615	.0253157	1.64	0.100	-.0080029	.0912329
householdsize	-.003269	.0048116	-0.68	0.497	-.0126995	.0061615
SES	-.0238971	.0079347	-3.01	0.003	-.0394489	-.0083454
LE8_TOTALSCORE	-.000778	.0000563	-13.81	0.000	-.0008884	-.0006675
_cons	.4165184	.072078	5.78	0.000	.2752481	.5577888
sigma2						
_cons	.9932595	.0073763	134.66	0.000	.9788022	1.007717

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.255332	.1613976	7.78	0.000	.9389981 1.571665
ereri_cde	1.251079	.1612036	7.76	0.000	.9351256 1.567032
ereri_intref	.0041141	.0102669	0.40	0.689	-.0160087 .0242369
ereri_intmed	.0000858	.0015833	0.05	0.957	-.0030174 .0031889
ereri_pie	.0000529	.0009749	0.05	0.957	-.0018578 .0019637

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): zkir2dl3
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8797.3666
Iteration 2: Log likelihood = -8788.8931
Iteration 3: Log likelihood = -8788.8659
Iteration 4: Log likelihood = -8788.8659
Refining estimates:
Iteration 0: Log likelihood = -8788.8659

```

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) =	186.66
Log likelihood =	-8788.8659	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.244396	.1640185	11.06	0.000	1.944888 2.590029
zkir2dl3	1.011358	.0389391	0.29	0.769	.9378474 1.090631
_infectionburXzkir2dl3_000	1.010597	.0695197	0.15	0.878	.8831269 1.156466
AGE	1.037332	.0132078	2.88	0.004	1.011766 1.063544
SEX	.7465865	.0491254	-4.44	0.000	.6562526 .8493549
NonWhite	1.113603	.1897091	0.63	0.528	.7974856 1.555026
householdsize	.939596	.0396167	-1.48	0.139	.8650705 1.020542
SES	.8298513	.0414259	-3.74	0.000	.7525036 .9151495
LE8_TOTALSCORE	.9992277	.0003589	-2.15	0.031	.9985246 .9999313

-> Model for the mediator

Iteration 0: Log likelihood = -50132.724	Number of obs = 35,573
Iteration 1: Log likelihood = -50132.724	Wald chi2(7) = 692.00
Linear regression (Maximum Likelihood)	Prob > chi2 = 0.0000
Log likelihood = -50132.724	

		Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0694042	.0153419	4.52	0.000	.0393346 .0994737
AGE		.0178119	.0010004	17.80	0.000	.0158511 .0197726
SEX		-.0461165	.0106158	-4.34	0.000	-.066923 -.02531
NonWhite		-.2788977	.0253707	-10.99	0.000	-.3286233 -.229172
householdsize		.0021462	.0048316	0.44	0.657	-.0073236 .011616
SES		-.0557071	.0079621	-7.00	0.000	-.0713125 -.0401016
LE8_TOTALSCORE		-.00025	.0000565	-4.42	0.000	-.0003608 -.0001392
_cons		-.8818974	.0723012	-12.20	0.000	-1.023605 -.7401897
sigma2						
_cons		.9808907	.0073549	133.37	0.000	.9664754 .995306

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.247957	.1630999	7.65	0.000	.9282874 1.567627
ereri_cde	1.244454	.1640223	7.59	0.000	.922976 1.565932
ereri_intref	.0000994	.0015295	0.06	0.948	-.0028983 .003097
ereri_intmed	.0026199	.0092885	0.28	0.778	-.0155852 .0208251
ereri_pie	.0007842	.0026799	0.29	0.770	-.0044683 .0060367

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): zkirk3dl1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8799.3922**
 Iteration 2: Log likelihood = **-8786.8802**
 Iteration 3: Log likelihood = **-8786.7305**
 Iteration 4: Log likelihood = **-8786.7304**
 Refining estimates:
 Iteration 0: Log likelihood = **-8786.7304**

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) =	190.93
Log likelihood =	-8786.7304	Prob > chi2 =	0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.233863	.1621349	11.07	0.000	1.937653	2.575356
_zkir3dl1	.9769594	.0375986	-0.61	0.545	.9059783	1.053502
_infectionburXzkir3dl1_000	1.150521	.0792936	2.03	0.042	1.005148	1.316919
AGE	1.03732	.0131922	2.88	0.004	1.011783	1.063501
SEX	.7470586	.0491364	-4.43	0.000	.6567021	.8498473
NonWhite	1.101082	.1875866	0.57	0.572	.7885041	1.537571
householdsize	.938831	.0394282	-1.50	0.133	.8646481	1.019379
SES	.8283785	.041353	-3.77	0.000	.751167	.9135265
LE8_TOTALSCORE	.9992404	.0003591	-2.11	0.034	.9985368	.9999444

-> Model for the mediator

Iteration 0: Log likelihood = **-50399.809**
 Iteration 1: Log likelihood = **-50399.809**

Linear regression (Maximum Likelihood)	Number of obs =	35,573	
	Wald chi2(7) =	151.50	
Log likelihood =	-50399.809	Prob > chi2 =	0.0000

	zkir3dl1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr	-.0217208	.0154575	-1.41	0.160	-.0520169	.0085754
AGE	.0037386	.0010079	3.71	0.000	.001763	.0057141
SEX	-.0485702	.0106958	-4.54	0.000	-.0695335	-.0276069
NonWhite	.2302442	.0255619	9.01	0.000	.1801438	.2803446
householdsize	-.0018505	.004868	-0.38	0.704	-.0113916	.0076907
SES	-.0106313	.0080221	-1.33	0.185	-.0263543	.0050918
LE8_TOTALSCORE	-.0002409	.000057	-4.23	0.000	-.0003525	-.0001292
_cons	-.0345279	.0728461	-0.47	0.636	-.1773036	.1082478
sigma2						
_cons	.9957311	.0074662	133.37	0.000	.9810977	1.010364

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.243751	.1621266	7.67	0.000	.9259889 1.561513
ereri_cde	1.233616	.1621001	7.61	0.000	.9159056 1.551326
ereri_intref	.01584	.0154099	1.03	0.304	-.014363 .0460429
ereri_intmed	-.0062112	.0053041	-1.17	0.242	-.016607 .0041847
ereri_pie	.0005064	.0009107	0.56	0.578	-.0012786 .0022915

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): zkirrel2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -8735.3531

Iteration 2: Log likelihood = -8727.1158

Iteration 3: Log likelihood = -8727.085

Iteration 4: Log likelihood = -8727.085

Refining estimates:

Iteration 0: Log likelihood = -8727.085

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 = -8727.085

LR chi2(9) = 184.96

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.209476	.1610112	10.88	0.000	1.9154 2.548701
zkirrel2		1.02279	.0399083	0.58	0.564	.9474872 1.104078
_infectionburXzkirrel2_000		.9461544	.0684367	-0.77	0.444	.821095 1.090261
AGE		1.037507	.0132104	2.89	0.004	1.011936 1.063725
SEX		.7469651	.0498412	-4.37	0.000	.6553962 .8513277
NonWhite		1.092457	.1882361	0.51	0.608	.7793596 1.531337
householdsize		.9304183	.0401469	-1.67	0.095	.8549673 1.012528
SES		.8163458	.0407612	-4.06	0.000	.74024 .9002762
LE8_TOTALSCORE		.9991901	.0003614	-2.24	0.025	.9984821 .9998986

-> Model for the mediator

Iteration 0: Log likelihood = **-49910.173**
 Iteration 1: Log likelihood = **-49910.173**

Linear regression (Maximum Likelihood) Number of obs = 35,601
 Wald chi2(7) = 1230.71
 Prob > chi2 = 0.0000
 Log likelihood = **-49910.173**

	zkirrel2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0093155	.0152051	0.61	0.540	-.0204861 .039117
AGE		.0017364	.0009955	1.74	0.081	-.0002148 .0036876
SEX		.3062754	.0105335	29.08	0.000	.28563 .3269207
NonWhite		-.1448668	.025134	-5.76	0.000	-.1941286 -.0956049
householdsize		.0007602	.0049971	0.15	0.879	-.009034 .0105545
SES		-.0373436	.007913	-4.72	0.000	-.0528527 -.0218345
LE8_TOTALSCORE		.0008857	.0000561	15.78	0.000	.0007757 .0009958
_cons		-1.015541	.0721729	-14.07	0.000	-1.156998 -.8740849
sigma2						
_cons		.9665584	.0072446	133.42	0.000	.9523593 .9807575

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.209566	.1609183	7.52	0.000	.8941718 1.52496
ereri_cde	1.209214	.160983	7.51	0.000	.893693 1.524735
ereri_intref	.0010275	.0045854	0.22	0.823	-.0079598 .0100148
ereri_intmed	-.0008855	.0019506	-0.45	0.650	-.0047087 .0029377
ereri_pie	.0002099	.0004996	0.42	0.674	-.0007693 .0011892

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): zkit
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -9021.9825
Iteration 2: Log likelihood = -9013.4919
Iteration 3: Log likelihood = -9013.4678
Iteration 4: Log likelihood = -9013.4678
Refining estimates:
Iteration 0: Log likelihood = -9013.4678

```

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) =	194.83
Log likelihood =	-9013.4678	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.269274	.1660776	11.20	0.000	1.966036 2.619283
zkit	.9304041	.0364353	-1.84	0.065	.861664 1.004628
_infectionburXzkit_000	1.063397	.0747832	0.87	0.382	.9264776 1.220551
AGE	1.033002	.0130366	2.57	0.010	1.007764 1.058871
SEX	.7688402	.0503996	-4.01	0.000	.6761413 .8742482
NonWhite	1.108093	.1885845	0.60	0.546	.7938014 1.546824
householdsize	.9338613	.0394847	-1.62	0.106	.8595926 1.014547
SES	.8271945	.0408019	-3.85	0.000	.7509683 .9111579
LE8_TOTALSCORE	.9990757	.0003553	-2.60	0.009	.9983796 .9997723

-> Model for the mediator

Iteration 0: Log likelihood = -50774.701	Number of obs = 36,534
Iteration 1: Log likelihood = -50774.701	Wald chi2(7) = 2191.83
Log likelihood = -50774.701	Prob > chi2 = 0.0000

	zkit	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0904569	.0148415	-6.09	0.000	-.1195457 -.0613681
AGE		-.0263979	.0009679	-27.27	0.000	-.028295 -.0245009
SEX		.3061387	.010273	29.80	0.000	.2860041 .3262734
NonWhite		.1928499	.024592	7.84	0.000	.1446504 .2410494
householdsize		-.0065013	.0046789	-1.39	0.165	-.0156718 .0026692
SES		.0312718	.0077114	4.06	0.000	.0161578 .0463859
LE8_TOTALSCORE		.0005025	.0000548	9.17	0.000	.0003952 .0006099
_cons		.8889357	.0699579	12.71	0.000	.7518207 1.026051
sigma2						
_cons		.9433755	.0069799	135.16	0.000	.9296951 .9570559

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.267765	.1637035	7.74	0.000	.9469122 1.588618
ereri_cde	1.267308	.1655112	7.66	0.000	.9429122 1.591704
ereri_intref	-.0017301	.0022165	-0.78	0.435	-.0060744 .0026141
ereri_intmed	-.0043593	.0125492	-0.35	0.728	-.0289552 .0202366
ereri_pie	.0065466	.0037248	1.76	0.079	-.000754 .0138471

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): zkitlg
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

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

```
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 = **-8971.3182**
 Iteration 2: Log likelihood = **-8961.6167**
 Iteration 3: Log likelihood = **-8961.5751**
 Iteration 4: Log likelihood = **-8961.5751**
 Refining estimates:
 Iteration 0: Log likelihood = **-8961.5751**

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) =	206.51
Log likelihood =	-8961.5751	Prob > chi2 =	0.0000

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.310878	.1655768	11.69	0.000	2.008111 2.659295
zkitlg	1.131854	.0458789	3.06	0.002	1.045412 1.225444
_infectionburXzkitlg_000	.853293	.0594461	-2.28	0.023	.7443852 .9781346
AGE	1.032344	.0130239	2.52	0.012	1.007131 1.058189
SEX	.7459917	.0486657	-4.49	0.000	.6564548 .8477411
NonWhite	.9838218	.1743571	-0.09	0.927	.695125 1.392419
householdszie	.9261334	.0399349	-1.78	0.075	.8510786 1.007807
SES	.8285242	.0410232	-3.80	0.000	.7518984 .9129589
LE8_TOTALSCORE	.9989576	.0003589	-2.90	0.004	.9982543 .9996613

-> Model for the mediator

Iteration 0: Log likelihood = **-51046.767**
 Iteration 1: Log likelihood = **-51046.767**

Linear regression (Maximum Likelihood)	Number of obs =	36,441
	Wald chi2(7) =	1344.76
Log likelihood =	Prob > chi2 =	0.0000

<u>zkitlg</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	-.0558577	.0150081	-3.72	0.000	-.085273 -.0264424
AGE	.0154152	.0009802	15.73	0.000	.013494 .0173364
SEX	.0952021	.0104	9.15	0.000	.0748185 .1155857
NonWhite	.3057898	.0249022	12.28	0.000	.2569824 .3545972
householdszie	.0177302	.0047329	3.75	0.000	.0084539 .0270065
SES	-.0166456	.0078043	-2.13	0.033	-.0319418 -.0013495
LE8_TOTALSCORE	.0016148	.0000554	29.13	0.000	.0015062 .0017235
_cons	-1.928749	.0708434	-27.23	0.000	-2.0676 -1.789898
sigma2					
_cons	.9643844	.0071445	134.98	0.000	.9503815 .9783873

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.296822	.1642939	7.89	0.000	.9748121 1.618832
ereri_cde	1.299967	.1637504	7.94	0.000	.9790223 1.620912
ereri_intref	-.0076047	.0062623	-1.21	0.225	-.0198785 .0046691
ereri_intmed	.0113542	.0082384	1.38	0.168	-.0047927 .0275011
ereri_pie	-.0068945	.0029093	-2.37	0.018	-.0125965 -.0011924

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): zklb
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -8733.8832

Iteration 2: Log likelihood = -8725.553

Iteration 3: Log likelihood = -8725.5178

Iteration 4: Log likelihood = -8725.5178

Refining estimates:

Iteration 0: Log likelihood = -8725.5178

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) = 188.09

Log likelihood = -8725.5178

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.212477	.1618717	10.85	0.000	1.916912 2.553614
zklb		1.064438	.0409806	1.62	0.105	.9870734 1.147867
_infectionburXzklb_000		1.002939	.071598	0.04	0.967	.8719845 1.15356
AGE		1.036816	.0132055	2.84	0.005	1.011254 1.063024
SEX		.7526591	.0497466	-4.30	0.000	.6612087 .8567578
NonWhite		1.088708	.1875984	0.49	0.622	.776673 1.526104
householdszie		.9306883	.0401066	-1.67	0.096	.855309 1.012711
SES		.8174351	.0408224	-4.04	0.000	.7412157 .9014922
LE8_TOTALSCORE		.9991188	.0003625	-2.43	0.015	.9984085 .9998296

-> Model for the mediator

Iteration 0: Log likelihood = **-50194.42**
 Iteration 1: Log likelihood = **-50194.42**

Linear regression (Maximum Likelihood)
 Number of obs = 35,601
 Wald chi2(7) = 647.23
 Prob > chi2 = 0.0000
 Log likelihood = **-50194.42**

	zklb	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0021673	.015327	-0.14	0.888	-.0322077 .0278732
AGE		.0098129	.0010035	9.78	0.000	.0078461 .0117797
SEX		-.0648483	.010618	-6.11	0.000	-.0856592 -.0440375
NonWhite		.1153419	.0253355	4.55	0.000	.0656852 .1649986
householdszie		-.0050207	.0050372	-1.00	0.319	-.0148934 .0048521
SES		-.0360891	.0079764	-4.52	0.000	-.0517226 -.0204557
LE8_TOTALSCORE		.001268	.0000566	22.40	0.000	.001157 .0013789
_cons		-1.122548	.0727515	-15.43	0.000	-1.265138 -.9799579
sigma2						
_cons		.9821168	.0073612	133.42	0.000	.9676892 .9965444

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.212573	.1611867	7.52	0.000	.8966527 1.528493
ereri_cde	1.210135	.1614333	7.50	0.000	.8937312 1.526538
ereri_intref	.0027519	.0089118	0.31	0.757	-.0147148 .0202187
ereri_intmed	-.0001782	.0012956	-0.14	0.891	-.0027176 .0023612
ereri_pie	-.0001353	.0009606	-0.14	0.888	-.0020181 .0017475

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): zklk1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 2.217 -.07446 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 = -8962.8203
Iteration 1: Log likelihood = -8873.5949
Iteration 2: Log likelihood = -8865.1143
Iteration 3: Log likelihood = -8865.0961
Iteration 4: Log likelihood = -8865.0961
Refining estimates:
Iteration 0: Log likelihood = -8865.0961

```

Cox regression with Breslow method for ties

No. of subjects =	36,054	Number of obs =	36,054
No. of failures =	958		
Time at risk =	438,015.991	LR chi2(9) =	195.45
Log likelihood =	-8865.0961	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.273782	.1639735	11.39	0.000	1.974079 2.618985
zklk1	1.083133	.0401049	2.16	0.031	1.007313 1.16466
_infectionburXzklk1_000	.9219417	.0632649	-1.18	0.236	.8059218 1.054664
AGE	1.034071	.0130972	2.65	0.008	1.008717 1.060062
SEX	.7651107	.0500807	-4.09	0.000	.6729897 .8698415
NonWhite	1.084751	.1870334	0.47	0.637	.7736871 1.520879
householdszie	.9330689	.0397147	-1.63	0.104	.8583879 1.014247
SES	.8194422	.0407106	-4.01	0.000	.7434125 .9032476
LE8_TOTALSCORE	.9990805	.0003572	-2.57	0.010	.9983807 .9997807

-> Model for the mediator

Iteration 0: Log likelihood =	-51080.98	Number of obs =	36,054
Iteration 1: Log likelihood =	-51080.98	Wald chi2(7) =	154.19
Log likelihood =	-51080.98	Prob > chi2 =	0.0000

zklk1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	-.001185	.0153588	-0.08	0.938	-.0312877 .0289176
AGE	.0082914	.0010005	8.29	0.000	.0063304 .0102523
SEX	.0383306	.0106233	3.61	0.000	.0175093 .0591519
NonWhite	.1686055	.0254372	6.63	0.000	.1187495 .2184614
householdsize	-.0073859	.0048262	-1.53	0.126	-.0168451 .0020734
SES	.0017926	.0079748	0.22	0.822	-.0138378 .0174229
LE8_TOTALSCORE	.0003017	.0000566	5.33	0.000	.0001908 .0004126
_cons	-.6999285	.072363	-9.67	0.000	-.8417574 -.5580997
sigma2					
_cons	.995714	.0074161	134.26	0.000	.9811788 1.010249

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.26655	.1632104	7.76	0.000	.9466632 1.586436
ereri_cde	1.269727	.1632753	7.78	0.000	.9497135 1.589741
ereri_intref	-.0031813	.002983	-1.07	0.286	-.0090277 .0026652
ereri_intmed	.0000984	.0012858	0.08	0.939	-.0024216 .0026185
ereri_pie	-.0000946	.0012272	-0.08	0.939	-.0024999 .0023106

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): zklk10
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 .04639 2.217 -.07482 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 = **-9062.0607**
 Iteration 1: Log likelihood = **-8975.085**
 Iteration 2: Log likelihood = **-8965.0057**
 Iteration 3: Log likelihood = **-8964.9507**
 Iteration 4: Log likelihood = **-8964.9507**
 Refining estimates:
 Iteration 0: Log likelihood = **-8964.9507**

Cox regression with Breslow method for ties

No. of subjects =	36,427	Number of obs =	36,427
No. of failures =	968		
Time at risk =	442,529.894	LR chi2(9) =	194.22
Log likelihood =	-8964.9507	Prob > chi2 =	0.0000

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.253547	.162245	11.29	0.000	1.956969 2.59507
zklk10	.9877942	.0375217	-0.32	0.746	.9169239 1.064142
_infectionburXzklk10_000	1.060111	.0735739	0.84	0.400	.9252861 1.214581
AGE	1.032359	.0130234	2.52	0.012	1.007147 1.058203
SEX	.7646469	.0498148	-4.12	0.000	.6729879 .8687895
NonWhite	1.034548	.1806324	0.19	0.846	.7347347 1.456702
householdszie	.9338468	.0396268	-1.61	0.107	.8593217 1.014835
SES	.8196579	.0405902	-4.02	0.000	.7438415 .903202
LE8_TOTALSCORE	.9990402	.0003565	-2.69	0.007	.9983416 .9997392

-> Model for the mediator

Iteration 0: Log likelihood = **-51397.478**
 Iteration 1: Log likelihood = **-51397.478**

Linear regression (Maximum Likelihood)	Number of obs =	36,427	
	Wald chi2(7) =	584.02	
Log likelihood =	-51397.478	Prob > chi2 =	0.0000

zklk10	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0635019	.0151851	4.18	0.000	.0337397 .0932641
AGE	.0054794	.00099	5.53	0.000	.0035391 .0074197
SEX	.069365	.0105077	6.60	0.000	.0487702 .0899598
NonWhite	.0368599	.0251922	1.46	0.143	-.0125158 .0862356
householdszie	-.0051089	.0047833	-1.07	0.285	-.0144841 .0042662
SES	-.0782722	.0078925	-9.92	0.000	-.0937413 -.0628032
LE8_TOTALSCORE	-.0008735	.000056	-15.61	0.000	-.0009832 -.0007638
_cons	-.0037378	.0715784	-0.05	0.958	-.1440289 .1365533
sigma2					
_cons	.9841932	.0072926	134.96	0.000	.9699 .9984865

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.261186	.1618679	7.79	0.000	.9439312 1.578442
ereri_cde	1.253318	.1622324	7.73	0.000	.9353484 1.571288
ereri_intref	.0012596	.0049137	0.26	0.798	-.008371 .0108903
ereri_intmed	.0073883	.0088515	0.83	0.404	-.0099604 .024737
ereri_pie	-.0007796	.0024175	-0.32	0.747	-.0055177 .0039586

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): zklk11
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 2.216 -.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 = -9048.5438

Iteration 1: Log likelihood = -8963.2926

Iteration 2: Log likelihood = -8954.634

Iteration 3: Log likelihood = -8954.605

Iteration 4: Log likelihood = -8954.605

Refining estimates:

Iteration 0: Log likelihood = -8954.605

Cox regression with Breslow method for ties

No. of subjects = 36,186 Number of obs = 36,186

No. of failures = 967

Time at risk = 439,620.087

LR chi2(9) = 187.88

Log likelihood = -8954.605

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.235938	.1633382	11.02	0.000	1.937664 2.580128
zklk11	.9819683	.0379874	-0.47	0.638	.9102668 1.059318
_infectionburXzklk11_000	1.022077	.0679282	0.33	0.742	.8972465 1.164274
AGE	1.032757	.013056	2.55	0.011	1.007482 1.058666
SEX	.767048	.0502776	-4.05	0.000	.674573 .8722
NonWhite	1.072458	.1847978	0.41	0.685	.7650815 1.503325
householdszie	.9344905	.0395813	-1.60	0.110	.8600455 1.015379
SES	.8208409	.0406688	-3.98	0.000	.7448795 .9045487
LE8_TOTALSCORE	.9990413	.0003561	-2.69	0.007	.9983436 .9997395

-> Model for the mediator

Iteration 0: Log likelihood = -50717.664
 Iteration 1: Log likelihood = -50717.664

Linear regression (Maximum Likelihood)
 Number of obs = 36,186
 Wald chi2(7) = 1277.11
 Prob > chi2 = 0.0000
 Log likelihood = -50717.664

	zklk11	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr	.1576974	.0150907	10.45	0.000	.1281203	.1872746
AGE	.0181884	.0009844	18.48	0.000	.0162591	.0201177
SEX	-.2214146	.0104443	-21.20	0.000	-.241885	-.2009442
NonWhite	-.1780266	.0250342	-7.11	0.000	-.2270927	-.1289606
householdszie	-.0015209	.004761	-0.32	0.749	-.0108524	.0078106
SES	-.0571212	.0078441	-7.28	0.000	-.0724953	-.0417471
LE8_TOTALSCORE	-.0002695	.0000556	-4.84	0.000	-.0003786	-.0001605
_cons	-.6352126	.0711756	-8.92	0.000	-.7747142	-.495711
sigma2						
_cons	.9658835	.0071807	134.51	0.000	.9518095	.9799575

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.235811	.1612275	7.67	0.000	.9198114 1.551812
ereri_cde	1.235249	.1633316	7.56	0.000	.9151253 1.555374
ereri_intref	-.000721	.0026916	-0.27	0.789	-.0059965 .0045544
ereri_intmed	.0041485	.0200793	0.21	0.836	-.0352063 .0435033
ereri_pie	-.0028654	.0060892	-0.47	0.638	-.0148 .0090692

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): zklk12
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8797.7697
 Iteration 2: Log likelihood = -8788.0009
 Iteration 3: Log likelihood = -8787.9486
 Iteration 4: Log likelihood = -8787.9486
 Refining estimates:
 Iteration 0: Log likelihood = -8787.9486

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) =	188.50
Log likelihood =	-8787.9486	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.240981	.1623322	11.14	0.000	1.944369 2.58284
zklk12	1.016511	.0393458	0.42	0.672	.9422469 1.096627
_infectionburXzklk12_000	1.068227	.0764903	0.92	0.357	.9283537 1.229176
AGE	1.037327	.0131941	2.88	0.004	1.011787 1.063512
SEX	.743965	.0489666	-4.49	0.000	.6539247 .8464032
NonWhite	1.106529	.188302	0.59	0.552	.7927032 1.544596
householdsize	.9384168	.0396069	-1.51	0.132	.8639127 1.019346
SES	.8302297	.04139	-3.73	0.000	.7529441 .9154482
LE8_TOTALSCORE	.9992339	.000359	-2.13	0.033	.9985305 .9999377

-> Model for the mediator

Iteration 0: Log likelihood = -50409.249	Number of obs = 35,573
Iteration 1: Log likelihood = -50409.249	Wald chi2(7) = 132.55
Linear regression (Maximum Likelihood)	Prob > chi2 = 0.0000
Log likelihood = -50409.249	

	zklk12	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0302737	.0154616	1.96	0.050	-.0000305 .0605779
AGE		.0003546	.0010082	0.35	0.725	-.0016214 .0023307
SEX		.0735546	.0106986	6.88	0.000	.0525857 .0945235
NonWhite		.1355285	.0255687	5.30	0.000	.0854148 .1856422
householdsize		.0015644	.0048693	0.32	0.748	-.0079793 .0111081
SES		-.0327117	.0080242	-4.08	0.000	-.0484389 -.0169845
LE8_TOTALSCORE		-.0002331	.000057	-4.09	0.000	-.0003447 -.0001214
_cons		-.0337303	.0728654	-0.46	0.643	-.1765439 .1090833
sigma2						
_cons		.9962597	.0074701	133.37	0.000	.9816186 1.010901

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.253258	.1627577	7.70	0.000	.9342584 1.572257
ereri_cde	1.2409	.1623178	7.64	0.000	.9227631 1.559037
ereri_intref	.0067453	.0105799	0.64	0.524	-.013991 .0274815
ereri_intmed	.0051164	.0050238	1.02	0.308	-.0047302 .0149629
ereri_pie	.0004959	.0011994	0.41	0.679	-.001855 .0028467

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): zklk13
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 .04639 2.216 -.07511 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 = **-8898.7362**
 Iteration 1: Log likelihood = **-8817.6145**
 Iteration 2: Log likelihood = **-8803.4569**
 Iteration 3: Log likelihood = **-8803.2392**
 Iteration 4: Log likelihood = **-8803.2391**
 Refining estimates:
 Iteration 0: Log likelihood = **-8803.2391**

Cox regression with Breslow method for ties

No. of subjects =	35,611	Number of obs =	35,611
No. of failures =	952		
Time at risk =	432,572.123	LR chi2(9) =	190.99
Log likelihood =	-8803.2391	Prob > chi2 =	0.0000

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.205041	.1612749	10.81	0.000	1.910559 2.544912
zklk13	1.003294	.0389552	0.08	0.933	.9297756 1.082625
_infectionburXzklk13_000	1.107785	.0746359	1.52	0.129	.9707486 1.264167
AGE	1.031837	.0130638	2.48	0.013	1.006548 1.057762
SEX	.7499325	.0497652	-4.34	0.000	.6584712 .8540977
NonWhite	1.042517	.182272	0.24	0.812	.7400488 1.468608
householdszie	.9385896	.0396186	-1.50	0.133	.8640638 1.019543
SES	.8234204	.0409244	-3.91	0.000	.746993 .9076674
LE8_TOTALSCORE	.9991351	.0003592	-2.41	0.016	.9984315 .9998393

-> Model for the mediator

Iteration 0: Log likelihood = **-49691.093**
 Iteration 1: Log likelihood = **-49691.093**

Linear regression (Maximum Likelihood)	Number of obs =	35,611	
	Wald chi2(7) =	1716.54	
Log likelihood =	-49691.093	Prob > chi2 =	0.0000

<u>zklk13</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0824112	.0150907	5.46	0.000	.0528339 .1119885
AGE	-.0093448	.0009866	-9.47	0.000	-.0112785 -.0074111
SEX	-.3312587	.0104635	-31.66	0.000	-.3517668 -.3107505
NonWhite	.2147049	.0250772	8.56	0.000	.1655546 .2638553
householdszie	.002125	.004744	0.45	0.654	-.0071731 .0114231
SES	-.048972	.0078464	-6.24	0.000	-.0643506 -.0335934
LE8_TOTALSCORE	-.0009819	.0000557	-17.63	0.000	-.0010911 -.0008727
_cons	1.531618	.0712962	21.48	0.000	1.391879 1.671356
sigma2					
_cons	.9539873	.0071493	133.44	0.000	.9399748 .9679997

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.233562	.1614635	7.64	0.000	.917099 1.550024
ereri_cde	1.20508	.1612779	7.47	0.000	.8889811 1.521179
ereri_intref	.0091188	.0110008	0.83	0.407	-.0124425 .03068
ereri_intmed	.0190918	.0112193	1.70	0.089	-.0028976 .0410811
ereri_pie	.000271	.0032011	0.08	0.933	-.0060029 .006545

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): zklk14
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -9114.0005

Iteration 2: Log likelihood = -9101.5602

Iteration 3: Log likelihood = -9101.3901

Iteration 4: Log likelihood = -9101.39

Refining estimates:

Iteration 0: Log likelihood = -9101.39

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 = -9101.39

LR chi2(9) = 199.44

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.242062	.1600508	11.31	0.000	1.949324 2.578761
zklk14	1.036553	.0398044	0.93	0.350	.9614016 1.117579
_infectionburXzklk14_000	1.078418	.0729048	1.12	0.264	.9445893 1.231208
AGE	1.033952	.012945	2.67	0.008	1.008889 1.059637
SEX	.7446477	.0487126	-4.51	0.000	.6550399 .8465136
NonWhite	1.061681	.1806528	0.35	0.725	.7605988 1.481945
householdsize	.932912	.0392624	-1.65	0.099	.8590474 1.013128
SES	.8255449	.0404919	-3.91	0.000	.7498776 .9088475
LE8_TOTALSCORE	.999119	.0003531	-2.49	0.013	.9984272 .9998112

-> Model for the mediator

Iteration 0: Log likelihood = -51356.179
 Iteration 1: Log likelihood = -51356.179

Linear regression (Maximum Likelihood) Number of obs = 36,726
 Wald chi2(7) = 1542.01
 Prob > chi2 = 0.0000
 Log likelihood = -51356.179

zklk14	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0257685	.0149329	1.73	0.084	-.0034995 .0550365
AGE	-.004791	.0009739	-4.92	0.000	-.0066999 -.0028822
SEX	.365479	.0103339	35.37	0.000	.345225 .385733
NonWhite	.2039977	.0247248	8.25	0.000	.155538 .2524573
householdsize	.0050926	.0047051	1.08	0.279	-.0041293 .0143145
SES	-.0785425	.0077507	-10.13	0.000	-.0937336 -.0633514
LE8_TOTALSCORE	-.0000339	.000055	-0.62	0.538	-.0001418 .000074
_cons	-.2844661	.0704312	-4.04	0.000	-.4225088 -.1464235
sigma2					
_cons	.9596789	.007082	135.51	0.000	.9457985 .9735593

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.259927	.160748	7.84	0.000	.9448671 1.574988
ereri_cde	1.241453	.1599835	7.76	0.000	.9278912 1.555015
ereri_intref	.0119964	.013112	0.91	0.360	-.0137026 .0376955
ereri_intmed	.0055523	.0047077	1.18	0.238	-.0036745 .0147792
ereri_pie	.0009255	.0011265	0.82	0.411	-.0012823 .0031334

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): zklk4
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -9112.8042
Iteration 2: Log likelihood = -9089.9462
Iteration 3: Log likelihood = -9088.6962
Iteration 4: Log likelihood = -9088.6879
Iteration 5: Log likelihood = -9088.6879
Refining estimates:
Iteration 0: Log likelihood = -9088.6879

```

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) =	224.85
Log likelihood =	-9088.6879	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.214335	.1726395	10.20	0.000	1.900552 2.579923
zklk4	1.192797	.0431519	4.87	0.000	1.11115 1.280444
_infectionburXzklk4_000	.9792991	.0608197	-0.34	0.736	.8670641 1.106062
AGE	1.022327	.0129626	1.74	0.082	.9972334 1.048051
SEX	.7651149	.0495347	-4.14	0.000	.6739358 .8686299
NonWhite	1.103973	.1876811	0.58	0.561	.7911339 1.540519
householdsize	.9331886	.03947	-1.63	0.102	.8589486 1.013845
SES	.8305529	.0407005	-3.79	0.000	.7544925 .914281
LE8_TOTALSCORE	.9991481	.0003529	-2.41	0.016	.9984567 .99984

-> Model for the mediator

Iteration 0: Log likelihood =	-50543.656	Number of obs =	36,726
Iteration 1: Log likelihood =	-50543.656	Wald chi2(7) =	3273.31
Log likelihood =	-50543.656	Prob > chi2 =	0.0000

	zklk4	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.1887341	.0146062	12.92	0.000	.1601066 .2173617
AGE		.0462146	.0009526	48.51	0.000	.0443475 .0480817
SEX		.1442701	.0101078	14.27	0.000	.1244592 .1640809
NonWhite		-.1371835	.0241838	-5.67	0.000	-.1845828 -.0897843
householdsize		.0027126	.0046022	0.59	0.556	-.0063076 .0117327
SES		-.0633623	.0075811	-8.36	0.000	-.078221 -.0485036
LE8_TOTALSCORE		.0000237	.0000538	0.44	0.660	-.0000818 .0001292
_cons		-3.044638	.0688901	-44.20	0.000	-3.17966 -2.909615
sigma2						
_cons		.9181409	.0067754	135.51	0.000	.9048613 .9314205

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.274227	.1658412	7.68	0.000	.9491843 1.59927
ereri_cde	1.202665	.1700477	7.07	0.000	.8693778 1.535952
ereri_intref	.0058363	.0135733	0.43	0.667	-.020767 .0324395
ereri_intmed	.0318919	.0220092	1.45	0.147	-.0112453 .0750292
ereri_pie	.0338338	.0075442	4.48	0.000	.0190475 .0486202

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): zklk6
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 .0465 2.217 -.07486 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 = **-9110.0809**
 Iteration 1: Log likelihood = **-9022.9534**
 Iteration 2: Log likelihood = **-9014.4918**
 Iteration 3: Log likelihood = **-9014.4711**
 Iteration 4: Log likelihood = **-9014.4711**
 Refining estimates:
 Iteration 0: Log likelihood = **-9014.4711**

Cox regression with Breslow method for ties

No. of subjects =	36,476	Number of obs =	36,476
No. of failures =	973		
Time at risk =	443,103.279	LR chi2(9) =	191.22
Log likelihood =	-9014.4711	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.256554	.1614002	11.38	0.000	1.961388 2.596139
zklk6		1.026745	.0399509	0.68	0.498	.9513539 1.10811
_infectionburXzklk6_000		.9366988	.0622152	-0.98	0.325	.8223628 1.066931
AGE		1.033761	.01301	2.64	0.008	1.008574 1.059577
SEX		.7684205	.0503321	-4.02	0.000	.6758412 .8736817
NonWhite		1.064018	.1832827	0.36	0.719	.7591454 1.491327
householdszie		.9327654	.0394636	-1.65	0.100	.8585383 1.01341
SES		.8231541	.0406069	-3.95	0.000	.7472926 .9067167
LE8_TOTALSCORE		.9990579	.0003544	-2.66	0.008	.9983636 .9997527

-> Model for the mediator

Iteration 0: Log likelihood = **-51417.969**
 Iteration 1: Log likelihood = **-51417.969**

Linear regression (Maximum Likelihood)	Number of obs =	36,476
	Wald chi2(7) =	683.80
Log likelihood =	-51417.969	Prob > chi2 = 0.0000

	zklk6	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0561501	.0151467	3.71	0.000	.0264632 .085837
AGE		.0053926	.000988	5.46	0.000	.0034562 .0073291
SEX		-.2514566	.0104876	-23.98	0.000	-.2720119 -.2309013
NonWhite		.0177693	.0251135	0.71	0.479	-.0314523 .0669908
householdszie		-.0025235	.0047744	-0.53	0.597	-.0118812 .0068342
SES		-.009933	.007872	-1.26	0.207	-.0253619 .0054959
LE8_TOTALSCORE		.0004734	.0000558	8.48	0.000	.000364 .0005828
_cons		-.1802669	.0714505	-2.52	0.012	-.3203074 -.0402265
sigma2						
_cons		.9815716	.0072683	135.05	0.000	.9673259 .9958172

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.253677	.1611035	7.78	0.000	.9379203 1.569434
ereri_cde	1.256383	.1613498	7.79	0.000	.9401432 1.572623
ereri_intref	.002235	.0057355	0.39	0.697	-.0090065 .0134764
ereri_intmed	-.0064237	.0074219	-0.87	0.387	-.0209703 .0081228
ereri_pie	.0014831	.0022244	0.67	0.505	-.0028766 .0058428

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): zklk8
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

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

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

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 .04642 2.218 -.07491 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 = **-8695.4081**

Iteration 1: Log likelihood = **-8611.2945**

Iteration 2: Log likelihood = **-8602.6164**

Iteration 3: Log likelihood = **-8602.5918**

Iteration 4: Log likelihood = **-8602.5918**

Refining estimates:

Iteration 0: Log likelihood = **-8602.5918**

Cox regression with Breslow method for ties

No. of subjects = **35,182** Number of obs = **35,182**

No. of failures = **933**

Time at risk = **427,395.969**

LR chi2(9) = **185.63**

Log likelihood = **-8602.5918**

Prob > chi2 = **0.0000**

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.275417	.1662746	11.25	0.000	1.971787 2.625802
zklk8	.992935	.0394592	-0.18	0.858	.9185316 1.073365
_infectionburXzklk8_000	.9883085	.0677635	-0.17	0.864	.8640319 1.13046
AGE	1.029663	.0132588	2.27	0.023	1.004001 1.05598
SEX	.7728775	.0527873	-3.77	0.000	.6760423 .8835832
NonWhite	1.083658	.189593	0.46	0.646	.7690759 1.526917
householdsize	.937513	.0401576	-1.51	0.132	.8620189 1.019619
SES	.8090028	.0408065	-4.20	0.000	.7328499 .893069
LE8_TOTALSCORE	.9990403	.0003642	-2.63	0.008	.9983266 .9997544

-> Model for the mediator

Iteration 0: Log likelihood = **-48573.669**
 Iteration 1: Log likelihood = **-48573.669**

Linear regression (Maximum Likelihood) Number of obs = **35,182**
 Wald chi2(7) = **2799.67**
 Log likelihood = **-48573.669** Prob > chi2 = **0.0000**

zklk8	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0966451	.014978	6.45	0.000	.0672888 .1260013
AGE	-.0066335	.0009768	-6.79	0.000	-.0085481 -.0047189
SEX	-.4837371	.0103732	-46.63	0.000	-.5040683 -.463406
NonWhite	.193409	.0248498	7.78	0.000	.1447043 .2421137
householdsize	-.0051453	.0047111	-1.09	0.275	-.0143789 .0040883
SES	-.0854116	.0077932	-10.96	0.000	-.1006861 -.0701372
LE8_TOTALSCORE	-.0007123	.0000553	-12.87	0.000	-.0008208 -.0006039
_cons	1.479261	.0706699	20.93	0.000	1.34075 1.617771
sigma2					
_cons	.9262626	.0069838	132.63	0.000	.9125747 .9399505

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.271954	.1654687	7.69	0.000	.9476416 1.596267
ereri_cde	1.275266	.1662566	7.67	0.000	.9494086 1.601123
ereri_intref	.0008315	.004082	0.20	0.839	-.007169 .008832
ereri_intmed	-.0034579	.0130571	-0.26	0.791	-.0290493 .0221336
ereri_pie	-.000685	.0038395	-0.18	0.858	-.0082103 .0068403

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): zklrb1
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -9075.3045
 Iteration 2: Log likelihood = -9066.3517
 Iteration 3: Log likelihood = -9066.3327
 Iteration 4: Log likelihood = -9066.3327
 Refining estimates:
 Iteration 0: Log likelihood = -9066.3327

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) =	200.09
Log likelihood =	-9066.3327	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.297672	.1654932	11.55	0.000	1.995166 2.646044
zklrb1	1.014268	.0389555	0.37	0.712	.9407191 1.093566
_infectionburXzklrb1_000	.9562266	.0633342	-0.68	0.499	.8398133 1.088777
AGE	1.035625	.0130021	2.79	0.005	1.010453 1.061425
SEX	.7535251	.0489226	-4.36	0.000	.6634886 .8557798
NonWhite	1.052616	.1821261	0.30	0.767	.7498824 1.477566
householdsize	.9361989	.039328	-1.57	0.117	.8622053 1.016543
SES	.8183455	.0401819	-4.08	0.000	.7432613 .9010148
LE8_TOTALSCORE	.9990722	.0003544	-2.62	0.009	.9983779 .9997669

-> Model for the mediator

Iteration 0: Log likelihood = -51601.203
 Iteration 1: Log likelihood = -51601.203

Linear regression (Maximum Likelihood)

Number of obs =	36,824
Wald chi2(7) =	1321.75
Prob > chi2 =	0.0000

Log likelihood = **-51601.203**

	zklrb1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.1399686	.0149494	9.36	0.000	.1106683 .1692689
AGE		.0160598	.0009751	16.47	0.000	.0141487 .0179709
SEX		-.1276539	.0103512	-12.33	0.000	-.147942 -.1073659
NonWhite		-.5258073	.0247616	-21.23	0.000	-.5743391 -.4772755
householdsize		.0093224	.0047191	1.98	0.048	.0000731 .0185717
SES		-.0463087	.0077621	-5.97	0.000	-.0615221 -.0310953
LE8_TOTALSCORE		-.0005838	.0000551	-10.59	0.000	-.0006918 -.0004758
_cons		-.4979374	.0704823	-7.06	0.000	-.6360802 -.3597947
sigma2						
_cons		.9653239	.0071141	135.69	0.000	.9513804 .9792673

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.290656	.163605	7.89	0.000	.9699964 1.611316
ereri_cde	1.297903	.1655378	7.84	0.000	.9734552 1.622352
ereri_intref	.002583	.0061721	0.42	0.676	-.0095141 .0146801
ereri_intmed	-.0118148	.0183908	-0.64	0.521	-.0478602 .0242305
ereri_pie	.0019849	.0053907	0.37	0.713	-.0085807 .0125504

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): zklrd1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-9075.5711**
 Iteration 2: Log likelihood = **-9065.4978**
 Iteration 3: Log likelihood = **-9065.4525**
 Iteration 4: Log likelihood = **-9065.4525**
 Refining estimates:
 Iteration 0: Log likelihood = **-9065.4525**

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) =	201.85
Log likelihood =	-9065.4525	Prob > chi2 =	0.0000

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.294724	.1642467	11.60	0.000	1.994367 2.640316
zklrd1	.9633409	.0373723	-0.96	0.336	.892808 1.039446
_infectionburXzklrd1_000	.9727192	.066499	-0.40	0.686	.8507381 1.11219
AGE	1.036792	.0130288	2.88	0.004	1.011568 1.062645
SEX	.7600303	.0494743	-4.22	0.000	.6689932 .8634557
NonWhite	1.046394	.1802452	0.26	0.792	.7465739 1.466621
householdszie	.9377441	.0393259	-1.53	0.125	.8637493 1.018078
SES	.81607	.0400849	-4.14	0.000	.7411683 .8985412
LE8_TOTALSCORE	.999044	.0003543	-2.70	0.007	.9983499 .9997386

-> Model for the mediator

Iteration 0: Log likelihood = **-51502.827**
 Iteration 1: Log likelihood = **-51502.827**

Linear regression (Maximum Likelihood)	Number of obs =	36,824
	Wald chi2(7) =	1526.11
Log likelihood =	Prob > chi2 =	0.0000

<u>zklrd1</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0938308	.0149095	6.29	0.000	.0646087 .1230529
AGE	.0285271	.0009725	29.34	0.000	.0266211 .0304331
SEX	.1508743	.0103236	14.61	0.000	.1306403 .1711082
NonWhite	-.0520258	.0246955	-2.11	0.035	-.1004281 -.0036234
householdszie	.0243987	.0047065	5.18	0.000	.0151741 .0336233
SES	-.046802	.0077414	-6.05	0.000	-.0619748 -.0316292
LE8_TOTALSCORE	-.000866	.000055	-15.76	0.000	-.0009737 -.0007582
_cons	-1.582495	.0702942	-22.51	0.000	-1.720269 -1.444721
sigma2					
_cons	.9601798	.0070762	135.69	0.000	.9463107 .974049

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.284695	.1635833	7.85	0.000	.9640771 1.605312
ereri_cde	1.293229	.1642062	7.88	0.000	.9713906 1.615067
ereri_intref	.0054443	.0100825	0.54	0.589	-.0143169 .0252056
ereri_intmed	-.0104804	.0129807	-0.81	0.419	-.035922 .0149613
ereri_pie	-.0034983	.0036696	-0.95	0.340	-.0106905 .003694

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): zkrt14
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 .04697 2.214 -.075 500.4

-> 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 = -8541.978

Iteration 1: Log likelihood = -8459.0965

Iteration 2: Log likelihood = -8451.2557

Iteration 3: Log likelihood = -8451.2334

Iteration 4: Log likelihood = -8451.2334

Refining estimates:

Iteration 0: Log likelihood = -8451.2334

Cox regression with Breslow method for ties

No. of subjects = 34,490 Number of obs = 34,490

No. of failures = 916

Time at risk = 418,861.527

Log likelihood = -8451.2334 LR chi2(9) = 181.49

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.230429	.1645917	10.87	0.000	1.930079 2.577518
zkrt14	1.003676	.0392328	0.09	0.925	.9296532 1.083593
_infectionburXzkrt14_000	1.01155	.0727404	0.16	0.873	.8785724 1.164654
AGE	1.035572	.0133558	2.71	0.007	1.009724 1.062083
SEX	.7568544	.0507826	-4.15	0.000	.6635892 .8632276
NonWhite	1.089001	.1903681	0.49	0.626	.7730896 1.534005
householdszie	.9252509	.0412009	-1.74	0.081	.8479222 1.009632
SES	.8150581	.0412665	-4.04	0.000	.7380609 .9000881
LE8_TOTALSCORE	.999138	.0003645	-2.36	0.018	.9984238 .9998526

-> Model for the mediator

Iteration 0: Log likelihood = **-48890.475**
 Iteration 1: Log likelihood = **-48890.475**

Linear regression (Maximum Likelihood)
 Number of obs = 34,490
 Wald chi2(7) = 96.57
 Log likelihood = **-48890.475** Prob > chi2 = 0.0000

zkrt14	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0087056	.0157052	0.55	0.579	-.0220761 .0394873
AGE	-.0000286	.001028	-0.03	0.978	-.0020435 .0019864
SEX	-.1011612	.0108719	-9.30	0.000	-.1224697 -.0798526
NonWhite	-.046452	.0259173	-1.79	0.073	-.097249 .0043451
householdszie	.0053785	.0052376	1.03	0.304	-.0048871 .0156441
SES	-.0082314	.0081646	-1.01	0.313	-.0242338 .007771
LE8_TOTALSCORE	-.0000562	.0000578	-0.97	0.332	-.0001695 .0000572
_cons	.1730691	.0746084	2.32	0.020	.0268393 .3192989
sigma2					
_cons	.9971791	.0075935	131.32	0.000	.9822961 1.012062

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.230933	.1646111	7.48	0.000	.9083011 1.553565
ereri_cde	1.230426	.1645899	7.48	0.000	.9078362 1.553017
ereri_intref	.0002123	.0018842	0.11	0.910	-.0034807 .0039053
ereri_intmed	.0002623	.0013099	0.20	0.841	-.0023049 .0028296
ereri_pie	.0000319	.0003451	0.09	0.926	-.0006445 .0007084

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): zkrt18
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8966.355
 Iteration 2: Log likelihood = -8957.6529
 Iteration 3: Log likelihood = -8957.63
 Iteration 4: Log likelihood = -8957.63
 Refining estimates:
 Iteration 0: Log likelihood = -8957.63

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) =	199.97
Log likelihood =	-8957.63	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.279378	.1639204	11.46	0.000	1.979714 2.6244
zkrt18	.9184292	.039021	-2.00	0.045	.8450471 .9981836
_infectionburXzkrt18_000	.9819689	.0726839	-0.25	0.806	.8493624 1.135279
AGE	1.032165	.0129999	2.51	0.012	1.006998 1.057961
SEX	.727237	.048286	-4.80	0.000	.6384974 .8283099
NonWhite	1.076298	.1831398	0.43	0.666	.7710713 1.502348
householdsize	.9370643	.0392761	-1.55	0.121	.8631616 1.017294
SES	.8112353	.0400442	-4.24	0.000	.7364271 .8936427
LE8_TOTALSCORE	.9988463	.0003646	-3.16	0.002	.9981319 .9995612

-> Model for the mediator

Iteration 0: Log likelihood = -48775.473
 Iteration 1: Log likelihood = -48775.473

Linear regression (Maximum Likelihood)
 Number of obs = 36,264
 Wald chi2(7) = 5777.34
 Log likelihood = -48775.473 Prob > chi2 = 0.0000

	zkrt18	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.1385614	.0142331	9.74	0.000	.110665 .1664578
AGE		.0058169	.0009294	6.26	0.000	.0039953 .0076385
SEX		-.4360552	.0098591	-44.23	0.000	-.4553787 -.4167317
NonWhite		-.1210291	.0235914	-5.13	0.000	-.1672673 -.0747909
householdsize		-.003	.0044838	-0.67	0.503	-.0117881 .0057882
SES		-.0708178	.0073942	-9.58	0.000	-.0853102 -.0563253
LE8_TOTALSCORE		-.0026931	.0000525	-51.30	0.000	-.002796 -.0025902
_cons		1.654074	.0671684	24.63	0.000	1.522426 1.785722
sigma2						
_cons		.8625558	.0064057	134.66	0.000	.850001 .8751107

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.251101	.1619369	7.73	0.000	.9337106 1.568491
ereri_cde	1.273302	.1632949	7.80	0.000	.9532497 1.593354
ereri_intref	.0102472	.0159558	0.64	0.521	-.0210256 .0415201
ereri_intmed	-.0207272	.0208091	-1.00	0.319	-.0615123 .020058
ereri_pie	-.011721	.0059399	-1.97	0.048	-.0233629 -.0000791

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): zkrt19
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

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

```
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 2.216 -.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 = **-8999.3113**
 Iteration 1: Log likelihood = **-8908.9006**
 Iteration 2: Log likelihood = **-8900.2158**
 Iteration 3: Log likelihood = **-8900.1806**
 Iteration 4: Log likelihood = **-8900.1805**
 Refining estimates:
 Iteration 0: Log likelihood = **-8900.1805**

Cox regression with Breslow method for ties

No. of subjects =	36,286	Number of obs =	36,286
No. of failures =	961		
Time at risk =	440,871.512	LR chi2(9) =	198.26
Log likelihood =	-8900.1805	Prob > chi2 =	0.0000

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.274685	.1677963	11.14	0.000	1.968479 2.628523
zkrt19	1.113989	.042551	2.83	0.005	1.033636 1.200588
_infectionburXzkrt19_000	.9218736	.061305	-1.22	0.221	.809219 1.050211
AGE	1.030155	.0130283	2.35	0.019	1.004934 1.05601
SEX	.759896	.0496643	-4.20	0.000	.6685324 .8637456
NonWhite	1.050979	.1812824	0.29	0.773	.7494989 1.473727
householdszie	.9378849	.0397261	-1.51	0.130	.8631675 1.01907
SES	.8263421	.0409629	-3.85	0.000	.7498332 .9106575
LE8_TOTALSCORE	.999083	.000356	-2.57	0.010	.9983854 .999781

-> Model for the mediator

Iteration 0: Log likelihood = **-50821.425**
 Iteration 1: Log likelihood = **-50821.425**

Linear regression (Maximum Likelihood)	Number of obs =	36,286
	Wald chi2(7) =	1356.08
Log likelihood =	Prob > chi2 =	0.0000

<u>zkrt19</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.1668622	.0150565	11.08	0.000	.1373521 .1963724
AGE	.0234039	.0009828	23.81	0.000	.0214777 .0253301
SEX	-.040895	.01042	-3.92	0.000	-.0613177 -.0204723
NonWhite	.0727558	.0249629	2.91	0.004	.0238294 .1216822
householdszie	-.0120572	.004821	-2.50	0.012	-.0215063 -.0026082
SES	-.1045788	.0078153	-13.38	0.000	-.1198965 -.0892611
LE8_TOTALSCORE	-.0004056	.0000555	-7.31	0.000	-.0005143 -.0002968
_cons	-1.150472	.0710827	-16.18	0.000	-1.289792 -1.011152
sigma2					
_cons	.9639477	.0071565	134.70	0.000	.9499213 .9779741

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.277061	.1643372	7.77	0.000	.9549657 1.599156
ereri_cde	1.270713	.1669014	7.61	0.000	.9435926 1.597834
ereri_intref	-.003737	.0031106	-1.20	0.230	-.0098337 .0023598
ereri_intmed	-.0080911	.0216128	-0.37	0.708	-.0504515 .0342692
ereri_pie	.0181755	.0066971	2.71	0.007	.0050493 .0313017

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): zkrt5
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -8734.3831

Iteration 2: Log likelihood = -8725.121

Iteration 3: Log likelihood = -8725.073

Iteration 4: Log likelihood = -8725.073

Refining estimates:

Iteration 0: Log likelihood = -8725.073

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 = -8725.073

LR chi2(9) = 188.98

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.20645	.1610781	10.84	0.000	1.91229 2.545861
zkrt5	.9789303	.0394732	-0.53	0.597	.9045425 1.059436
_infectionburXzkrt5_000	.8945254	.0663532	-1.50	0.133	.7734871 1.034504
AGE	1.037113	.0132021	2.86	0.004	1.011558 1.063314
SEX	.7275769	.0501385	-4.62	0.000	.6356545 .8327921
NonWhite	1.079219	.1862775	0.44	0.659	.7694645 1.513667
householdsize	.9292188	.0401112	-1.70	0.089	.8538362 1.011257
SES	.8178215	.0407807	-4.03	0.000	.7416744 .9017865
LE8_TOTALSCORE	.9991824	.0003605	-2.27	0.023	.998476 .9998893

-> Model for the mediator

Iteration 0: Log likelihood = **-48806.892**
 Iteration 1: Log likelihood = **-48806.892**

Linear regression (Maximum Likelihood) Number of obs = 35,601
 Wald chi2(7) = 3585.78
 Log likelihood = **-48806.892** Prob > chi2 = 0.0000

zkrt5	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0118422	.0147412	0.80	0.422	-.0170499 .0407344
AGE	-.0067078	.0009652	-6.95	0.000	-.0085995 -.0048162
SEX	-.5799865	.0102121	-56.79	0.000	-.6000019 -.5599712
NonWhite	-.3469182	.0243671	-14.24	0.000	-.3946767 -.2991596
householdsize	.0047122	.0048447	0.97	0.331	-.0047832 .0142076
SES	.0011213	.0076715	0.15	0.884	-.0139145 .0161571
LE8_TOTALSCORE	-.0003427	.0000544	-6.30	0.000	-.0004494 -.000236
_cons	1.46721	.0699706	20.97	0.000	1.33007 1.60435
sigma2					
_cons	.9084696	.0068092	133.42	0.000	.8951239 .9218153

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.220641	.1617689	7.55	0.000	.9035796 1.537702
ereri_cde	1.20616	.1610387	7.49	0.000	.8905296 1.52179
ereri_intref	.0179751	.0173595	1.04	0.300	-.0160489 .0519992
ereri_intmed	-.0032417	.0043978	-0.74	0.461	-.0118612 .0053777
ereri_pie	-.0002521	.0005713	-0.44	0.659	-.0013719 .0008676

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): zkyat1
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 2.218 -.07611 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 = -9034.9807
 Iteration 1: Log likelihood = -8939.6665
 Iteration 2: Log likelihood = -8930.6406
 Iteration 3: Log likelihood = -8930.6158
 Iteration 4: Log likelihood = -8930.6158
 Refining estimates:
 Iteration 0: Log likelihood = -8930.6158

Cox regression with Breslow method for ties

No. of subjects =	36,380	Number of obs =	36,380
No. of failures =	965		
Time at risk =	441,992.607	LR chi2(9) =	208.73
Log likelihood =	-8930.6158	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.285098	.1639147	11.52	0.000	1.985393 2.630045
zkyat1	.8797695	.0347916	-3.24	0.001	.8141548 .9506722
_infectionburXzkyat1_000	1.085488	.0777613	1.15	0.252	.9432948 1.249116
AGE	1.034548	.0130549	2.69	0.007	1.009274 1.060454
SEX	.7467318	.0487515	-4.47	0.000	.6570413 .8486658
NonWhite	1.01746	.1800579	0.10	0.922	.7192538 1.439305
householdsize	.9255981	.0399439	-1.79	0.073	.8505291 1.007293
SES	.8242663	.0408003	-3.90	0.000	.7480558 .908241
LE8_TOTALSCORE	.9989521	.0003566	-2.94	0.003	.9982534 .9996513

-> Model for the mediator

Iteration 0: Log likelihood = -51480.396
 Iteration 1: Log likelihood = -51480.396

Linear regression (Maximum Likelihood)

Number of obs =	36,380
Wald chi2(7) =	281.26
Prob > chi2 =	0.0000

Log likelihood = -51480.396

	zkyat1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.016466	.0152317	-1.08	0.280	-.0463197 .0133876
AGE		.0008266	.000995	0.83	0.406	-.0011236 .0027768
SEX		-.0463536	.0105587	-4.39	0.000	-.0670482 -.0256589
NonWhite		.0759722	.0252878	3.00	0.003	.026409 .1255354
householdsize		-.0056966	.0048038	-1.19	0.236	-.0151119 .0037188
SES		.0028593	.0079232	0.36	0.718	-.0126699 .0183886
LE8_TOTALSCORE		-.0008452	.0000563	-15.02	0.000	-.0009555 -.0007349
_cons		.4558147	.0719168	6.34	0.000	.3148604 .596769
sigma2						
_cons		.9923009	.0073574	134.87	0.000	.9778806 1.006721

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.271106	.1623687	7.83	0.000	.9528694 1.589343
ereri_cde	1.275052	.1623756	7.85	0.000	.9568018 1.593303
ereri_intref	-.0056681	.0076517	-0.74	0.459	-.0206652 .009329
ereri_intmed	-.0003894	.0023582	-0.17	0.869	-.0050115 .0042326
ereri_pie	.0021114	.0020613	1.02	0.306	-.0019285 .0061514

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): zkynu
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -9064.084
 Iteration 2: Log likelihood = -9050.2603
 Iteration 3: Log likelihood = -9050.1085
 Iteration 4: Log likelihood = -9050.1085
 Refining estimates:
 Iteration 0: Log likelihood = -9050.1085

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) =	232.53
Log likelihood =	-9050.1085	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.271055	.1627546	11.45	0.000	1.973452 2.613538
zkynu		.8184395	.0332492	-4.93	0.000	.7557992 .8862715
_infectionburXzkynu_000		1.018837	.0745762	0.25	0.799	.8826716 1.176009
AGE		1.034923	.0129761	2.74	0.006	1.0098 1.060671
SEX		.7281497	.0473977	-4.87	0.000	.6409337 .8272337
NonWhite		1.042574	.1795785	0.24	0.809	.7438601 1.461243
householdszie		.9365534	.0391392	-1.57	0.117	.8628995 1.016494
SES		.8119349	.03985	-4.24	0.000	.7374693 .8939196
LE8_TOTALSCORE		.9987455	.0003583	-3.50	0.000	.9980435 .9994479

-> Model for the mediator

Iteration 0: Log likelihood = -50988.458
 Iteration 1: Log likelihood = -50988.458

Linear regression (Maximum Likelihood)	Number of obs =	36,824
	Wald chi2(7) =	2612.59
Log likelihood =	Prob > chi2 =	0.0000

	zkynu	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0238992	.0147027	1.63	0.104	-.0049175 .052716
AGE		.0009121	.000959	0.95	0.342	-.0009675 .0027916
SEX		-.2286568	.0101804	-22.46	0.000	-.24861 -.2087035
NonWhite		.0284436	.024353	1.17	0.243	-.0192873 .0761745
householdszie		-.0145743	.0046412	-3.14	0.002	-.023671 -.0054776
SES		-.0301295	.007634	-3.95	0.000	-.0450919 -.0151672
LE8_TOTALSCORE		-.0022439	.0000542	-41.41	0.000	-.0023502 -.0021377
_cons		1.443639	.0693192	20.83	0.000	1.307776 1.579502
sigma2						
_cons		.9337269	.0068813	135.69	0.000	.9202398 .9472139

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.253561	.160471	7.81	0.000	.9390433 1.568078
ereri_cde	1.246627	.1593169	7.82	0.000	.934372 1.558883
ereri_intref	.0167404	.0250566	0.67	0.504	-.0323696 .0658504
ereri_intmed	-.0050301	.0046976	-1.07	0.284	-.0142372 .004177
ereri_pie	-.0047769	.0030868	-1.55	0.122	-.010827 .0012732

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): zl1cam
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -9044.5138

Iteration 2: Log likelihood = -9033.136

Iteration 3: Log likelihood = -9033.0287

Iteration 4: Log likelihood = -9033.0287

Refining estimates:

Iteration 0: Log likelihood = -9033.0287

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) = 198.43

Log likelihood = -9033.0287 Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.253857	.160833	11.39	0.000	1.959682 2.592193
z11cam	.9588231	.0375016	-1.08	0.282	.8880679 1.035216
_infectionburXz11cam_000	.918988	.0635012	-1.22	0.221	.802588 1.05227
AGE	1.034704	.0130101	2.71	0.007	1.009516 1.06052
SEX	.7576854	.0493235	-4.26	0.000	.6669262 .8607957
NonWhite	1.107559	.1918299	0.59	0.555	.7887476 1.555233
householdsize	.9308494	.0393645	-1.69	0.090	.8568073 1.01129
SES	.8196845	.040393	-4.03	0.000	.7442188 .9028027
LE8_TOTALSCORE	.9990383	.0003542	-2.71	0.007	.9983443 .9997327

-> Model for the mediator

Iteration 0: Log likelihood = -51227.251
 Iteration 1: Log likelihood = -51227.251

Linear regression (Maximum Likelihood) Number of obs = 36,540
 Wald chi2(7) = 1261.82
 Log likelihood = -51227.251 Prob > chi2 = 0.0000

z11cam	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	-.0371513	.0150222	-2.47	0.013	-.0665944 -.0077082
AGE	.0143774	.0009797	14.68	0.000	.0124573 .0162975
SEX	-.1790897	.0103976	-17.22	0.000	-.1994687 -.1587107
NonWhite	.561624	.0249199	22.54	0.000	.512782 .610466
householdsize	-.0158144	.0047345	-3.34	0.001	-.0250938 -.0065351
SES	-.0541574	.0078051	-6.94	0.000	-.0694551 -.0388597
LE8_TOTALSCORE	-.0003221	.0000554	-5.82	0.000	-.0004306 -.0002136
_cons	-.4197372	.0708403	-5.93	0.000	-.5585816 -.2808928
sigma2					
_cons	.9665936	.0071511	135.17	0.000	.9525776 .9806095

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.279126	.163379	7.83	0.000	.9589085 1.599342
ereri_cde	1.253058	.1607934	7.79	0.000	.9379087 1.568207
ereri_intref	.0153791	.0153783	1.00	0.317	-.0147619 .04552
ereri_intmed	.0091252	.0063568	1.44	0.151	-.0033339 .0215842
ereri_pie	.0015634	.0015869	0.99	0.325	-.0015469 .0046737

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): zlactb2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8972.45
Iteration 2: Log likelihood = -8962.4833
Iteration 3: Log likelihood = -8962.4412
Iteration 4: Log likelihood = -8962.4412
Refining estimates:
Iteration 0: Log likelihood = -8962.4412

```

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) =	204.77
Log likelihood =	-8962.4412	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.282046	.1634154	11.52	0.000	1.983219 2.6259
zlactb2	.9082946	.0359615	-2.43	0.015	.8404767 .9815847
_infectionburXzlactb2_000	1.006186	.0731982	0.08	0.932	.8724784 1.160383
AGE	1.033859	.0130194	2.64	0.008	1.008653 1.059694
SEX	.7509211	.0489396	-4.40	0.000	.6608747 .8532366
NonWhite	1.008893	.1785074	0.05	0.960	.7132453 1.427091
householdsize	.9265866	.039881	-1.77	0.076	.8516274 1.008144
SES	.8247	.0407853	-3.90	0.000	.7485143 .9086401
LE8_TOTALSCORE	.9989689	.0003568	-2.89	0.004	.9982699 .9996684

-> Model for the mediator

Iteration 0: Log likelihood =	-51542.411	Number of obs =	36,441
Iteration 1: Log likelihood =	-51542.411	Wald chi2(7) =	330.75
Linear regression (Maximum Likelihood)		Prob > chi2 =	0.0000
Log likelihood =	-51542.411		

zlactb2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	-.005689	.0152136	-0.37	0.708	-.0355071 .0241292
AGE	-.0011805	.0009936	-1.19	0.235	-.003128 .000767
SEX	.0053822	.0105424	0.51	0.610	-.0152805 .0260449
NonWhite	.0009319	.0252432	0.04	0.971	-.0485438 .0504077
householdsize	-.0012963	.0047977	-0.27	0.787	-.0106996 .008107
SES	-.0229498	.0079112	-2.90	0.004	-.0384554 -.0074442
LE8_TOTALSCORE	-.0009495	.0000562	-16.89	0.000	-.0010597 -.0008394
_cons	.5399194	.0718136	7.52	0.000	.3991674 .6806714
sigma2					
_cons	.9909782	.0073415	134.98	0.000	.9765891 1.005367

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.281928	.1628212	7.87	0.000	.9628039 1.601051
ereri_cde	1.276279	.1625213	7.85	0.000	.9577436 1.594815
ereri_intref	.0044798	.012864	0.35	0.728	-.0207331 .0296927
ereri_intmed	.000621	.0018566	0.33	0.738	-.003018 .0042599
ereri_pie	.0005474	.0014814	0.37	0.712	-.0023561 .0034508

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): zlag3
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8970.3849**
 Iteration 2: Log likelihood = **-8958.9409**
 Iteration 3: Log likelihood = **-8958.8617**
 Iteration 4: Log likelihood = **-8958.8617**
 Refining estimates:
 Iteration 0: Log likelihood = **-8958.8617**

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) =	197.51
Log likelihood =	-8958.8617	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.291516	.1646363	11.54	0.000	1.990524	2.638022
zlag3	.9814377	.0395351	-0.47	0.642	.9069303	1.062066
_infectionburXzlag3_000	.906129	.0649846	-1.37	0.169	.787308	1.042883
AGE	1.03316	.0130429	2.58	0.010	1.00791	1.059043
SEX	.7576204	.0495575	-4.24	0.000	.666458	.8612524
NonWhite	1.093087	.1859244	0.52	0.601	.7832001	1.525585
householdszie	.9363059	.0393565	-1.57	0.117	.8622605	1.01671
SES	.8152429	.0402361	-4.14	0.000	.7400757	.8980445
LE8_TOTALSCORE	.9990634	.0003552	-2.64	0.008	.9983675	.9997598

-> Model for the mediator

Iteration 0: Log likelihood = **-50670.71**
 Iteration 1: Log likelihood = **-50670.71**

Linear regression (Maximum Likelihood)	Number of obs =	36,264
	Wald chi2(7) =	1604.85
Log likelihood =	Prob > chi2 =	0.0000

	zlag3	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr	.1272144	.0149968	8.48	0.000	.0978213	.1566075
AGE	.0306918	.0009793	31.34	0.000	.0287725	.0326111
SEX	.2012243	.0103881	19.37	0.000	.1808641	.2215846
NonWhite	.1616621	.0248571	6.50	0.000	.1129432	.2103811
householdszie	.0097763	.0047244	2.07	0.039	.0005166	.0190359
SES	-.0481773	.007791	-6.18	0.000	-.0634473	-.0329073
LE8_TOTALSCORE	.0001901	.0000553	3.44	0.001	.0000817	.0002985
_cons	-2.300929	.0707722	-32.51	0.000	-2.43964	-2.162218
sigma2						
_cons	.9575944	.0071115	134.66	0.000	.9436562	.9715326

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.276076	.1638028	7.79	0.000	.9550284 1.597123
ereri_cde	1.290872	.1646615	7.84	0.000	.968141 1.613602
ereri_intref	.0194262	.0182155	1.07	0.286	-.0162755 .0551279
ereri_intmed	-.0318412	.0190094	-1.68	0.094	-.0690988 .0054165
ereri_pie	-.0023807	.00512	-0.46	0.642	-.0124158 .0076543

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): zlair1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -8986.7302

Iteration 2: Log likelihood = -8974.5876

Iteration 3: Log likelihood = -8974.3688

Iteration 4: Log likelihood = -8974.3686

Refining estimates:

Iteration 0: Log likelihood = -8974.3686

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) = 197.50

Log likelihood = -8974.3686

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.211143	.1695538	10.35	0.000	1.902591 2.569734
zlair1	1.099463	.0420513	2.48	0.013	1.020058 1.18505
_infectionburXzlair1_000	.9799877	.0628557	-0.32	0.753	.8642217 1.111261
AGE	1.032075	.0130672	2.49	0.013	1.006779 1.058006
SEX	.7544082	.0491033	-4.33	0.000	.6640533 .8570574
NonWhite	1.08396	.1846348	0.47	0.636	.7762922 1.513567
householdsize	.9413224	.0390961	-1.46	0.145	.8677314 1.021155
SES	.8353211	.041365	-3.63	0.000	.7580573 .9204599
LE8_TOTALSCORE	.9992056	.0003598	-2.21	0.027	.9985007 .999911

-> Model for the mediator

Iteration 0: Log likelihood = **-49665.976**
 Iteration 1: Log likelihood = **-49665.976**

Linear regression (Maximum Likelihood) Number of obs = 36,432
 Wald chi2(7) = 4291.05
 Log likelihood = **-49665.976** Prob > chi2 = 0.0000

zlair1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.2659461	.0144668	18.38	0.000	.2375916 .2943005
AGE	.0341511	.0009437	36.19	0.000	.0323014 .0360008
SEX	.0583785	.0100187	5.83	0.000	.0387422 .0780148
NonWhite	-.0080636	.0240162	-0.34	0.737	-.0551346 .0390074
householdsize	-.0004682	.0045582	-0.10	0.918	-.0094022 .0084658
SES	-.1172584	.00752	-15.59	0.000	-.1319972 -.1025195
LE8_TOTALSCORE	-.0019562	.0000534	-36.65	0.000	-.0020608 -.0018515
_cons	-1.209976	.0681848	-17.75	0.000	-1.343616 -1.076336
sigma2					
_cons	.8946039	.0066283	134.97	0.000	.8816126 .9075952

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.253682	.1640565	7.64	0.000	.9321374 1.575227
ereri_cde	1.210513	.169202	7.15	0.000	.8788827 1.542142
ereri_intref	-.0011059	.0039062	-0.28	0.777	-.008762 .0065501
ereri_intmed	.0187373	.0319631	0.59	0.558	-.0439091 .0813838
ereri_pie	.0255383	.0105259	2.43	0.015	.0049079 .0461686

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): zlair2
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8897.6862
 Iteration 2: Log likelihood = -8888.3932
 Iteration 3: Log likelihood = -8888.3203
 Iteration 4: Log likelihood = -8888.3203
 Refining estimates:
 Iteration 0: Log likelihood = -8888.3203

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 = -8888.3203	LR chi2(9) = 194.25
	Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.213846	.1595484	11.03	0.000	1.922218 2.549718
zlair2	1.011393	.03852	0.30	0.766	.9386445 1.08978
_infectionburXzlair2_000	.9174803	.0622771	-1.27	0.205	.8031904 1.048033
AGE	1.037457	.0131154	2.91	0.004	1.012067 1.063484
SEX	.7418748	.0486486	-4.55	0.000	.6523985 .8436228
NonWhite	1.02247	.1786625	0.13	0.899	.7259641 1.440079
householdsize	.9433134	.0394207	-1.40	0.163	.8691297 1.023829
SES	.8096148	.0401248	-4.26	0.000	.7346705 .8922043
LE8_TOTALSCORE	.9990161	.0003564	-2.76	0.006	.9983178 .9997149

-> Model for the mediator

Iteration 0: Log likelihood = -51104.463
 Iteration 1: Log likelihood = -51104.463

Linear regression (Maximum Likelihood)

Log likelihood = -51104.463	Number of obs = 36,164
	Wald chi2(7) = 421.50
	Prob > chi2 = 0.0000

	zlair2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0708902	.0152703	4.64	0.000	.040961 .1008194
AGE		.0099404	.0009991	9.95	0.000	.0079821 .0118986
SEX		.1160053	.0105701	10.97	0.000	.0952882 .1367224
NonWhite		.2561011	.0253456	10.10	0.000	.2064246 .3057777
householdsize		-.0028961	.0050128	-0.58	0.563	-.012721 .0069289
SES		-.0234698	.0079457	-2.95	0.003	-.0390431 -.0078965
LE8_TOTALSCORE		-.0003248	.0000563	-5.77	0.000	-.0004351 -.0002146
_cons		-.630238	.0724119	-8.70	0.000	-.7721628 -.4883133
sigma2						
_cons		.9884518	.0073508	134.47	0.000	.9740445 1.002859

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.209966	.1593059	7.60	0.000	.8977321 1.5222
ereri_cde	1.213904	.1595548	7.61	0.000	.9011826 1.526626
ereri_intref	.0078107	.010556	0.74	0.459	-.0128787 .0285001
ereri_intmed	-.0125524	.0097087	-1.29	0.196	-.0315811 .0064763
ereri_pie	.0008034	.0027076	0.30	0.767	-.0045035 .0061103

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): zlama4
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -9038.7817
 Iteration 2: Log likelihood = -9024.6832
 Iteration 3: Log likelihood = -9024.5208
 Iteration 4: Log likelihood = -9024.5208
 Refining estimates:
 Iteration 0: Log likelihood = -9024.5208

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) =	202.72
Log likelihood =	-9024.5208	Prob > chi2 =	0.0000

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.24434	.1603899	11.31	0.000	1.951005 2.581779
zlama4	.9288626	.0367385	-1.87	0.062	.8595767 1.003733
_infectionburXzlama4_000	.9074449	.0637586	-1.38	0.167	.790703 1.041423
AGE	1.035851	.013004	2.81	0.005	1.010675 1.061655
SEX	.7758766	.0507351	-3.88	0.000	.6825461 .881969
NonWhite	1.100739	.1873006	0.56	0.573	.7885786 1.53647
householdszie	.9336711	.0394249	-1.63	0.104	.8595109 1.01423
SES	.8233956	.0405356	-3.95	0.000	.7476599 .9068031
LE8_TOTALSCORE	.9988783	.0003574	-3.14	0.002	.9981781 .999579

-> Model for the mediator

Iteration 0: Log likelihood =	-51259.852	Number of obs =	36,595
Iteration 1: Log likelihood =	-51259.852	Wald chi2(7) =	1355.92
Log likelihood =	-51259.852	Prob > chi2 =	0.0000

<u>zlama4</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0790156	.0149786	5.28	0.000	.0496581 .1083732
AGE	.0030797	.0009776	3.15	0.002	.0011637 .0049957
SEX	.2158806	.0103785	20.80	0.000	.1955391 .2362221
NonWhite	-.0598177	.0248824	-2.40	0.016	-.1085863 -.011049
householdszie	-.0103355	.0047254	-2.19	0.029	-.0195971 -.001074
SES	-.0737444	.00779	-9.47	0.000	-.0890125 -.0584762
LE8_TOTALSCORE	-.0013929	.0000553	-25.20	0.000	-.0015012 -.0012846
_cons	.1903409	.0706092	2.70	0.007	.0519495 .3287323
sigma2					
_cons	.9642453	.0071284	135.27	0.000	.9502739 .9782167

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.242142	.1601073	7.76	0.000	.9283374 1.555947
ereri_cde	1.240072	.1598246	7.76	0.000	.9268217 1.553323
ereri_intref	.0325555	.0237031	1.37	0.170	-.0139017 .0790127
ereri_intmed	-.0246718	.0121433	-2.03	0.042	-.0484722 -.0008714
ereri_pie	-.005814	.0032957	-1.76	0.078	-.0122734 .0006455

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): zlamp2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

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

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

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 .04654 2.216 -.074 500.5**

-> 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 = **-8666.2242**

Iteration 1: Log likelihood = **-8582.1023**

Iteration 2: Log likelihood = **-8572.3688**

Iteration 3: Log likelihood = **-8572.278**

Iteration 4: Log likelihood = **-8572.278**

Refining estimates:

Iteration 0: Log likelihood = **-8572.278**

Cox regression with Breslow method for ties

No. of subjects = **35,278** Number of obs = **35,278**

No. of failures = **928**

Time at risk = **428,637.36**

Log likelihood = **-8572.278**

LR chi2(9) = **187.89**

Prob > chi2 = **0.0000**

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.189532	.1633407	10.51	0.000	1.891695
zlamp2		.914006	.0357181	-2.30	0.021	.8466136
_infectionburXzlamp2_000		.9987833	.0692287	-0.02	0.986	.8719106
AGE		1.035155	.0133498	2.68	0.007	1.009317
SEX		.8086819	.0568472	-3.02	0.003	.7045983
NonWhite		1.069985	.1869627	0.39	0.699	.7597034
householdsize		.9336517	.0403744	-1.59	0.112	.85778
SES		.81215	.0408776	-4.13	0.000	.7358564
LE8_TOTALSCORE		.9988502	.0003702	-3.10	0.002	.998125

-> Model for the mediator

Iteration 0: Log likelihood = -47568.249
Iteration 1: Log likelihood = -47568.249

Linear regression (Maximum Likelihood)
Number of obs = 35,278
Log likelihood = -47568.249 Wald chi2(7) = 5345.33
Prob > chi2 = 0.0000

	zlamp2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0019901	.014493	0.14	0.891	-.0264156 .0303958
AGE		-.0176852	.0009475	-18.66	0.000	-.0195423 -.015828
SEX		.561305	.010032	55.95	0.000	.5416427 .5809673
NonWhite		-.1454006	.0240151	-6.05	0.000	-.1924692 -.098332
householdsiz		-.002559	.0047432	-0.54	0.590	-.0118554 .0067374
SES		.0135394	.0075344	1.80	0.072	-.0012278 .0283066
LE8_TOTALSCORE		-.0024118	.0000534	-45.18	0.000	-.0025165 -.0023072
_cons		1.425352	.0686646	20.76	0.000	1.290772 1.559932
sigma2						
_cons		.8683926	.0065385	132.81	0.000	.8555773 .8812078

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.189346	.1617047	7.36	0.000	.8724102 1.506281
ereri_cde	1.185334	.1625056	7.29	0.000	.8668293 1.50384
ereri_intref	.0044083	.0106283	0.41	0.678	-.0164228 .0252394
ereri_intmed	-.0002182	.001611	-0.14	0.892	-.0033757 .0029394
ereri_pie	-.0001789	.0013053	-0.14	0.891	-.0027372 .0023793

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): zlamp3
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 -.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 = -9146.3164
Iteration 1: Log likelihood = -9056.0567
Iteration 2: Log likelihood = -9047.4799
Iteration 3: Log likelihood = -9047.4617
Iteration 4: Log likelihood = -9047.4617
Refining estimates:
Iteration 0: Log likelihood = -9047.4617

```

Cox regression with Breslow method for ties

No. of subjects =	36,760	Number of obs =	36,760
No. of failures =	976		
Time at risk =	446,584.651	LR chi2(9) =	197.71
Log likelihood =	-9047.4617	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.309795	.1696323	11.40	0.000	2.000142 2.667387
zlamp3	1.021642	.0415605	0.53	0.599	.9433473 1.106434
_infectionburXzlamp3_000	.9262881	.0660593	-1.07	0.283	.8054557 1.065247
AGE	1.03515	.01303	2.74	0.006	1.009924 1.061006
SEX	.7536525	.0492052	-4.33	0.000	.6631275 .8565353
NonWhite	1.053056	.1819674	0.30	0.765	.7505239 1.477538
householdszie	.936069	.0393401	-1.57	0.116	.862054 1.016439
SES	.8181071	.0403887	-4.07	0.000	.7426559 .901224
LE8_TOTALSCORE	.9990749	.0003578	-2.58	0.010	.9983739 .9997764

-> Model for the mediator

Iteration 0: Log likelihood = -49840.953	Number of obs = 36,760
Iteration 1: Log likelihood = -49840.953	Wald chi2(7) = 4942.67
Log likelihood = -49840.953	Prob > chi2 = 0.0000

	zlap3	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.1613283	.0142988	11.28	0.000	.1333032 .1893535
AGE		.0281454	.0009327	30.17	0.000	.0263172 .0299736
SEX		-.1887747	.0098997	-19.07	0.000	-.2081777 -.1693717
NonWhite		-.353664	.0236705	-14.94	0.000	-.4000573 -.3072706
householdsize		-.0185381	.0045115	-4.11	0.000	-.0273805 -.0096956
SES		-.1801267	.0074236	-24.26	0.000	-.1946767 -.1655768
LE8_TOTALSCORE		-.0019053	.0000527	-36.15	0.000	-.0020086 -.001802
_cons		-.4296488	.0674088	-6.37	0.000	-.5617677 -.2975299
sigma2						
_cons		.8814543	.0065017	135.57	0.000	.8687112 .8941974

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.295872	.1664062	7.79	0.000	.9697215 1.622022
ereri_cde	1.310158	.1697006	7.72	0.000	.9775513 1.642766
ereri_intref	.0062348	.0099656	0.63	0.532	-.0132974 .025767
ereri_intmed	-.0239817	.0235071	-1.02	0.308	-.0700547 .0220914
ereri_pie	.0034601	.0065927	0.52	0.600	-.0094614 .0163817

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): zlap3
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8827.5363**
 Iteration 2: Log likelihood = **-8818.8862**
 Iteration 3: Log likelihood = **-8818.8513**
 Iteration 4: Log likelihood = **-8818.8513**
 Refining estimates:
 Iteration 0: Log likelihood = **-8818.8513**

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) =	188.96
Log likelihood =	-8818.8513	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.212741	.1604594	10.95	0.000	1.919573 2.550683
zlap3		.9543501	.0379469	-1.18	0.240	.8827997 1.0317
_infectionburXzlap3_000		.9646373	.0725882	-0.48	0.632	.8323612 1.117934
AGE		1.037243	.0131577	2.88	0.004	1.011772 1.063355
SEX		.7515574	.0493944	-4.35	0.000	.6607222 .8548805
NonWhite		1.051869	.1836693	0.29	0.772	.7470181 1.481126
householdszie		.9359099	.0397915	-1.56	0.119	.8610811 1.017241
SES		.8253681	.041074	-3.86	0.000	.7486659 .9099286
LE8_TOTALSCORE		.9990184	.0003592	-2.73	0.006	.9983146 .9997228

-> Model for the mediator

Iteration 0: Log likelihood = **-50587.323**
 Iteration 1: Log likelihood = **-50587.323**

Linear regression (Maximum Likelihood)	Number of obs =	35,761
	Wald chi2(7) =	311.02
Log likelihood =	-50587.323	Prob > chi2 = 0.0000

	zlap3	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0039414	.0153861	-0.26	0.798	-.0340975 .0262147
AGE		.0028789	.0010021	2.87	0.004	.0009148 .004843
SEX		.0090302	.0106424	0.85	0.396	-.0118286 .029889
NonWhite		-.0008387	.0254641	-0.03	0.974	-.0507475 .0490701
householdszie		-.000316	.0048407	-0.07	0.948	-.0098035 .0091716
SES		-.0136696	.0079792	-1.71	0.087	-.0293086 .0019694
LE8_TOTALSCORE		-.0009285	.0000567	-16.38	0.000	-.0010397 -.0008174
_cons		.2780245	.0723845	3.84	0.000	.1361536 .4198955
sigma2						
_cons		.9913501	.0074137	133.72	0.000	.9768194 1.005881

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.218538	.1604959	7.59	0.000	.9039723 1.533104
ereri_cde	1.21146	.1602803	7.56	0.000	.8973165 1.525604
ereri_intref	.0063549	.0117078	0.54	0.587	-.016592 .0293018
ereri_intmed	.0005391	.0021842	0.25	0.805	-.0037418 .00482
ereri_pie	.0001842	.0007359	0.25	0.802	-.0012582 .0016266

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): zlat
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -9074.0498

Iteration 2: Log likelihood = -9062.4707

Iteration 3: Log likelihood = -9062.3739

Iteration 4: Log likelihood = -9062.3739

Refining estimates:

Iteration 0: Log likelihood = -9062.3739

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) = 208.00

Log likelihood = -9062.3739 Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.266431	.1619504	11.45	0.000	1.970239 2.60715
zlat		.9226099	.0346952	-2.14	0.032	.857054 .99318
_infectionburXzlat_000		.9629019	.0675561	-0.54	0.590	.8391947 1.104845
AGE		1.035287	.0129776	2.77	0.006	1.010161 1.061038
SEX		.7532538	.048825	-4.37	0.000	.6633879 .8552935
NonWhite		1.054257	.1816149	0.31	0.759	.7521622 1.477683
householdszie		.9354949	.0393056	-1.59	0.113	.8615441 1.015793
SES		.8157326	.0400201	-4.15	0.000	.7409477 .8980656
LE8_TOTALSCORE		.9989809	.0003546	-2.87	0.004	.9982861 .9996762

-> Model for the mediator

Iteration 0: Log likelihood = **-52028.169**
 Iteration 1: Log likelihood = **-52028.169**

Linear regression (Maximum Likelihood)
 Number of obs = 36,824
 Wald chi2(7) = 447.34
 Prob > chi2 = 0.0000
 Log likelihood = **-52028.169**

	zlat	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0179706	.0151237	-1.19	0.235	-.0476126 .0116714
AGE		-.0040196	.0009864	-4.07	0.000	-.005953 -.0020862
SEX		-.0307765	.0104719	-2.94	0.003	-.0513012 -.0102519
NonWhite		-.0040106	.0250504	-0.16	0.873	-.0531084 .0450872
householdszie		-.0040894	.0047742	-0.86	0.392	-.0134465 .0052678
SES		-.0344243	.0078526	-4.38	0.000	-.0498151 -.0190335
LE8_TOTALSCORE		-.0010403	.0000557	-18.66	0.000	-.0011496 -.0009311
_cons		.81885	.0713043	11.48	0.000	.6790962 .9586038
sigma2						
_cons		.9879709	.007281	135.69	0.000	.9737003 1.002241

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.279493	.1619377	7.90	0.000	.9621012 1.596885
ereri_cde	1.262632	.1613694	7.82	0.000	.9463535 1.57891
ereri_intref	.0120185	.0156867	0.77	0.444	-.0187269 .042764
ereri_intmed	.0033945	.0038277	0.89	0.375	-.0041077 .0108967
ereri_pie	.0014486	.0013951	1.04	0.299	-.0012858 .0041829

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): zlat2
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8965.315
 Iteration 2: Log likelihood = -8956.9834
 Iteration 3: Log likelihood = -8956.9657
 Iteration 4: Log likelihood = -8956.9657
 Refining estimates:
 Iteration 0: Log likelihood = -8956.9657

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 =	-8956.9657	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.265579	.1625758	11.40	0.000	1.96833 2.607718
zlat2	.8981495	.0351756	-2.74	0.006	.8317862 .9698075
_infectionburXzlat2_000	1.072431	.0772223	0.97	0.331	.9312727 1.234984
AGE	1.031979	.0129828	2.50	0.012	1.006844 1.057741
SEX	.7492097	.0488176	-4.43	0.000	.6593867 .8512686
NonWhite	1.087651	.1849771	0.49	0.621	.7793371 1.517936
householdsize	.9370418	.0393328	-1.55	0.121	.8630368 1.017393
SES	.8149262	.0401924	-4.15	0.000	.7398382 .897635
LE8_TOTALSCORE	.9989643	.0003567	-2.90	0.004	.9982655 .9996637

-> Model for the mediator

Iteration 0: Log likelihood = -51162.739
 Iteration 1: Log likelihood = -51162.739

Linear regression (Maximum Likelihood)
 Number of obs = 36,264
 Wald chi2(7) = 591.06
 Log likelihood = -51162.739 Prob > chi2 = 0.0000

	zlat2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0037697	.0152016	-0.25	0.804	-.0335643 .026025
AGE		-.0039053	.0009926	-3.93	0.000	-.0058509 -.0019598
SEX		-.0714392	.01053	-6.78	0.000	-.0920776 -.0508008
NonWhite		.0144966	.0251966	0.58	0.565	-.0348879 .0638811
householdsize		.0007977	.0047889	0.17	0.868	-.0085884 .0101839
SES		-.0301319	.0078974	-3.82	0.000	-.0456105 -.0146533
LE8_TOTALSCORE		-.0011775	.0000561	-21.00	0.000	-.0012874 -.0010676
_cons		.9298867	.0717389	12.96	0.000	.789281 1.070492
sigma2						
_cons		.9839354	.0073071	134.66	0.000	.9696138 .998257

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.254714	.1614044	7.77	0.000	.9383674 1.571061
ereri_cde	1.258486	.1614497	7.79	0.000	.9420504 1.574922
ereri_intref	-.0040905	.0064213	-0.64	0.524	-.016676 .0084949
ereri_intmed	-.0000864	.0006394	-0.14	0.893	-.0013395 .0011668
ereri_pie	.000405	.0016403	0.25	0.805	-.0028098 .0036199

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): zlayn
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

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

```
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 = **-8871.0702**
 Iteration 2: Log likelihood = **-8862.8463**
 Iteration 3: Log likelihood = **-8862.8071**
 Iteration 4: Log likelihood = **-8862.8071**
 Refining estimates:
 Iteration 0: Log likelihood = **-8862.8071**

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) =	203.47
Log likelihood =	-8862.8071	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.232791	.1689248	10.62	0.000	1.925082 2.589684
zlayn		1.126497	.0432537	3.10	0.002	1.044832 1.214544
_infectionburXzlayn_000		.9193435	.0578938	-1.34	0.182	.8125969 1.040113
AGE		1.033754	.0131665	2.61	0.009	1.008268 1.059885
SEX		.7215626	.0475338	-4.95	0.000	.6341617 .8210091
NonWhite		1.051044	.1837215	0.28	0.776	.7461596 1.480506
householdszie		.9455833	.0392645	-1.35	0.178	.8716748 1.025759
SES		.8179532	.0405763	-4.05	0.000	.7421689 .9014759
LE8_TOTALSCORE		.9990379	.0003559	-2.70	0.007	.9983407 .9997357

-> Model for the mediator

Iteration 0: Log likelihood = **-49639.876**
 Iteration 1: Log likelihood = **-49639.876**

Linear regression (Maximum Likelihood)	Number of obs =	36,107
	Wald chi2(7) =	3331.31
Log likelihood =	Prob > chi2 =	0.0000

	zlayn	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.2421849	.0147028	16.47	0.000	.213368 .2710019
AGE		.0380742	.0009623	39.57	0.000	.0361881 .0399602
SEX		.2436605	.0101802	23.93	0.000	.2237076 .2636134
NonWhite		-.329301	.0244219	-13.48	0.000	-.3771671 -.281435
householdszie		-.0072513	.0048273	-1.50	0.133	-.0167126 .0022099
SES		-.1026549	.0076541	-13.41	0.000	-.1176567 -.0876531
LE8_TOTALSCORE		-.000064	.0000542	-1.18	0.238	-.0001702 .0000422
_cons		-2.642114	.0697429	-37.88	0.000	-2.778808 -2.50542
sigma2						
_cons		.9155058	.0068137	134.36	0.000	.9021513 .9288603

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.244822	.1637269	7.60	0.000	.9239231 1.565721
ereri_cde	1.229724	.1680861	7.32	0.000	.900281 1.559166
ereri_intref	-.0038587	.0029162	-1.32	0.186	-.0095744 .0018569
ereri_intmed	-.0103104	.0286115	-0.36	0.719	-.0663879 .0457671
ereri_pie	.0292674	.0097395	3.01	0.003	.0101783 .0483565

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): zlbp
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -9045.081

Iteration 2: Log likelihood = -9036.3045

Iteration 3: Log likelihood = -9036.2753

Iteration 4: Log likelihood = -9036.2753

Refining estimates:

Iteration 0: Log likelihood = -9036.2753

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

LR chi2(9) = 193.02

Log likelihood = -9036.2753 Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.254455	.1623198	11.29	0.000	1.957742
zlpb		1.06235	.0414999	1.55	0.122	.9840476
_infectionburXzlpb_000		.9583097	.0676009	-0.60	0.546	.8345658
AGE		1.032908	.0129814	2.58	0.010	1.007776
SEX		.760607	.0493795	-4.21	0.000	.6697294
NonWhite		1.078067	.1836339	0.44	0.659	.7720677
householdsize		.9354199	.0394125	-1.58	0.113	.8612764
SES		.8313016	.041038	-3.74	0.000	.7546372
LE8_TOTALSCORE		.9991157	.0003562	-2.48	0.013	.9984177

-> Model for the mediator

Iteration 0: Log likelihood = -51275.646
Iteration 1: Log likelihood = -51275.646

Linear regression (Maximum Likelihood) Number of obs = 36,596
Log likelihood = -51275.646 Wald chi2(7) = 1326.12
Prob > chi2 = 0.0000

	zlpb	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.1056456	.0149975	7.04	0.000	.076251 .1350402
AGE		.0076004	.0009781	7.77	0.000	.0056834 .0095173
SEX		.0349844	.010381	3.37	0.001	.014638 .0553307
NonWhite		.2636842	.0248638	10.61	0.000	.2149521 .3124164
householdsiz		-.0003407	.0047297	-0.07	0.943	-.0096107 .0089293
SES		-.0955585	.0077929	-12.26	0.000	-.1108324 -.0802846
LE8_TOTALSCORE		-.0013648	.0000554	-24.65	0.000	-.0014733 -.0012563
_cons		.1388972	.070697	1.96	0.049	.0003336 .2774609
sigma2						
_cons		.9650041	.0071339	135.27	0.000	.9510219 .9789863

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.256495	.1610958	7.80	0.000	.9407528 1.572237
ereri_cde	1.253353	.1620595	7.73	0.000	.935722 1.570984
ereri_intref	-.0011211	.0017432	-0.64	0.520	-.0045377 .0022955
ereri_intmed	-.0021473	.0146209	-0.15	0.883	-.0308038 .0265091
ereri_pie	.0064103	.0042526	1.51	0.132	-.0019246 .0147452

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): zlbr
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -9072.1009
 Iteration 2: Log likelihood = -9063.157
 Iteration 3: Log likelihood = -9063.114
 Iteration 4: Log likelihood = -9063.114
 Refining estimates:
 Iteration 0: Log likelihood = -9063.114

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) =	194.58
Log likelihood =	-9063.114	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.222115	.1593363	11.14	0.000	1.930774 2.557419
zlbr	.9610794	.0379349	-1.01	0.315	.8895315 1.038382
_infectionburXzlbr_000	1.062985	.0749114	0.87	0.386	.9258505 1.220432
AGE	1.034403	.0129737	2.70	0.007	1.009285 1.060146
SEX	.7541806	.0489172	-4.35	0.000	.6641486 .8564172
NonWhite	1.084614	.1844242	0.48	0.633	.7772127 1.513599
householdsize	.9334829	.0394281	-1.63	0.103	.8593174 1.014049
SES	.8164332	.04012	-4.13	0.000	.7414676 .8989783
LE8_TOTALSCORE	.9990003	.0003571	-2.80	0.005	.9983007 .9997004

-> Model for the mediator

Iteration 0: Log likelihood = -51529.132
 Iteration 1: Log likelihood = -51529.132

Linear regression (Maximum Likelihood)
 Number of obs = 36,751
 Wald chi2(7) = 1256.56
 Log likelihood = -51529.132 Prob > chi2 = 0.0000

	zlbr	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0562669	.0149718	3.76	0.000	.0269228 .0856111
AGE		.0027821	.0009797	2.84	0.005	.0008619 .0047023
SEX		-.0677836	.010371	-6.54	0.000	-.0881105 -.0474568
NonWhite		.0552421	.0248803	2.22	0.026	.0064777 .1040065
householdsize		-.0023893	.0049263	-0.49	0.628	-.0120447 .0072661
SES		-.0511369	.0077886	-6.57	0.000	-.0664022 -.0358716
LE8_TOTALSCORE		-.0016679	.0000552	-30.19	0.000	-.0017761 -.0015596
_cons		.7623583	.0710369	10.73	0.000	.6231285 .9015881
sigma2						
_cons		.9669129	.0071329	135.56	0.000	.9529326 .9808932

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.222527	.1588139	7.70	0.000	.9112573 1.533796
ereri_cde	1.220806	.1591769	7.67	0.000	.9088249 1.532787
ereri_intref	-.0009515	.0025413	-0.37	0.708	-.0059324 .0040294
ereri_intmed	.0049037	.0077603	0.63	0.527	-.0103062 .0201135
ereri_pie	-.0022312	.0022939	-0.97	0.331	-.0067273 .0022648

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): zlcn2
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

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

```
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 -.07394 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 = **-8779.9277**
 Iteration 1: Log likelihood = **-8695.4825**
 Iteration 2: Log likelihood = **-8683.6521**
 Iteration 3: Log likelihood = **-8683.5033**
 Iteration 4: Log likelihood = **-8683.5032**
 Refining estimates:
 Iteration 0: Log likelihood = **-8683.5032**

Cox regression with Breslow method for ties

No. of subjects =	35,353	Number of obs =	35,353
No. of failures =	941		
Time at risk =	429,412.221	LR chi2(9) =	192.85
Log likelihood =	-8683.5032	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.235594	.1679515	10.71	0.000	1.929503 2.590242
zlcn2		1.025603	.0405393	0.64	0.522	.9491473 1.108218
_infectionburXzlcn2_000		1.026465	.0682934	0.39	0.695	.9009725 1.169437
AGE		1.034573	.0132948	2.64	0.008	1.008841 1.060961
SEX		.763712	.0510802	-4.03	0.000	.6698812 .8706857
NonWhite		1.110482	.1926193	0.60	0.546	.7904345 1.560117
householdszie		.9384153	.0400818	-1.49	0.137	.8630548 1.020356
SES		.8207803	.0412624	-3.93	0.000	.7437641 .9057714
LE8_TOTALSCORE		.9990505	.0003623	-2.62	0.009	.9983406 .9997608

-> Model for the mediator

Iteration 0: Log likelihood = **-48713.705**
 Iteration 1: Log likelihood = **-48713.705**

Linear regression (Maximum Likelihood)	Number of obs =	35,353
	Wald chi2(7) =	3021.24
Log likelihood =	-48713.705	Prob > chi2 = 0.0000

	zlcn2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.1511847	.0149116	10.14	0.000	.1219584 .1804109
AGE		.0201022	.0009732	20.66	0.000	.0181948 .0220096
SEX		-.305158	.0103202	-29.57	0.000	-.3253853 -.2849308
NonWhite		-.5277875	.0247109	-21.36	0.000	-.5762199 -.4793551
householdszie		.0004064	.0047021	0.09	0.931	-.0088095 .0096223
SES		-.1009641	.0077497	-13.03	0.000	-.1161533 -.0857749
LE8_TOTALSCORE		-.0011102	.0000551	-20.16	0.000	-.0012181 -.0010022
_cons		-.1918559	.0702993	-2.73	0.006	-.32964 -.0540718
sigma2						
_cons		.921243	.0069291	132.95	0.000	.9076622 .9348237

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.253881	.1653458	7.58	0.000	.929809 1.577953
ereri_cde	1.235884	.1679819	7.36	0.000	.9066459 1.565123
ereri_intref	.0005491	.0032591	0.17	0.866	-.0058387 .0069369
ereri_intmed	.013618	.0191794	0.71	0.478	-.0239728 .0512089
ereri_pie	.0038294	.0060107	0.64	0.524	-.0079514 .0156102

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): zldlr
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 -.0756 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 = -9093.0292

Iteration 1: Log likelihood = -8986.6237

Iteration 2: Log likelihood = -8974.2293

Iteration 3: Log likelihood = -8974.1146

Iteration 4: Log likelihood = -8974.1146

Refining estimates:

Iteration 0: Log likelihood = -8974.1146

Cox regression with Breslow method for ties

No. of subjects = 36,541 Number of obs = 36,541

No. of failures = 971

Time at risk = 443,946.072

Log likelihood = -8974.1146

LR chi2(9) = 237.83

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.256696	.1624456	11.31	0.000	1.959748 2.598638
zldlr	.7763332	.0320385	-6.13	0.000	.7160115 .8417369
_infectionburXzldlr_000	1.086464	.0787767	1.14	0.253	.9425333 1.252373
AGE	1.033903	.0130268	2.65	0.008	1.008683 1.059753
SEX	.8062325	.0532293	-3.26	0.001	.7083731 .917611
NonWhite	.9970921	.1741199	-0.02	0.987	.7080955 1.404037
householdsize	.9379008	.040009	-1.50	0.133	.8626732 1.019689
SES	.8210096	.0403003	-4.02	0.000	.745703 .9039212
LE8_TOTALSCORE	.9982956	.0003716	-4.58	0.000	.9975675 .9990241

-> Model for the mediator

Iteration 0: Log likelihood = **-49449.979**
 Iteration 1: Log likelihood = **-49449.979**

Linear regression (Maximum Likelihood) Number of obs = **36,541**
 Wald chi2(7) = **5127.15**
 Log likelihood = **-49449.979** Prob > chi2 = **0.0000**

zldlr	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	-.0312046	.0142905	-2.18	0.029	-.0592135 -.0031956
AGE	.002921	.0009339	3.13	0.002	.0010906 .0047514
SEX	.1970769	.0099054	19.90	0.000	.1776628 .2164911
NonWhite	-.0985908	.0237008	-4.16	0.000	-.1450435 -.0521381
householdsize	.0015643	.0045837	0.34	0.733	-.0074197 .0105482
SES	-.0045898	.0074329	-0.62	0.537	-.0191579 .0099784
LE8_TOTALSCORE	-.0036058	.0000527	-68.37	0.000	-.0037092 -.0035025
_cons	1.331908	.0676186	19.70	0.000	1.199378 1.464438
sigma2					
_cons	.8769288	.0064877	135.17	0.000	.8642132 .8896445

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.234859	.1606531	7.69	0.000	.9199843 1.549733
ereri_cde	1.223212	.15767	7.76	0.000	.9141845 1.532239
ereri_intref	-.0001943	.0213493	-0.01	0.993	-.0420381 .0416495
ereri_intmed	.0039096	.0049127	0.80	0.426	-.005719 .0135383
ereri_pie	.0079315	.0038708	2.05	0.040	.0003448 .0155181

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): zlefty2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -9099.6438
Iteration 2: Log likelihood = -9091.0183
Iteration 3: Log likelihood = -9090.9966
Iteration 4: Log likelihood = -9090.9966
Refining estimates:
Iteration 0: Log likelihood = -9090.9966

```

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) =	197.24
Log likelihood =	-9090.9966	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.238579	.1594586	11.31	0.000	1.946882 2.57398
zlefty2	.9284241	.037331	-1.85	0.065	.8580656 1.004552
_infectionburXzlefty2_000	1.065414	.0744502	0.91	0.365	.9290462 1.221799
AGE	1.035878	.0130331	2.80	0.005	1.010646 1.06174
SEX	.783482	.052629	-3.63	0.000	.6868329 .8937313
NonWhite	1.089955	.1854071	0.51	0.613	.7809345 1.521256
householdsize	.9331562	.0392608	-1.64	0.100	.8592937 1.013368
SES	.8219437	.0402643	-4.00	0.000	.7466972 .904773
LE8_TOTALSCORE	.9990736	.0003532	-2.62	0.009	.9983816 .9997661

-> Model for the mediator

Iteration 0: Log likelihood = -50104.873	Number of obs = 36,668
Iteration 1: Log likelihood = -50104.873	Wald chi2(7) = 4057.75
Log likelihood = -50104.873	Prob > chi2 = 0.0000

	zlefty2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0418835	.0144785	-2.89	0.004	-.0702608
AGE		.0281173	.0009441	29.78	0.000	.0262669
SEX		.5674208	.0100171	56.65	0.000	.5477876
NonWhite		.1933409	.0239633	8.07	0.000	.1463736
householdsize		-.0039546	.0045604	-0.87	0.386	-.0128929
SES		.0145042	.0075138	1.93	0.054	.0049836
LE8_TOTALSCORE		.0000514	.0000534	0.96	0.336	-.0000532
_cons		-2.579867	.0682717	-37.79	0.000	-2.713677
sigma2						
_cons		.9003395	.0066493	135.40	0.000	.8873071
						.9133719

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.234989	.1597319	7.73	0.000	.9219197
ereri_cde	1.23604	.1592504	7.76	0.000	.9239148
ereri_intref	-.0020717	.0025013	-0.83	0.408	-.0069742
ereri_intmed	-.002095	.0057339	-0.37	0.715	-.0133332
ereri_pie	.0031154	.0020043	1.55	0.120	-.000813

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): zlep
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8973.5063**
 Iteration 2: Log likelihood = **-8963.8592**
 Iteration 3: Log likelihood = **-8963.8197**
 Iteration 4: Log likelihood = **-8963.8197**
 Refining estimates:
 Iteration 0: Log likelihood = **-8963.8197**

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) = **202.02**
 Log likelihood = **-8963.8197** Prob > chi2 = **0.0000**

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.300998	.1649156	11.63	0.000	1.999445 2.648031
zlep	.8989116	.0424714	-2.26	0.024	.8194072 .98613
_infectionburXzlep_000	1.036509	.0724947	0.51	0.608	.9037309 1.188796
AGE	1.034316	.0130377	2.68	0.007	1.009076 1.060188
SEX	.833369	.066657	-2.28	0.023	.7124495 .9748115
NonWhite	1.011686	.1789641	0.07	0.948	.7152712 1.430937
householdsize	.9282196	.039768	-1.74	0.082	.8534586 1.009529
SES	.8249871	.0407758	-3.89	0.000	.748817 .9089053
LE8_TOTALSCORE	.9986822	.0003914	-3.37	0.001	.9979154 .9994495

-> Model for the mediator

Iteration 0: Log likelihood = **-41502.116**
 Iteration 1: Log likelihood = **-41502.116**

Linear regression (Maximum Likelihood) Number of obs = **36,441**
 Wald chi2(7) = **27360.31**
 Log likelihood = **-41502.116** Prob > chi2 = **0.0000**

<u>zlep</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.1043428	.0115498	9.03	0.000	.0817056 .12698
AGE	.0071444	.0007543	9.47	0.000	.0056659 .0086229
SEX	1.110585	.0080035	138.76	0.000	1.094898 1.126271
NonWhite	.081195	.019164	4.24	0.000	.0436342 .1187559
householdsize	.0090779	.0036423	2.49	0.013	.0019392 .0162167
SES	-.0158233	.006006	-2.63	0.008	-.0275948 -.0040518
LE8_TOTALSCORE	-.0040578	.0000427	-95.10	0.000	-.0041414 -.0039742
_cons	-.1392136	.0545191	-2.55	0.011	-.2460691 -.0323581
sigma2					
_cons	.5711481	.0042312	134.98	0.000	.562855 .5794412

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.278755	.1628052	7.85	0.000	.9596627 1.597847
ereri_cde	1.294783	.1639944	7.90	0.000	.9733598 1.616206
ereri_intref	.0008477	.008066	0.11	0.916	-.0149613 .0166567
ereri_intmed	-.0058172	.0151034	-0.39	0.700	-.0354194 .023785
ereri_pie	-.0110583	.0050251	-2.20	0.028	-.0209073 -.0012093

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): zlepr
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -8975.9659

Iteration 2: Log likelihood = -8965.8632

Iteration 3: Log likelihood = -8965.8193

Iteration 4: Log likelihood = -8965.8193

Refining estimates:

Iteration 0: Log likelihood = -8965.8193

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) = 198.02

Log likelihood = -8965.8193

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.282621	.1629334	11.56	0.000	1.98461 2.625383
zlepr	1.037801	.0396794	0.97	0.332	.9628738 1.11856
_infectionburXzlepr_000	.9271158	.0663894	-1.06	0.291	.8057135 1.066811
AGE	1.033245	.0130253	2.59	0.009	1.008028 1.059092
SEX	.7462983	.0492467	-4.43	0.000	.6557577 .8493399
NonWhite	1.011518	.1790677	0.06	0.948	.7149678 1.43107
householdsize	.9273107	.0398806	-1.75	0.079	.8523498 1.008864
SES	.8266398	.040896	-3.85	0.000	.7502485 .9108094
LE8_TOTALSCORE	.9990249	.00036	-2.71	0.007	.9983196 .9997307

-> Model for the mediator

Iteration 0: Log likelihood = **-50623.174**
 Iteration 1: Log likelihood = **-50623.174**

Linear regression (Maximum Likelihood) Number of obs = **36,441**
 Wald chi2(7) = **2233.50**
 Log likelihood = **-50623.174** Prob > chi2 = **0.0000**

	zlepr	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0162863	.0148346	1.10	0.272	-.0127891 .0453616
AGE		.0118291	.0009689	12.21	0.000	.0099301 .0137281
SEX		.2827213	.0102798	27.50	0.000	.2625733 .3028693
NonWhite		-.1941431	.0246144	-7.89	0.000	-.2423865 -.1458998
householdsize		-.0166025	.0046782	-3.55	0.000	-.0257715 -.0074334
SES		-.0180466	.0077141	-2.34	0.019	-.033166 -.0029272
LE8_TOTALSCORE		.0017577	.0000548	32.07	0.000	.0016503 .0018651
_cons		-1.982281	.0700247	-28.31	0.000	-2.119527 -1.845036
sigma2						
_cons		.9422229	.0069803	134.98	0.000	.9285417 .955904

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.281698	.1628344	7.87	0.000	.9625485 1.600848
ereri_cde	1.281898	.1628224	7.87	0.000	.9627716 1.601023
ereri_intref	.0012345	.0056324	0.22	0.827	-.0098049 .0122739
ereri_intmed	-.0020383	.0030008	-0.68	0.497	-.0079197 .0038432
ereri_pie	.0006045	.0008316	0.73	0.467	-.0010254 .0022344

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): zlgals1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8974.4713
Iteration 2: Log likelihood = -8963.9401
Iteration 3: Log likelihood = -8963.8824
Iteration 4: Log likelihood = -8963.8824
Refining estimates:
Iteration 0: Log likelihood = -8963.8824

```

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) =	201.89
Log likelihood =	-8963.8824	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.336566	.1682339	11.79	0.000	2.029042 2.690698
zlgals1	.9658984	.0391245	-0.86	0.392	.8921808 1.045707
_infectionburXzlgals1_000	.9144004	.0636737	-1.29	0.199	.797744 1.048116
AGE	1.034923	.01307	2.72	0.007	1.009621 1.06086
SEX	.7538169	.0491848	-4.33	0.000	.6633259 .8566526
NonWhite	1.006675	.1780957	0.04	0.970	.7117032 1.423899
householdsize	.9257184	.0399892	-1.79	0.074	.8505673 1.007509
SES	.8221522	.0407079	-3.96	0.000	.7461153 .905938
LE8_TOTALSCORE	.9988921	.000365	-3.03	0.002	.998177 .9996076

-> Model for the mediator

Iteration 0: Log likelihood =	-49898.952	Number of obs =	36,441
Iteration 1: Log likelihood =	-49898.952	Wald chi2(7) =	3801.68
Linear regression (Maximum Likelihood)		Prob > chi2 =	0.0000
Log likelihood =	-49898.952		

	zlgals1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.1456028	.0145427	10.01	0.000	.1170996 .174106
AGE		.0230968	.0009498	24.32	0.000	.0212352 .0249584
SEX		.0778854	.0100775	7.73	0.000	.0581339 .097637
NonWhite		-.0389248	.02413	-1.61	0.107	-.0862188 .0083692
householdsize		-.0039465	.0045861	-0.86	0.389	-.0129352 .0050421
SES		-.0879975	.0075623	-11.64	0.000	-.1028193 -.0731756
LE8_TOTALSCORE		-.0025213	.0000537	-46.93	0.000	-.0026266 -.002416
_cons		-.2637635	.0686468	-3.84	0.000	-.3983087 -.1292183
sigma2						
_cons		.9055063	.0067083	134.98	0.000	.8923583 .9186542

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.313701	.1667671	7.88	0.000	.9868436 1.640558
ereri_cde	1.3349	.1682092	7.94	0.000	1.005216 1.664584
ereri_intref	.0210168	.0185419	1.13	0.257	-.0153246 .0573582
ereri_intmed	-.0371764	.0215279	-1.73	0.084	-.0793702 .0050175
ereri_pie	-.0050392	.0058895	-0.86	0.392	-.0165823 .006504

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): zlgals3
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 .0464 2.216 -.07554 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 = **-9095.1238**
 Iteration 1: Log likelihood = **-9006.6845**
 Iteration 2: Log likelihood = **-8997.541**
 Iteration 3: Log likelihood = **-8997.4988**
 Iteration 4: Log likelihood = **-8997.4988**
 Refining estimates:
 Iteration 0: Log likelihood = **-8997.4988**

Cox regression with Breslow method for ties

No. of subjects =	36,549	Number of obs =	36,549
No. of failures =	971		
Time at risk =	444,039.616	LR chi2(9) =	195.25
Log likelihood =	-8997.4988	Prob > chi2 =	0.0000

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.19832	.1616756	10.71	0.000	1.903221 2.539175
zlgals3	1.051836	.0416752	1.28	0.202	.9732448 1.136773
_infectionburXzlgals3_000	1.028502	.070904	0.41	0.684	.8985123 1.177297
AGE	1.034479	.0130668	2.68	0.007	1.009183 1.060409
SEX	.7204486	.0487273	-4.85	0.000	.6310042 .8225717
NonWhite	1.022112	.1785341	0.13	0.900	.7258015 1.439393
householdszie	.9348673	.039662	-1.59	0.112	.8602754 1.015927
SES	.8324952	.0411662	-3.71	0.000	.7555975 .9172188
LE8_TOTALSCORE	.9990895	.0003556	-2.56	0.010	.9983928 .9997866

-> Model for the mediator

Iteration 0: Log likelihood = **-49966.791**
 Iteration 1: Log likelihood = **-49966.791**

Linear regression (Maximum Likelihood)	Number of obs =	36,549
	Wald chi2(7) =	3990.13
Log likelihood =	Prob > chi2 =	0.0000

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.1310536	.0144829	9.05	0.000	.1026676 .1594395
AGE	.0220472	.000946	23.30	0.000	.020193 .0239014
SEX	.5100784	.0100402	50.80	0.000	.4904 .5297568
NonWhite	.1713323	.0240649	7.12	0.000	.124166 .2184985
householdszie	-.0145755	.0045737	-3.19	0.001	-.0235398 -.0056112
SES	-.0944601	.0075321	-12.54	0.000	-.1092227 -.0796975
LE8_TOTALSCORE	-.0009061	.0000535	-16.95	0.000	-.0010109 -.0008013
_cons	-1.655185	.0684005	-24.20	0.000	-1.789248 -1.521123
sigma2					
_cons	.9015486	.0066691	135.18	0.000	.8884774 .9146198

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.223591	.1598517	7.65	0.000	.9102873 1.536894
ereri_cde	1.198045	.161578	7.41	0.000	.8813581 1.514732
ereri_intref	.0027468	.0067734	0.41	0.685	-.0105288 .0160225
ereri_intmed	.0161538	.0173899	0.93	0.353	-.0179299 .0502374
ereri_pie	.006645	.0052787	1.26	0.208	-.0037011 .0169911

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): zlgals4
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -8992.193

Iteration 2: Log likelihood = -8972.5034

Iteration 3: Log likelihood = -8971.8766

Iteration 4: Log likelihood = -8971.8753

Iteration 5: Log likelihood = -8971.8753

Refining estimates:

Iteration 0: Log likelihood = -8971.8753

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) = 202.48

Log likelihood = -8971.8753 Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.159505	.1652721	10.06	0.000	1.858702 2.508989
zlgals4		1.106524	.0425136	2.63	0.008	1.026259 1.193067
_infectionburXzlgals4_000		1.033835	.0670952	0.51	0.608	.9103508 1.174069
AGE		1.032613	.0130367	2.54	0.011	1.007375 1.058484
SEX		.7535832	.0490527	-4.35	0.000	.6633218 .8561268
NonWhite		1.068487	.1820177	0.39	0.697	.7651851 1.492012
householdsize		.9433166	.0392226	-1.40	0.160	.8694909 1.023411
SES		.8407406	.0417021	-3.50	0.000	.7628534 .9265801
LE8_TOTALSCORE		.9992254	.0003579	-2.16	0.031	.9985242 .9999271

-> Model for the mediator

Iteration 0: Log likelihood = -50247.59
 Iteration 1: Log likelihood = -50247.59

Linear regression (Maximum Likelihood) Number of obs = 36,432
 Wald chi2(7) = 3011.35
 Prob > chi2 = 0.0000
 Log likelihood = -50247.59

	zlgals4	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.220431	.0146996	15.00	0.000	.1916203 .2492418
AGE		.0251451	.0009589	26.22	0.000	.0232657 .0270246
SEX		.0618027	.0101799	6.07	0.000	.0418504 .081755
NonWhite		.1692474	.0244027	6.94	0.000	.1214189 .2170759
householdsize		-.0284033	.0046316	-6.13	0.000	-.037481 -.0193255
SES		-.1369975	.007641	-17.93	0.000	-.1519735 -.1220215
LE8_TOTALSCORE		-.0014705	.0000542	-27.12	0.000	-.0015768 -.0013642
_cons		-.8577422	.0692821	-12.38	0.000	-.9935325 -.7219518
sigma2						
_cons		.9236284	.0068434	134.97	0.000	.9102156 .9370412

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.230288	.1617259	7.61	0.000	.9133114 1.547265
ereri_cde	1.157612	.1647254	7.03	0.000	.8347562 1.480468
ereri_intref	.0075239	.0108381	0.69	0.488	-.0137184 .0287661
ereri_intmed	.0425888	.0265638	1.60	0.109	-.0094754 .0946529
ereri_pie	.0225637	.0087929	2.57	0.010	.0053299 .0397974

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): zlgals7_lgals7b
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 .0467 2.218 -.07451 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 = -9123.5079
Iteration 1: Log likelihood = -9035.0428
Iteration 2: Log likelihood = -9026.3598
Iteration 3: Log likelihood = -9026.3354
Iteration 4: Log likelihood = -9026.3354
Refining estimates:
Iteration 0: Log likelihood = -9026.3354

```

Cox regression with Breslow method for ties

No. of subjects =	36,317	Number of obs =	36,317
No. of failures =	975		
Time at risk =	441,129.067	LR chi2(9) =	194.34
Log likelihood =	-9026.3354	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.289606	.1661519	11.42	0.000	1.986053 2.639554
zlgals7_lgals7b	1.06805	.0402486	1.75	0.081	.992007 1.149922
_infectionburXzlgals7_lgal_000	.9177324	.0632732	-1.25	0.213	.8017331 1.050515
AGE	1.032575	.0129908	2.55	0.011	1.007425 1.058353
SEX	.7759442	.0523988	-3.76	0.000	.6797507 .8857504
NonWhite	1.10099	.1876725	0.56	0.572	.7882962 1.537721
householdsize	.9346438	.0393068	-1.61	0.108	.8606935 1.014948
SES	.8244597	.0405556	-3.92	0.000	.7486837 .9079051
LE8_TOTALSCORE	.9991733	.0003553	-2.33	0.020	.9984771 .99987

-> Model for the mediator

Iteration 0: Log likelihood =	-49625.368	Number of obs =	36,317
Iteration 1: Log likelihood =	-49625.368	Wald chi2(7) =	4018.63
Linear regression (Maximum Likelihood)		Prob > chi2 =	0.0000
Log likelihood =	-49625.368		

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0997759	.014551	6.86	0.000	.0712565 .1282952
AGE	.0119196	.0009483	12.57	0.000	.0100611 .0137782
SEX	-.5350344	.0100646	-53.16	0.000	-.5547606 -.5153081
NonWhite	-.430869	.0240559	-17.91	0.000	-.4780176 -.3837204
householdsize	-.0052692	.0045749	-1.15	0.249	-.014236 .0036975
SES	-.053929	.0075484	-7.14	0.000	-.0687236 -.0391343
LE8_TOTALSCORE	-.0007533	.0000536	-14.05	0.000	-.0008584 -.0006483
_cons	.4928217	.0685977	7.18	0.000	.3583727 .6272708
sigma2					
_cons	.9003453	.00666814	134.75	0.000	.88725 .9134407

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.283703	.1642506	7.82	0.000	.9617777 1.605628
ereri_cde	1.288264	.1658086	7.77	0.000	.9632847 1.613243
ereri_intref	4.54e-06	.0047758	0.00	0.999	-.0093558 .0093649
ereri_intmed	-.0111555	.0140641	-0.79	0.428	-.0387206 .0164097
ereri_pie	.0065903	.0039057	1.69	0.092	-.0010646 .0142453

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): zlgals8
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-9068.7659**
 Iteration 2: Log likelihood = **-9060.0628**
 Iteration 3: Log likelihood = **-9060.0333**
 Iteration 4: Log likelihood = **-9060.0333**
 Refining estimates:
 Iteration 0: Log likelihood = **-9060.0333**

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) =	200.75
Log likelihood =	-9060.0333	Prob > chi2 =	0.0000

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.23249	.1597702	11.22	0.000	1.940316 2.568659
zlgals8	.9097176	.0358782	-2.40	0.016	.8420468 .9828268
_infectionburXzlgals8_000	1.018443	.0750544	0.25	0.804	.8814695 1.176702
AGE	1.034323	.0129585	2.69	0.007	1.009234 1.060035
SEX	.7607929	.0493948	-4.21	0.000	.6698875 .8640345
NonWhite	1.096628	.1864429	0.54	0.587	.7858548 1.530298
householdszie	.9319663	.0394559	-1.66	0.096	.8577557 1.012597
SES	.8135858	.0399718	-4.20	0.000	.7388963 .8958252
LE8_TOTALSCORE	.9989578	.0003542	-2.94	0.003	.9982638 .9996523

-> Model for the mediator

Iteration 0: Log likelihood = **-51919.849**
 Iteration 1: Log likelihood = **-51919.849**

Linear regression (Maximum Likelihood)	Number of obs =	36,751
	Wald chi2(7) =	456.94
Log likelihood =	Prob > chi2 =	0.0000

<u>zlgals8</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.010163	.0151318	0.67	0.502	-.0194948 .0398207
AGE	-.0019066	.0009902	-1.93	0.054	-.0038473 .0000342
SEX	.0668515	.0104819	6.38	0.000	.0463074 .0873956
NonWhite	.1164336	.0251462	4.63	0.000	.067148 .1657192
householdszie	-.0080773	.004979	-1.62	0.105	-.0178359 .0016813
SES	-.0404361	.0078718	-5.14	0.000	-.0558645 -.0250076
LE8_TOTALSCORE	-.0009635	.0000558	-17.26	0.000	-.0010729 -.0008541
_cons	.5027698	.0717962	7.00	0.000	.3620519 .6434877
sigma2					
_cons	.9876924	.0072862	135.56	0.000	.9734117 1.001973

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.227262	.1589379	7.72	0.000	.9157491 1.538774
ereri_cde	1.226889	.1588851	7.72	0.000	.9154798 1.538298
ereri_intref	.0021017	.0112987	0.19	0.852	-.0200435 .0242468
ereri_intmed	-.0007676	.0018647	-0.41	0.681	-.0044225 .0028872
ereri_pie	-.0009612	.0014854	-0.65	0.518	-.0038725 .0019502

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): zlgals9
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -8984.9114

Iteration 2: Log likelihood = -8976.1491

Iteration 3: Log likelihood = -8976.1167

Iteration 4: Log likelihood = -8976.1167

Refining estimates:

Iteration 0: Log likelihood = -8976.1167

Cox regression with Breslow method for ties

No. of subjects = 36,430 Number of obs = 36,430

No. of failures = 969

Time at risk = 442,560.887

LR chi2(9) = 194.06

Log likelihood = -8976.1167

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.301822	.169809	11.30	0.000	1.991944 2.659905
zlgals9		1.002328	.0420267	0.06	0.956	.9232506 1.088178
_infectionburXzlgals9_000		.9094224	.0642566	-1.34	0.179	.7918131 1.0445
AGE		1.037815	.0131314	2.93	0.003	1.012395 1.063874
SEX		.7581192	.0497319	-4.22	0.000	.6666525 .8621354
NonWhite		1.058896	.1825952	0.33	0.740	.7552187 1.484683
householdsize		.9390858	.0393922	-1.50	0.134	.8649671 1.019556
SES		.8218787	.0407318	-3.96	0.000	.7458007 .9057174
LE8_TOTALSCORE		.998931	.0003633	-2.94	0.003	.9982192 .9996433

-> Model for the mediator

Iteration 0: Log likelihood = **-48932.577**
 Iteration 1: Log likelihood = **-48932.577**

Linear regression (Maximum Likelihood) Number of obs = 36,430
 Wald chi2(7) = 5957.49
 Prob > chi2 = 0.0000
 Log likelihood = **-48932.577**

	zlgals9	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.2371711	.0141656	16.74	0.000	.2094071 .2649352
AGE		.0321654	.0009249	34.78	0.000	.0303526 .0339782
SEX		.2074175	.0098201	21.12	0.000	.1881704 .2266646
NonWhite		-.1009548	.0235396	-4.29	0.000	-.1470916 -.054818
householdsize		-.0057634	.0044678	-1.29	0.197	-.0145201 .0029933
SES		-.1416942	.00737	-19.23	0.000	-.1561391 -.1272493
LE8_TOTALSCORE		-.0025808	.0000523	-49.34	0.000	-.0026834 -.0024783
_cons		-.9880287	.0668215	-14.79	0.000	-1.118996 -.8570611
sigma2						
_cons		.8594282	.0063679	134.96	0.000	.8469474 .871909

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.267213	.1646304	7.70	0.000	.9445431 1.589882
ereri_cde	1.301919	.1699795	7.66	0.000	.9687648 1.635072
ereri_intref	.015649	.0156715	1.00	0.318	-.0150667 .0463646
ereri_intmed	-.0509064	.0342577	-1.49	0.137	-.1180501 .0162374
ereri_pie	.0005516	.0099499	0.06	0.956	-.0189499 .020053

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): zlgmn
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -9036.3697
Iteration 2: Log likelihood = -9024.4785
Iteration 3: Log likelihood = -9024.3809
Iteration 4: Log likelihood = -9024.3809
Refining estimates:
Iteration 0: Log likelihood = -9024.3809

```

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) =	203.00
Log likelihood =	-9024.3809	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.230011	.1597862	11.19	0.000	1.937832 2.566243
zlgmn	.9223739	.0367944	-2.03	0.043	.8530052 .9973838
_infectionburXzlgmn_000	.9113988	.0658465	-1.28	0.199	.791063 1.05004
AGE	1.035003	.0129875	2.74	0.006	1.009858 1.060773
SEX	.7522924	.0488725	-4.38	0.000	.6623517 .8544463
NonWhite	1.121858	.1910085	0.68	0.499	.8035479 1.566262
householdsize	.9332367	.0392782	-1.64	0.101	.8593426 1.013485
SES	.8191495	.0404313	-4.04	0.000	.743618 .9023529
LE8_TOTALSCORE	.9988559	.0003581	-3.19	0.001	.9981543 .999558

-> Model for the mediator

Iteration 0: Log likelihood = -51095.394	Number of obs = 36,595
Iteration 1: Log likelihood = -51095.394	Wald chi2(7) = 1698.56
Log likelihood = -51095.394	Prob > chi2 = 0.0000

	zlgmn	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0558887	.0149115	3.75	0.000	.0266628 .0851146
AGE		-.0033336	.0009732	-3.43	0.001	-.005241 -.0014262
SEX		-.0861277	.0103319	-8.34	0.000	-.1063779 -.0658774
NonWhite		.1477098	.0247708	5.96	0.000	.0991598 .1962597
householdsize		-.0111266	.0047042	-2.37	0.018	-.0203466 -.0019065
SES		-.1055261	.0077551	-13.61	0.000	-.1207257 -.0903264
LE8_TOTALSCORE		-.0017413	.000055	-31.65	0.000	-.0018491 -.0016334
_cons		1.206184	.0702926	17.16	0.000	1.068413 1.343955
sigma2						
_cons		.9556175	.0070646	135.27	0.000	.9417711 .9694639

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.235137	.1595636	7.74	0.000	.9223978 1.547876
ereri_cde	1.22541	.1591509	7.70	0.000	.9134798 1.53734
ereri_intref	.0315156	.0240415	1.31	0.190	-.015605 .0786362
ereri_intmed	-.017283	.0093417	-1.85	0.064	-.0355924 .0010265
ereri_pie	-.0045059	.0025228	-1.79	0.074	-.0094505 .0004387

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): zlhb
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8796.7946**
 Iteration 2: Log likelihood = **-8788.7789**
 Iteration 3: Log likelihood = **-8788.7623**
 Iteration 4: Log likelihood = **-8788.7623**
 Refining estimates:
 Iteration 0: Log likelihood = **-8788.7623**

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) =	186.87
Log likelihood =	-8788.7623	Prob > chi2 =	0.0000

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.249103	.1624628	11.22	0.000	1.952195 2.591167
zlhsb	.9983387	.0398665	-0.04	0.967	.9231814 1.079615
_infectionburXzlhsb_000	1.041079	.0715609	0.59	0.558	.9098595 1.191222
AGE	1.037487	.0131976	2.89	0.004	1.01194 1.063679
SEX	.7410759	.0517022	-4.30	0.000	.6463644 .8496655
NonWhite	1.110385	.1889118	0.62	0.538	.7955314 1.549852
householdszie	.9396457	.039606	-1.48	0.140	.8651393 1.020569
SES	.8290119	.0413449	-3.76	0.000	.7518119 .9141392
LE8_TOTALSCORE	.9992229	.0003588	-2.16	0.030	.9985199 .9999265

-> Model for the mediator

Iteration 0: Log likelihood = **-48638.998**
 Iteration 1: Log likelihood = **-48638.998**

Linear regression (Maximum Likelihood)	Number of obs =	35,573	
	Wald chi2(7) =	3869.11	
Log likelihood =	-48638.998	Prob > chi2 =	0.0000

<u>zlhsb</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	-.0131621	.014711	-0.89	0.371	-.0419951 .015671
AGE	.0102367	.0009593	10.67	0.000	.0083566 .0121168
SEX	.6194366	.0101792	60.85	0.000	.5994857 .6393875
NonWhite	-.1099323	.0243274	-4.52	0.000	-.1576132 -.0622514
householdszie	.0009609	.0046329	0.21	0.836	-.0081194 .0100413
SES	-.0200952	.0076347	-2.63	0.008	-.035059 -.0051315
LE8_TOTALSCORE	.0000671	.0000542	1.24	0.216	-.0000392 .0001733
_cons	-1.59463	.0693281	-23.00	0.000	-1.73051 -1.458749
sigma2					
_cons	.9018788	.0067624	133.37	0.000	.8886247 .915133

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.249634	.1624512	7.69	0.000	.9312353 1.568032
ereri_cde	1.249105	.1624631	7.69	0.000	.9306837 1.567527
ereri_intref	.0016715	.0048085	0.35	0.728	-.007753 .0110961
ereri_intmed	-.001165	.0022	-0.53	0.596	-.0054768 .0031469
ereri_pie	.0000219	.0005262	0.04	0.967	-.0010094 .0010532

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): zlhpp
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 .04626 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 = -9112.367

Iteration 1: Log likelihood = -9025.5424

Iteration 2: Log likelihood = -9016.6422

Iteration 3: Log likelihood = -9016.6074

Iteration 4: Log likelihood = -9016.6073

Refining estimates:

Iteration 0: Log likelihood = -9016.6073

Cox regression with Breslow method for ties

No. of subjects = 36,468 Number of obs = 36,468

No. of failures = 973

Time at risk = 442,950.171

LR chi2(9) = 191.52

Log likelihood = -9016.6073

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.240565	.1600209	11.30	0.000	1.947891 2.577212
zlhpp	.9888573	.0377153	-0.29	0.769	.9176321 1.065611
_infectionburXzlhpp_000	1.039811	.07458	0.54	0.586	.9034458 1.196758
AGE	1.035523	.0130111	2.78	0.005	1.010334 1.061341
SEX	.7595554	.0496319	-4.21	0.000	.6682501 .8633359
NonWhite	1.096898	.1866507	0.54	0.587	.7858209 1.531118
householdsize	.9364272	.0393068	-1.56	0.118	.8624713 1.016725
SES	.8257678	.0406697	-3.89	0.000	.7497831 .9094529
LE8_TOTALSCORE	.999043	.0003559	-2.69	0.007	.9983457 .9997408

-> Model for the mediator

Iteration 0: Log likelihood = **-51153.394**
 Iteration 1: Log likelihood = **-51153.394**

Linear regression (Maximum Likelihood) Number of obs = 36,468
 Wald chi2(7) = 1203.34
 Log likelihood = **-51153.394** Prob > chi2 = 0.0000

zlhpp	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	-.0234241	.0150308	-1.56	0.119	-.052884 .0060357
AGE	.000576	.0009811	0.59	0.557	-.0013469 .0024989
SEX	-.2688349	.0104163	-25.81	0.000	-.2892504 -.2484193
NonWhite	.0493341	.0249941	1.97	0.048	.0003467 .0983216
householdsize	-.0008862	.0047399	-0.19	0.852	-.0101763 .0084039
SES	-.0002919	.0078186	-0.04	0.970	-.015616 .0150322
LE8_TOTALSCORE	-.0011214	.0000555	-20.21	0.000	-.0012301 -.0010126
_cons	.9411517	.0708562	13.28	0.000	.8022761 1.080027
sigma2					
_cons	.9680303	.0071688	135.03	0.000	.9539797 .982081

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.240093	.1599876	7.75	0.000	.926523 1.553663
ereri_cde	1.240535	.1600201	7.75	0.000	.926901 1.554168
ereri_intref	.0010192	.0041741	0.24	0.807	-.0071619 .0092003
ereri_intmed	-.0017235	.0035039	-0.49	0.623	-.008591 .0051441
ereri_pie	.0002625	.0009094	0.29	0.773	-.0015198 .0020449

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): zlif
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8734.7167
 Iteration 2: Log likelihood = -8727.0187
 Iteration 3: Log likelihood = -8726.9984
 Iteration 4: Log likelihood = -8726.9984
 Refining estimates:
 Iteration 0: Log likelihood = -8726.9984

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) =	185.13
Log likelihood =	-8726.9984	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.210573	.1611195	10.88	0.000	1.916304 2.550031
zlif	.967436	.0387147	-0.83	0.408	.894456 1.046371
_infectionburXzlif_000	1.055425	.0825642	0.69	0.490	.9053973 1.230313
AGE	1.037487	.013211	2.89	0.004	1.011915 1.063706
SEX	.7478754	.0494084	-4.40	0.000	.6570443 .8512632
NonWhite	1.089951	.1879264	0.50	0.617	.7774007 1.52816
householdsize	.9297114	.0401534	-1.69	0.092	.854251 1.011838
SES	.8156457	.0407185	-4.08	0.000	.739619 .8994872
LE8_TOTALSCORE	.9991827	.0003613	-2.26	0.024	.9984747 .9998911

-> Model for the mediator

Iteration 0: Log likelihood = -50381.912
 Iteration 1: Log likelihood = -50381.912

Linear regression (Maximum Likelihood)
 Number of obs = 35,601
 Wald chi2(7) = 267.44
 Log likelihood = -50381.912 Prob > chi2 = 0.0000

	zlif	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0399593	.015408	2.59	0.010	.0097602 .0701583
AGE		-.0005506	.0010088	-0.55	0.585	-.0025279 .0014266
SEX		-.0475951	.010674	-4.46	0.000	-.0685158 -.0266744
NonWhite		-.1022921	.0254693	-4.02	0.000	-.1522111 -.0523732
householdsize		-.00963	.0050638	-1.90	0.057	-.0195549 .0002949
SES		-.0266591	.0080185	-3.32	0.001	-.0423751 -.0109432
LE8_TOTALSCORE		-.0007335	.0000569	-12.89	0.000	-.000845 -.000622
_cons		.4916798	.0731357	6.72	0.000	.3483366 .6350231
sigma2						
_cons		.9925161	.0074391	133.42	0.000	.9779357 1.007096

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.211026	.160977	7.52	0.000	.8955168 1.526535
ereri_cde	1.209692	.1610058	7.51	0.000	.8941268 1.525258
ereri_intref	-.0005068	.0027658	-0.18	0.855	-.0059277 .0049141
ereri_intmed	.0031623	.0062715	0.50	0.614	-.0091296 .0154541
ereri_pie	-.001322	.0016763	-0.79	0.430	-.0046074 .0019634

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): zlifr
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

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

```
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 = **-8947.553**
 Iteration 2: Log likelihood = **-8937.2573**
 Iteration 3: Log likelihood = **-8937.1794**
 Iteration 4: Log likelihood = **-8937.1794**
 Refining estimates:
 Iteration 0: Log likelihood = **-8937.1794**

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) =	198.52
Log likelihood =	-8937.1794	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.2462	.1628562	11.16	0.000	1.94865 2.589185
_zlifr		1.079633	.0421183	1.96	0.050	1.00016 1.165422
_infectionburXzlifr_000		.9983807	.0683543	-0.02	0.981	.8730086 1.141757
AGE		1.03115	.0130056	2.43	0.015	1.005972 1.056959
SEX		.748163	.048988	-4.43	0.000	.6580539 .850611
NonWhite		1.049728	.1810123	0.28	0.778	.7486827 1.471823
householdszie		.9348746	.0396406	-1.59	0.112	.8603212 1.015889
SES		.8205645	.0405026	-4.01	0.000	.7448999 .9039149
LE8_TOTALSCORE		.9990386	.0003551	-2.71	0.007	.9983429 .9997347

-> Model for the mediator

Iteration 0: Log likelihood = **-51283.53**
 Iteration 1: Log likelihood = **-51283.53**

Linear regression (Maximum Likelihood)	Number of obs =	36,352
	Wald chi2(7) =	599.33
Log likelihood =	-51283.53	Prob > chi2 = 0.0000

	zlifr	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0843327	.0151942	5.55	0.000	.0545526 .1141129
AGE		.014205	.0009918	14.32	0.000	.012261 .016149
SEX		.1785966	.0105163	16.98	0.000	.1579851 .1992082
NonWhite		.0549586	.0252005	2.18	0.029	.0055664 .1043507
householdszie		-.0141081	.0048672	-2.90	0.004	-.0236478 -.0045685
SES		-.0173351	.0078877	-2.20	0.028	-.0327948 -.0018755
LE8_TOTALSCORE		-.000056	.000056	-1.00	0.318	-.0001657 .0000538
_cons		-1.084676	.0717508	-15.12	0.000	-1.225305 -.9440465
sigma2						
_cons		.9837534	.0072969	134.82	0.000	.9694517 .998055

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.260222	.1619988	7.78	0.000	.9427103 1.577734
ereri_cde	1.24372	.1623748	7.66	0.000	.9254715 1.561969
ereri_intref	.0022511	.0082206	0.27	0.784	-.0138609 .0183631
ereri_intmed	.0077682	.0112757	0.69	0.491	-.0143318 .0298683
ereri_pie	.0064826	.0035125	1.85	0.065	-.0004017 .013367

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): zlilra2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -9033.7055

Iteration 2: Log likelihood = -9025.5085

Iteration 3: Log likelihood = -9025.4895

Iteration 4: Log likelihood = -9025.4895

Refining estimates:

Iteration 0: Log likelihood = -9025.4895

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) = 192.65

Log likelihood = -9025.4895 Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.225257	.1597767	11.14	0.000	1.933137 2.561519
zlilra2		.9873422	.0387734	-0.32	0.746	.9141988 1.066338
_infectionburXzlilra2_000		1.048311	.0728876	0.68	0.497	.91476 1.201359
AGE		1.035215	.013016	2.75	0.006	1.010015 1.061042
SEX		.7523185	.0502509	-4.26	0.000	.660003 .8575462
NonWhite		1.089534	.1859472	0.50	0.615	.7797746 1.522343
householdszie		.9388664	.0393175	-1.51	0.132	.8648833 1.019178
SES		.8247033	.0406061	-3.91	0.000	.7488363 .9082566
LE8_TOTALSCORE		.9990243	.0003549	-2.75	0.006	.9983289 .9997202

-> Model for the mediator

Iteration 0: Log likelihood = -50504.285
 Iteration 1: Log likelihood = -50504.285

Linear regression (Maximum Likelihood)
 Number of obs = 36,459
 Wald chi2(7) = 2541.24
 Log likelihood = -50504.285 Prob > chi2 = 0.0000

	zlilra2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0666467	.014776	4.51	0.000	.0376862 .0956072
AGE		.0117412	.0009671	12.14	0.000	.0098457 .0136367
SEX		.4121806	.010239	40.26	0.000	.3921125 .4322487
NonWhite		-.4584834	.024548	-18.68	0.000	-.5065965 -.4103702
householdszie		-.0007701	.0048656	-0.16	0.874	-.0103064 .0087662
SES		-.0679618	.0076905	-8.84	0.000	-.0830348 -.0528887
LE8_TOTALSCORE		-.0009119	.0000545	-16.73	0.000	-.0010187 -.000805
_cons		-.8727014	.0701339	-12.44	0.000	-1.010161 -.7352416
sigma2						
_cons		.9348147	.0069237	135.02	0.000	.9212445 .9483849

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.230463	.1594162	7.72	0.000	.9180135 1.542913
ereri_cde	1.225019	.1597594	7.67	0.000	.9118964 1.538142
ereri_intref	.0003304	.0031718	0.10	0.917	-.0058862 .0065469
ereri_intmed	.0059626	.009099	0.66	0.512	-.0118711 .0237963
ereri_pie	-.0008486	.0026218	-0.32	0.746	-.0059872 .00429

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): zlilra5
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8953.016
Iteration 2: Log likelihood = -8944.1399
Iteration 3: Log likelihood = -8944.1193
Iteration 4: Log likelihood = -8944.1193
Refining estimates:
Iteration 0: Log likelihood = -8944.1193

```

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) =	197.98
Log likelihood =	-8944.1193	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.292736	.1662446	11.44	0.000	1.988996 2.642859
zlilra5	1.010551	.0406361	0.26	0.794	.9339636 1.093419
_infectionburXzlilra5_000	.961968	.0670723	-0.56	0.578	.8390956 1.102833
AGE	1.034456	.0130734	2.68	0.007	1.009148 1.060399
SEX	.7466071	.0487155	-4.48	0.000	.6569796 .8484619
NonWhite	1.007893	.1784163	0.04	0.965	.7124186 1.425914
householdsize	.9263929	.0399658	-1.77	0.076	.8512816 1.008131
SES	.8242468	.0409616	-3.89	0.000	.7477494 .90857
LE8_TOTALSCORE	.9990326	.0003632	-2.66	0.008	.9983211 .9997446

-> Model for the mediator

Iteration 0: Log likelihood =	-49957.582	Number of obs =	36,384
Iteration 1: Log likelihood =	-49957.582	Wald chi2(7) =	3494.99
Linear regression (Maximum Likelihood)		Prob > chi2 =	0.0000
Log likelihood =	-49957.582		

	zlilra5	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.1441596	.0146101	9.87	0.000	.1155243 .1727949
AGE		.0113762	.0009541	11.92	0.000	.0095061 .0132463
SEX		-.0055388	.0101236	-0.55	0.584	-.0253806 .0143031
NonWhite		.1654472	.0242292	6.83	0.000	.1179588 .2129355
householdsize		-.0111719	.0046057	-2.43	0.015	-.0201989 -.0021449
SES		-.1370749	.0075965	-18.04	0.000	-.1519637 -.1221861
LE8_TOTALSCORE		-.0024171	.000054	-44.80	0.000	-.0025229 -.0023113
_cons		.5202071	.0689543	7.54	0.000	.3850591 .6553551
sigma2						
_cons		.9123351	.0067642	134.88	0.000	.8990776 .9255926

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.285901	.1641882	7.83	0.000	.9640979 1.607704
ereri_cde	1.292942	.1663022	7.77	0.000	.966996 1.618889
ereri_intref	.0022962	.0061608	0.37	0.709	-.0097787 .0143712
ereri_intmed	-.0108519	.0200443	-0.54	0.588	-.050138 .0284342
ereri_pie	.0015142	.0058077	0.26	0.794	-.0098687 .0128972

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): zlilrb1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-9136.0914**
 Iteration 2: Log likelihood = **-9127.815**
 Iteration 3: Log likelihood = **-9127.7963**
 Iteration 4: Log likelihood = **-9127.7963**
 Refining estimates:
 Iteration 0: Log likelihood = **-9127.7963**

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) =	194.76
Log likelihood =	-9127.7963	Prob > chi2 =	0.0000

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.231979	.1592047	11.26	0.000	1.940773 2.566879
zlilrb1	.9528989	.0372328	-1.23	0.217	.8826483 1.028741
_infectionburXzlilrb1_000	1.062743	.0740773	0.87	0.383	.927035 1.218317
AGE	1.034937	.012955	2.74	0.006	1.009855 1.060643
SEX	.7626253	.0500786	-4.13	0.000	.6705268 .8673738
NonWhite	1.0782	.1835736	0.44	0.658	.7722795 1.505305
householdszie	.9375043	.0391449	-1.55	0.122	.8638373 1.017454
SES	.8209539	.0402987	-4.02	0.000	.7456503 .9038623
LE8_TOTALSCORE	.9990389	.0003538	-2.72	0.007	.9983458 .9997326

-> Model for the mediator

Iteration 0: Log likelihood = **-51273.572**
 Iteration 1: Log likelihood = **-51273.572**

Linear regression (Maximum Likelihood)	Number of obs =	36,896
	Wald chi2(7) =	2222.54
Log likelihood =	Prob > chi2 =	0.0000

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.056752	.0147502	3.85	0.000	.0278421 .0856619
AGE	.0093165	.000963	9.67	0.000	.0074291 .0112039
SEX	.3394372	.0102213	33.21	0.000	.3194038 .3594705
NonWhite	.3171118	.0244767	12.96	0.000	.2691383 .3650853
householdszie	-.0048713	.0046601	-1.05	0.296	-.0140048 .0042622
SES	-.0962475	.0076706	-12.55	0.000	-.1112816 -.0812134
LE8_TOTALSCORE	-.0011778	.0000544	-21.63	0.000	-.0012845 -.0010711
_cons	-.5098964	.069621	-7.32	0.000	-.646351 -.3734418
sigma2					
_cons	.943159	.006944	135.82	0.000	.929549 .956769

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.230222	.1586925	7.75	0.000	.9191908 1.541254
ereri_cde	1.230159	.1589912	7.74	0.000	.9185422 1.541776
ereri_intref	-.0015319	.0021986	-0.70	0.486	-.005841 .0027773
ereri_intmed	.0043294	.0077649	0.56	0.577	-.0108896 .0195484
ereri_pie	-.0027343	.0023225	-1.18	0.239	-.0072864 .0018177

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): zlilrb2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

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

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

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 -.07562 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 = **-9172.505**

Iteration 1: Log likelihood = **-9083.5154**

Iteration 2: Log likelihood = **-9075.1447**

Iteration 3: Log likelihood = **-9075.1195**

Iteration 4: Log likelihood = **-9075.1195**

Refining estimates:

Iteration 0: Log likelihood = **-9075.1195**

Cox regression with Breslow method for ties

No. of subjects = **36,736** Number of obs = **36,736**

No. of failures = **979**

Time at risk = **446,311.526**

LR chi2(9) = **194.77**

Log likelihood = **-9075.1195** Prob > chi2 = **0.0000**

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.232278	.1596555	11.23	0.000	1.940301 2.568191
zlilrb2		.9637631	.0371026	-0.96	0.338	.8937191 1.039297
_infectionburXzlilrb2_000		.9925123	.0690532	-0.11	0.914	.8659928 1.137516
AGE		1.037272	.013046	2.91	0.004	1.012014 1.063159
SEX		.7547783	.0490056	-4.33	0.000	.6645892 .8572067
NonWhite		1.033129	.1780036	0.19	0.850	.7370489 1.448148
householdsize		.9407263	.0391536	-1.47	0.142	.8670332 1.020683
SES		.820603	.0403376	-4.02	0.000	.7452318 .9035971
LE8_TOTALSCORE		.9989816	.0003536	-2.88	0.004	.9982887 .9996749

-> Model for the mediator

Iteration 0: Log likelihood = -51627.613
 Iteration 1: Log likelihood = -51627.613

Linear regression (Maximum Likelihood) Number of obs = 36,736
 Wald chi2(7) = 1009.65
 Prob > chi2 = 0.0000
 Log likelihood = -51627.613

	zlilrb2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0674639	.0150111	4.49	0.000	.0380427 .0968852
AGE		.0151164	.0009804	15.42	0.000	.0131949 .0170379
SEX		.1154427	.0104053	11.09	0.000	.0950487 .1358368
NonWhite		-.2076247	.0249205	-8.33	0.000	-.2564681 -.1587813
householdsize		.0017081	.0047421	0.36	0.719	-.0075862 .0110024
SES		-.0844136	.0078078	-10.81	0.000	-.0997166 -.0691105
LE8_TOTALSCORE		-.0008944	.0000554	-16.14	0.000	-.001003 -.0007858
_cons		-.6488179	.0708691	-9.16	0.000	-.7877187 -.509917
sigma2						
_cons		.9732247	.007181	135.53	0.000	.9591503 .9872991

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.226417	.1592514	7.70	0.000	.9142897 1.538544
ereri_cde	1.231035	.1595664	7.71	0.000	.9182903 1.543779
ereri_intref	.0020648	.0070793	0.29	0.771	-.0118103 .01594
ereri_intmed	-.0041959	.0092256	-0.45	0.649	-.0222777 .0138859
ereri_pie	-.002487	.002649	-0.94	0.348	-.007679 .002705

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): zlilrb4
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8831.7319
Iteration 2: Log likelihood = -8819.6595
Iteration 3: Log likelihood = -8819.4982
Iteration 4: Log likelihood = -8819.4981
Refining estimates:
Iteration 0: Log likelihood = -8819.4981

```

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) =	187.67
Log likelihood =	-8819.4981	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.157278	.1656981	10.01	0.000	1.855779 2.50776
zlilrb4	1.004827	.0407108	0.12	0.905	.928121 1.087872
_infectionburXzlilrb4_000	1.07244	.0728033	1.03	0.303	.9388332 1.22506
AGE	1.036174	.0132062	2.79	0.005	1.010611 1.062384
SEX	.7513719	.0494717	-4.34	0.000	.660405 .8548691
NonWhite	1.062764	.1859384	0.35	0.728	.7542462 1.49748
householdsize	.9347712	.0397627	-1.59	0.113	.859998 1.016046
SES	.8302223	.0414431	-3.73	0.000	.7528424 .9155555
LE8_TOTALSCORE	.9991152	.0003628	-2.44	0.015	.9984043 .9998266

-> Model for the mediator

Iteration 0: Log likelihood = -48930.816	Number of obs = 35,761
Iteration 1: Log likelihood = -48930.816	Wald chi2(7) = 3812.54
Log likelihood = -48930.816	Prob > chi2 = 0.0000

	zlilrb4	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.2140396	.0146896	14.57	0.000	.1852485 .2428307
AGE		.0298083	.0009568	31.16	0.000	.0279331 .0316835
SEX		-.1364592	.0101607	-13.43	0.000	-.1563738 -.1165446
NonWhite		-.2755291	.0243115	-11.33	0.000	-.3231788 -.2278794
householdsize		.0051979	.0046216	1.12	0.261	-.0038602 .014256
SES		-.1056402	.0076181	-13.87	0.000	-.1205713 -.0907091
LE8_TOTALSCORE		-.0018825	.0000541	-34.77	0.000	-.0019886 -.0017764
_cons		-.6790718	.069108	-9.83	0.000	-.814521 -.5436226
sigma2						
_cons		.9036341	.0067578	133.72	0.000	.8903891 .916879

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.193037	.1615959	7.38	0.000	.8763152 1.509759
ereri_cde	1.157431	.1658331	6.98	0.000	.8324044 1.482458
ereri_intref	.0007973	.004748	0.17	0.867	-.0085085 .0101032
ereri_intmed	.0337776	.0266582	1.27	0.205	-.0184715 .0860267
ereri_pie	.0010312	.0086811	0.12	0.905	-.0159835 .0180458

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): zlilrb5
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-9138.4441**
 Iteration 2: Log likelihood = **-9127.2462**
 Iteration 3: Log likelihood = **-9127.1349**
 Iteration 4: Log likelihood = **-9127.1349**
 Refining estimates:
 Iteration 0: Log likelihood = **-9127.1349**

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) =	196.08
Log likelihood =	-9127.1349	Prob > chi2 =	0.0000

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.230967	.1588186	11.27	0.000	1.940428 2.565007
zlilrb5	.9912225	.0373042	-0.23	0.815	.920739 1.067102
_infectionburXzlilrb5_000	.9153133	.0624482	-1.30	0.195	.8007476 1.04627
AGE	1.03434	.0129378	2.70	0.007	1.00929 1.060011
SEX	.7544058	.04876	-4.36	0.000	.6646435 .8562909
NonWhite	1.071528	.1822255	0.41	0.685	.7677979 1.495409
householdszie	.9381727	.0391191	-1.53	0.126	.8645499 1.018065
SES	.8229323	.0403149	-3.98	0.000	.7475915 .9058657
LE8_TOTALSCORE	.999054	.0003524	-2.68	0.007	.9983636 .9997449

-> Model for the mediator

Iteration 0: Log likelihood = **-52242.754**
 Iteration 1: Log likelihood = **-52242.754**

Linear regression (Maximum Likelihood)	Number of obs =	36,896	
	Wald chi2(7) =	220.46	
Log likelihood =	-52242.754	Prob > chi2 =	0.0000

<u>zlilrb5</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0079657	.0151428	0.53	0.599	-.0217137 .0376451
AGE	.0014124	.0009886	1.43	0.153	-.0005252 .00335
SEX	-.0136153	.0104933	-1.30	0.194	-.0341818 .0069512
NonWhite	.2181136	.0251282	8.68	0.000	.1688632 .267364
householdszie	-.0044913	.0047841	-0.94	0.348	-.013868 .0048853
SES	-.0068342	.0078747	-0.87	0.385	-.0222685 .0086
LE8_TOTALSCORE	-.000593	.0000559	-10.61	0.000	-.0007025 -.0004834
_cons	.2307945	.071474	3.23	0.001	.0907081 .370881
sigma2					
_cons	.9940334	.0073186	135.82	0.000	.9796892 1.008378

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.239886	.1591736	7.79	0.000	.9279119 1.551861
ereri_cde	1.230907	.1588142	7.75	0.000	.919637 1.542177
ereri_intref	.0107161	.0125217	0.86	0.392	-.0138261 .0352582
ereri_intmed	-.0016666	.0033425	-0.50	0.618	-.0082179 .0048847
ereri_pie	-.0000702	.0003281	-0.21	0.831	-.0007134 .0005729

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): zlpccat2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -8974.8432

Iteration 2: Log likelihood = -8960.5412

Iteration 3: Log likelihood = -8959.7206

Iteration 4: Log likelihood = -8959.6988

Iteration 5: Log likelihood = -8959.6988

Refining estimates:

Iteration 0: Log likelihood = -8959.6988

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) = 195.84

Log likelihood = -8959.6988 Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.226577	.1609696	11.07	0.000	1.932415 2.565518
zlpcat2		.989542	.038336	-0.27	0.786	.9171866 1.067605
_infectionburXzlpcat2_000		1.094318	.0672817	1.47	0.143	.9700838 1.234462
AGE		1.031606	.0129999	2.47	0.014	1.006438 1.057402
SEX		.7489506	.0488141	-4.44	0.000	.6591355 .8510041
NonWhite		1.084832	.1845766	0.48	0.632	.7772063 1.514218
householdsize		.9380502	.0393295	-1.53	0.127	.8640479 1.01839
SES		.8176658	.0403401	-4.08	0.000	.742303 .9006799
LE8_TOTALSCORE		.9990772	.0003557	-2.59	0.010	.9983804 .9997745

-> Model for the mediator

Iteration 0: Log likelihood = **-51207.779**
 Iteration 1: Log likelihood = **-51207.779**

Linear regression (Maximum Likelihood) Number of obs = 36,264
 Wald chi2(7) = 499.63
 Log likelihood = **-51207.779** Prob > chi2 = 0.0000

	zlpcat2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0696933	.0152205	4.58	0.000	.0398616 .099525
AGE		.0074752	.0009939	7.52	0.000	.0055272 .0094231
SEX		.0530419	.0105431	5.03	0.000	.0323779 .073706
NonWhite		-.1484386	.0252279	-5.88	0.000	-.1978844 -.0989927
householdsize		.0017551	.0047949	0.37	0.714	-.0076427 .0111529
SES		-.0420514	.0079072	-5.32	0.000	-.0575492 -.0265536
LE8_TOTALSCORE		-.0008943	.0000561	-15.93	0.000	-.0010044 -.0007843
_cons		-.0930851	.0718281	-1.30	0.195	-.2338656 .0476954
sigma2						
_cons		.9863826	.0073253	134.66	0.000	.9720254 1.00074

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.243896	.1609084	7.73	0.000	.9285213 1.559271
ereri_cde	1.226385	.1609598	7.62	0.000	.9109099 1.541861
ereri_intref	.0050941	.0074378	0.68	0.493	-.0094838 .019672
ereri_intmed	.013149	.008423	1.56	0.119	-.0033599 .0296579
ereri_pie	-.0007324	.0027028	-0.27	0.786	-.0060297 .0045649

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): zlpl
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8973.058
 Iteration 2: Log likelihood = -8963.1956
 Iteration 3: Log likelihood = -8963.1539
 Iteration 4: Log likelihood = -8963.1539
 Refining estimates:
 Iteration 0: Log likelihood = -8963.1539

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) =	203.35
Log likelihood =	-8963.1539	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.278503	.1627017	11.53	0.000	1.980923 2.620786
zlpl	1.120048	.0500196	2.54	0.011	1.02618 1.222503
_infectionburXzlpl_000	.934376	.0674479	-0.94	0.347	.8111062 1.07638
AGE	1.032415	.0130106	2.53	0.011	1.007227 1.058233
SEX	.688908	.0509884	-5.03	0.000	.5958829 .7964555
NonWhite	1.00581	.1780095	0.03	0.974	.7109994 1.422861
householdsize	.9282769	.0398409	-1.73	0.083	.8533843 1.009742
SES	.8251599	.0408265	-3.88	0.000	.7488989 .9091866
LE8_TOTALSCORE	.9988693	.0003634	-3.11	0.002	.9981572 .9995819

-> Model for the mediator

Iteration 0: Log likelihood =	-46002.904	Number of obs =	36,441
Iteration 1: Log likelihood =	-46002.904	Wald chi2(7) =	13395.91
Log likelihood =	-46002.904	Prob > chi2 =	0.0000

	zlp1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0091329	.0130681	0.70	0.485	-.0164802 .034746
AGE		.0097743	.0008535	11.45	0.000	.0081014 .0114471
SEX		.9303359	.0090557	102.74	0.000	.9125871 .9480847
NonWhite		.0009086	.0216833	0.04	0.967	-.04159 .0434071
householdsize		-.007482	.0041211	-1.82	0.069	-.0155592 .0005953
SES		-.0052393	.0067955	-0.77	0.441	-.0185583 .0080797
LE8_TOTALSCORE		.0020701	.0000483	42.88	0.000	.0019755 .0021647
_cons		-3.03393	.0616862	-49.18	0.000	-3.154833 -2.913027
sigma2						
_cons		.7311849	.0054169	134.98	0.000	.7205681 .7418018

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.270677	.162517	7.82	0.000	.9521495 1.589204
ereri_cde	1.272692	.1619918	7.86	0.000	.9551944 1.590191
ereri_intref	-.0029588	.0054523	-0.54	0.587	-.0136451 .0077274
ereri_intmed	-.0000927	.0013285	-0.07	0.944	-.0026965 .0025111
ereri_pie	.0010359	.0015383	0.67	0.501	-.001979 .0040509

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): zlpo
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 .04672 2.215 -.07331 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 = **-8695.5735**
 Iteration 1: Log likelihood = **-8609.4421**
 Iteration 2: Log likelihood = **-8600.9104**
 Iteration 3: Log likelihood = **-8600.8804**
 Iteration 4: Log likelihood = **-8600.8804**
 Refining estimates:
 Iteration 0: Log likelihood = **-8600.8804**

Cox regression with Breslow method for ties

No. of subjects =	35,249	Number of obs =	35,249
No. of failures =	932		
Time at risk =	428,321.497	LR chi2(9) =	189.39
Log likelihood =	-8600.8804	Prob > chi2 =	0.0000

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.240738	.1635783	11.05	0.000	1.942011 2.585416
zlpo	1.019268	.0404498	0.48	0.631	.9429926 1.101713
_infectionburXzlpo_000	.918106	.0648223	-1.21	0.226	.7994554 1.054366
AGE	1.038327	.0133396	2.93	0.003	1.012508 1.064804
SEX	.7405327	.0491843	-4.52	0.000	.6501441 .8434879
NonWhite	1.013149	.181538	0.07	0.942	.7131053 1.439439
householdszie	.9513187	.0394247	-1.20	0.228	.8771026 1.031815
SES	.8145856	.0410343	-4.07	0.000	.7380027 .8991156
LE8_TOTALSCORE	.9991366	.0003625	-2.38	0.017	.9984263 .9998474

-> Model for the mediator

Iteration 0: Log likelihood = **-49328.679**
 Iteration 1: Log likelihood = **-49328.679**

Linear regression (Maximum Likelihood)	Number of obs =	35,249
	Wald chi2(7) =	1401.10
Log likelihood =	Prob > chi2 =	0.0000

<u>zlpo</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.017077	.0152535	1.12	0.263	-.0128194 .0469733
AGE	-.0053183	.0009977	-5.33	0.000	-.0072738 -.0033629
SEX	.0343337	.0105622	3.25	0.001	.0136322 .0550353
NonWhite	.8083239	.0252459	32.02	0.000	.758843 .8578049
householdszie	.0101322	.0049942	2.03	0.042	.0003438 .0199205
SES	-.0673388	.0079441	-8.48	0.000	-.082909 -.0517686
LE8_TOTALSCORE	-.0004199	.0000562	-7.47	0.000	-.0005301 -.0003097
_cons	.4101684	.0723216	5.67	0.000	.2684207 .5519162
sigma2					
_cons	.9617436	.0072444	132.76	0.000	.9475449 .9759423

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.243006	.1635555	7.60	0.000	.9224429 1.563569
ereri_cde	1.240577	.1635608	7.58	0.000	.9200032 1.56115
ereri_intref	.0049723	.0088424	0.56	0.574	-.0123584 .0223031
ereri_intmed	-.0028692	.003481	-0.82	0.410	-.0096917 .0039534
ereri_pie	.000326	.0007378	0.44	0.659	-.0011201 .0017721

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): zlrig1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-9090.7032**

Iteration 2: Log likelihood = **-9081.1048**

Iteration 3: Log likelihood = **-9081.0631**

Iteration 4: Log likelihood = **-9081.0631**

Refining estimates:

Iteration 0: Log likelihood = **-9081.0631**

Cox regression with Breslow method for ties

No. of subjects = 36,616 Number of obs = 36,616

No. of failures = 980

Time at risk = 444,808.265

Log likelihood = **-9081.0631**

LR chi2(9) = 194.75

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.23853	.1618682	11.14	0.000	1.94273 2.579368
zlrig1	.9931096	.0385331	-0.18	0.859	.9203863 1.071579
_infectionburXzlrig1_000	1.045747	.0712055	0.66	0.511	.9150985 1.195048
AGE	1.03415	.0129823	2.67	0.007	1.009015 1.05991
SEX	.7609545	.0495378	-4.20	0.000	.6698011 .8645131
NonWhite	1.079564	.1835522	0.45	0.653	.7736124 1.506515
householdsize	.9334357	.0392567	-1.64	0.101	.8595797 1.013637
SES	.8217197	.0404667	-3.99	0.000	.7461138 .9049869
LE8_TOTALSCORE	.9990941	.0003541	-2.56	0.011	.9984003 .9997884

-> Model for the mediator

Iteration 0: Log likelihood = -51115.432
 Iteration 1: Log likelihood = -51115.432

Linear regression (Maximum Likelihood)
 Number of obs = 36,616
 Wald chi2(7) = 1718.97
 Log likelihood = -51115.432 Prob > chi2 = 0.0000

	zlrig1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr	.1021128	.014926	6.84	0.000	.0728584	.1313671
AGE	.0124118	.0009731	12.76	0.000	.0105046	.014319
SEX	.2804924	.0103248	27.17	0.000	.2602561	.3007287
NonWhite	.0137563	.0246826	0.56	0.577	-.0346207	.0621334
householdsize	-.0061309	.0046987	-1.30	0.192	-.0153402	.0030783
SES	-.1297025	.0077448	-16.75	0.000	-.1448819	-.114523
LE8_TOTALSCORE	-.0008048	.000055	-14.63	0.000	-.0009126	-.000697
_cons	-.7843667	.0703672	-11.15	0.000	-.9222838	-.6464495
sigma2						
_cons	.9551331	.007059	135.31	0.000	.9412977	.9689685

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.247253	.1606371	7.76	0.000	.9324105 1.562096
ereri_cde	1.238381	.1618848	7.65	0.000	.9210924 1.555669
ereri_intref	.0002114	.0029459	0.07	0.943	-.0055626 .0059853
ereri_intmed	.0093671	.013488	0.69	0.487	-.017069 .0358032
ereri_pie	-.0007058	.0039606	-0.18	0.859	-.0084684 .0070568

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): zlrp1
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8968.794
 Iteration 2: Log likelihood = -8960.2411
 Iteration 3: Log likelihood = -8960.2202
 Iteration 4: Log likelihood = -8960.2202
 Refining estimates:
 Iteration 0: Log likelihood = -8960.2202

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) =	194.79
Log likelihood =	-8960.2202	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.262276	.1626547	11.35	0.000	1.964922 2.604629
zlrp1	1.04825	.0410169	1.20	0.228	.9708633 1.131804
_infectionburXzlrp1_000	.9555239	.0663534	-0.66	0.512	.8339356 1.09484
AGE	1.030982	.0130081	2.42	0.016	1.005799 1.056795
SEX	.7418836	.0490731	-4.51	0.000	.6516759 .8445782
NonWhite	1.082591	.1841799	0.47	0.641	.7756228 1.511048
householdsize	.9373415	.0393532	-1.54	0.123	.8632989 1.017735
SES	.8174629	.0403071	-4.09	0.000	.7421597 .9004068
LE8_TOTALSCORE	.9990348	.0003558	-2.71	0.007	.9983378 .9997324

-> Model for the mediator

Iteration 0: Log likelihood = -50456.312
 Iteration 1: Log likelihood = -50456.312

Linear regression (Maximum Likelihood)
 Number of obs = 36,264
 Wald chi2(7) = 2055.28
 Log likelihood = -50456.312 Prob > chi2 = 0.0000

	zlrp1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0342498	.0149084	2.30	0.022	.0050299 .0634696
AGE		.0208908	.0009735	21.46	0.000	.0189828 .0227988
SEX		.3671989	.0103268	35.56	0.000	.3469586 .3874391
NonWhite		.1134754	.0247105	4.59	0.000	.0650436 .1619072
householdsize		-.0211162	.0046965	-4.50	0.000	-.0303212 -.0119111
SES		-.0201563	.007745	-2.60	0.009	-.0353363 -.0049764
LE8_TOTALSCORE		.0007147	.000055	13.00	0.000	.0006069 .0008225
_cons		-2.142242	.070355	-30.45	0.000	-2.280135 -2.004349
sigma2						
_cons		.9463382	.0070279	134.66	0.000	.9325638 .9601126

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.260518	.1621022	7.78	0.000	.9428039 1.578233
ereri_cde	1.261233	.1624325	7.76	0.000	.9428713 1.579595
ereri_intref	-.0008408	.0016389	-0.51	0.608	-.004053 .0023714
ereri_intmed	-.0014893	.0047143	-0.32	0.752	-.0107292 .0077506
ereri_pie	.0016152	.0015156	1.07	0.287	-.0013552 .0045857

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): zlrp11
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8972.1388**
 Iteration 2: Log likelihood = **-8963.2981**
 Iteration 3: Log likelihood = **-8963.2757**
 Iteration 4: Log likelihood = **-8963.2757**
 Refining estimates:
 Iteration 0: Log likelihood = **-8963.2757**

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) =	203.11
Log likelihood =	-8963.2757	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.325324	.1703851	11.52	0.000	2.014247 2.684443
zlrp11		1.103335	.0426014	2.55	0.011	1.022919 1.190073
_infectionburXzlrp11_000		.8998636	.0602155	-1.58	0.115	.7892553 1.025973
AGE		1.031455	.0130252	2.45	0.014	1.006239 1.057302
SEX		.7487425	.0487882	-4.44	0.000	.6589737 .8507401
NonWhite		.9932663	.1758938	-0.04	0.970	.7019878 1.405406
householdszie		.927948	.0398456	-1.74	0.082	.853048 1.009424
SES		.8303178	.0411053	-3.76	0.000	.7535381 .9149207
LE8_TOTALSCORE		.9991614	.0003603	-2.33	0.020	.9984556 .9998678

-> Model for the mediator

Iteration 0: Log likelihood = **-50552.946**
 Iteration 1: Log likelihood = **-50552.946**

Linear regression (Maximum Likelihood)	Number of obs =	36,441
	Wald chi2(7) =	2382.85
Log likelihood =	Prob > chi2 =	0.0000

	<u>zlrp11</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.1683099	.0148061	11.37	0.000	.1392905 .1973293
AGE		.0236792	.000967	24.49	0.000	.0217839 .0255745
SEX		-.0144277	.01026	-1.41	0.160	-.0345369 .0056815
NonWhite		.1835303	.024567	7.47	0.000	.1353799 .2316808
householdszie		.0041917	.0046692	0.90	0.369	-.0049597 .0133431
SES		-.0867584	.0076993	-11.27	0.000	-.1018486 -.0716681
LE8_TOTALSCORE		-.0016466	.0000547	-30.10	0.000	-.0017538 -.0015394
_cons		-.6266819	.0698899	-8.97	0.000	-.7636635 -.4897002
sigma2						
_cons		.9385982	.0069534	134.98	0.000	.9249697 .9522267

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.31777	.1665626	7.91	0.000	.9913134 1.644227
ereri_cde	1.322361	.1696467	7.79	0.000	.9898596 1.654862
ereri_intref	-.0017903	.0047912	-0.37	0.709	-.0111809 .0076004
ereri_intmed	-.0194895	.0226089	-0.86	0.389	-.0638022 .0248232
ereri_pie	.0166888	.006771	2.46	0.014	.003418 .0299597

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): zlrpap1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -9071.5018

Iteration 2: Log likelihood = -9063.1488

Iteration 3: Log likelihood = -9063.1279

Iteration 4: Log likelihood = -9063.1279

Refining estimates:

Iteration 0: Log likelihood = -9063.1279

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 = -9063.1279

LR chi2(9) = 194.56

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.235508	.1595383	11.27	0.000	1.943703 2.571122
zlrpap1		.9920387	.0384761	-0.21	0.837	.919422 1.070391
_infectionburXzlrpap1_000		.9457447	.0691539	-0.76	0.446	.8194701 1.091477
AGE		1.034239	.0129674	2.69	0.007	1.009134 1.05997
SEX		.7523345	.0488623	-4.38	0.000	.662411 .8544653
NonWhite		1.082314	.1840282	0.47	0.642	.775571 1.510375
householdsize		.9330627	.039451	-1.64	0.101	.8588573 1.013679
SES		.8166298	.0401197	-4.12	0.000	.7416637 .8991732
LE8_TOTALSCORE		.9990112	.0003547	-2.79	0.005	.9983162 .9997066

-> Model for the mediator

Iteration 0: Log likelihood = **-51805.649**
 Iteration 1: Log likelihood = **-51805.649**

Linear regression (Maximum Likelihood) Number of obs = 36,751
 Wald chi2(7) = 688.90
 Log likelihood = **-51805.649** Prob > chi2 = 0.0000

	zlrpap1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.023098	.0150848	1.53	0.126	-.0064678 .0526637
AGE		.0054117	.0009871	5.48	0.000	.003477 .0073464
SEX		-.123468	.0104494	-11.82	0.000	-.1439483 -.1029876
NonWhite		-.0683083	.0250682	-2.72	0.006	-.117441 -.0191756
householdsize		-.0109141	.0049635	-2.20	0.028	-.0206424 -.0011858
SES		-.0354198	.0078474	-4.51	0.000	-.0508004 -.0200392
LE8_TOTALSCORE		-.0010325	.0000557	-18.55	0.000	-.0011416 -.0009235
_cons		.401727	.0715734	5.61	0.000	.2614457 .5420084
sigma2						
_cons		.9815732	.0072411	135.56	0.000	.9673809 .9957654

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.237008	.1599188	7.74	0.000	.9235727 1.550443
ereri_cde	1.235438	.1595428	7.74	0.000	.9227397 1.548136
ereri_intref	.0048678	.0092235	0.53	0.598	-.0132099 .0229456
ereri_intmed	-.0031131	.0039263	-0.79	0.428	-.0108086 .0045823
ereri_pie	-.0001846	.0009038	-0.20	0.838	-.0019559 .0015867

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): zlrrc25
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8968.7507
 Iteration 2: Log likelihood = -8960.3279
 Iteration 3: Log likelihood = -8960.3095
 Iteration 4: Log likelihood = -8960.3095
 Refining estimates:
 Iteration 0: Log likelihood = -8960.3095

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) =	194.61
Log likelihood =	-8960.3095	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.253125	.1625343	11.26	0.000	1.956059 2.595306
zlrrc25	.95599	.038603	-1.11	0.265	.883246 1.034725
_infectionburXzlrrc25_000	1.046965	.0711211	0.68	0.499	.9164513 1.196065
AGE	1.032182	.0130047	2.51	0.012	1.007005 1.057988
SEX	.7602494	.0503808	-4.14	0.000	.6676486 .8656935
NonWhite	1.087307	.1849451	0.49	0.623	.7790532 1.517529
householdsize	.9364565	.0393287	-1.56	0.118	.862461 1.016801
SES	.8144141	.0402417	-4.15	0.000	.7392408 .8972319
LE8_TOTALSCORE	.9990264	.0003574	-2.72	0.006	.998326 .9997272

-> Model for the mediator

Iteration 0: Log likelihood = -50248.776
 Iteration 1: Log likelihood = -50248.776

Linear regression (Maximum Likelihood) Number of obs = 36,264
 Log likelihood = -50248.776 Wald chi2(7) = 2496.40
 Prob > chi2 = 0.0000

	zlrcc25	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.1278728	.0148233	8.63	0.000	.0988196 .1569259
AGE		.0075648	.0009679	7.82	0.000	.0056677 .0094619
SEX		.3724062	.0102679	36.27	0.000	.3522814 .3925309
NonWhite		.0360921	.0245695	1.47	0.142	-.0120633 .0842475
householdsize		-.0022359	.0046697	-0.48	0.632	-.0113885 .0069166
SES		-.1114312	.0077008	-14.47	0.000	-.1265245 -.0963378
LE8_TOTALSCORE		-.0013343	.0000547	-24.40	0.000	-.0014415 -.0012272
_cons		-.3802912	.0699535	-5.44	0.000	-.5173976 -.2431849
sigma2						
_cons		.9355684	.0069479	134.66	0.000	.9219507 .949186

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.249413	.1612098	7.75	0.000	.9334473 1.565378
ereri_cde	1.250938	.1622575	7.71	0.000	.9329188 1.568956
ereri_intref	-.0017801	.0031813	-0.56	0.576	-.0080153 .0044551
ereri_intmed	.005994	.0167023	0.36	0.720	-.026742 .03873
ereri_pie	-.0057387	.0051766	-1.11	0.268	-.0158846 .0044071

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): zlrrn1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8821.7128**
 Iteration 2: Log likelihood = **-8809.7889**
 Iteration 3: Log likelihood = **-8809.6385**
 Iteration 4: Log likelihood = **-8809.6384**
 Refining estimates:
 Iteration 0: Log likelihood = **-8809.6384**

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) =	207.39
Log likelihood =	-8809.6384	Prob > chi2 =	0.0000

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.210029	.1665721	10.52	0.000	1.906523 2.561851
zlrrn1	.8462794	.0331518	-4.26	0.000	.7837348 .9138152
_infectionburXzlrrn1_000	1.059638	.0729948	0.84	0.400	.9258083 1.212813
AGE	1.03396	.0131355	2.63	0.009	1.008533 1.060029
SEX	.737769	.0485104	-4.63	0.000	.6485619 .8392461
NonWhite	1.086149	.1897428	0.47	0.636	.7712415 1.529638
householdszie	.9363512	.0396656	-1.55	0.121	.861748 1.017413
SES	.8421808	.0419617	-3.45	0.001	.7638255 .9285739
LE8_TOTALSCORE	.9991896	.0003594	-2.25	0.024	.9984855 .9998942

-> Model for the mediator

Iteration 0: Log likelihood = **-50133.961**
 Iteration 1: Log likelihood = **-50133.961**

Linear regression (Maximum Likelihood)	Number of obs =	35,761
	Wald chi2(7) =	1237.32
Log likelihood =	Prob > chi2 =	0.0000

<u>z</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	-.1626538	.0151922	-10.71	0.000	-.19243 -.1328775
AGE	-.0144161	.0009895	-14.57	0.000	-.0163555 -.0124768
SEX	-.1512932	.0105084	-14.40	0.000	-.1718892 -.1306971
NonWhite	.1882339	.0251434	7.49	0.000	.1389538 .237514
householdszie	.0043258	.0047797	0.91	0.365	-.0050423 .0136938
SES	.0952907	.0078787	12.09	0.000	.0798487 .1107327
LE8_TOTALSCORE	.0008794	.000056	15.71	0.000	.0007696 .0009891
_cons	.6702801	.0714726	9.38	0.000	.5301964 .8103639
sigma2					
_cons	.9665303	.0072281	133.72	0.000	.9523634 .9806971

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.235162	.1623029	7.61	0.000	.9170542 1.55327
ereri_cde	1.198347	.1643238	7.29	0.000	.876278 1.520415
ereri_intref	-.0024557	.0115234	-0.21	0.831	-.0250411 .0201298
ereri_intmed	.0117512	.0213176	0.55	0.581	-.0300305 .053533
ereri_pie	.0275197	.0070465	3.91	0.000	.0137089 .0413305

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): zlsm1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -8792.988

Iteration 2: Log likelihood = -8784.5397

Iteration 3: Log likelihood = -8784.5179

Iteration 4: Log likelihood = -8784.5179

Refining estimates:

Iteration 0: Log likelihood = -8784.5179

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) = 195.36

Log likelihood = -8784.5179

Prob > chi2 = 0.0000

-> Model for the mediator

Iteration 0: Log likelihood = -50458.688
Iteration 1: Log likelihood = -50458.688

Linear regression (Maximum Likelihood)
Number of obs = 35,573
Log likelihood = -50458.688 Wald chi2(7) = 33.44
Prob > chi2 = 0.0000

	zlsm1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0113766	.0154831	0.73	0.462	-.0189698 .0417229
AGE		-.0013572	.0010096	-1.34	0.179	-.003336 .0006216
SEX		.0448042	.0107135	4.18	0.000	.0238062 .0658023
NonWhite		-.0286894	.0256042	-1.12	0.263	-.0788728 .0214944
householdszie		-.0003608	.0048761	-0.07	0.941	-.0099178 .0091961
SES		-.0141692	.0080354	-1.76	0.078	-.0299183 .0015799
LE8_TOTALSCORE		-.0001617	.000057	-2.83	0.005	-.0002735 -.0000498
_cons		.093518	.0729668	1.28	0.200	-.0494942 .2365302
sigma2						
_cons		.9990327	.0074909	133.37	0.000	.9843508 1.013715

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.252502	.1626295	7.70	0.000	.9337544 1.57125
ereri_cde	1.258356	.1626525	7.74	0.000	.9395626 1.577149
ereri_intref	-.0046763	.0081469	-0.57	0.566	-.0206439 .0112914
ereri_intmed	.0001736	.0016196	0.11	0.915	-.0030008 .0033481
ereri_pie	-.0013507	.0018999	-0.71	0.477	-.0050744 .002373

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): zlsp1
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8949.3778
 Iteration 2: Log likelihood = -8939.4346
 Iteration 3: Log likelihood = -8939.3752
 Iteration 4: Log likelihood = -8939.3752
 Refining estimates:
 Iteration 0: Log likelihood = -8939.3752

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) =	194.13
Log likelihood =	-8939.3752	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.236401	.162166	11.10	0.000	1.940114 2.577935
zlsp1	.9676879	.0385729	-0.82	0.410	.8949642 1.046321
_infectionburXzlsp1_000	1.075398	.0758473	1.03	0.303	.9365573 1.234821
AGE	1.032663	.0130353	2.55	0.011	1.007428 1.05853
SEX	.7566957	.0494507	-4.27	0.000	.6657244 .8600982
NonWhite	1.057147	.182208	0.32	0.747	.7540914 1.481996
householdsize	.9330464	.0396897	-1.63	0.103	.8584105 1.014172
SES	.819123	.0404447	-4.04	0.000	.7435678 .9023556
LE8_TOTALSCORE	.9990011	.0003615	-2.76	0.006	.9982929 .9997098

-> Model for the mediator

Iteration 0: Log likelihood = -50469.88
 Iteration 1: Log likelihood = -50469.88

Linear regression (Maximum Likelihood)
 Number of obs = 36,352
 Wald chi2(7) = 2291.05
 Log likelihood = -50469.88 Prob > chi2 = 0.0000

	zlsp1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0432215	.0148579	2.91	0.004	.0141005 .0723424
AGE		.0120102	.0009699	12.38	0.000	.0101093 .0139112
SEX		-.1735216	.0102835	-16.87	0.000	-.1936769 -.1533663
NonWhite		.0759944	.0246427	3.08	0.002	.0276955 .1242933
householdsize		-.0078212	.0047595	-1.64	0.100	-.0171497 .0015073
SES		-.0249627	.0077131	-3.24	0.001	-.0400802 -.0098452
LE8_TOTALSCORE		-.0020778	.0000548	-37.95	0.000	-.0021852 -.0019705
_cons		.589031	.0701627	8.40	0.000	.4515146 .7265473
sigma2						
_cons		.9406867	.0069774	134.82	0.000	.9270112 .9543623

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.239816	.161399	7.68	0.000	.9234797 1.556152
ereri_cde	1.23553	.1621275	7.62	0.000	.9177661 1.553294
ereri_intref	.0004317	.0044745	0.10	0.923	-.0083383 .0092016
ereri_intmed	.0052727	.006172	0.85	0.393	-.0068242 .0173695
ereri_pie	-.0014186	.0017881	-0.79	0.428	-.0049232 .002086

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): zlta
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8948.4859**
 Iteration 2: Log likelihood = **-8939.8167**
 Iteration 3: Log likelihood = **-8939.7945**
 Iteration 4: Log likelihood = **-8939.7945**
 Refining estimates:
 Iteration 0: Log likelihood = **-8939.7945**

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) = **193.29**
 Log likelihood = **-8939.7945** Prob > chi2 = **0.0000**

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.25567	.1615027	11.36	0.000	1.960337 2.595496
zlta	1.022136	.040297	0.56	0.579	.94613 1.104248
_infectionburXzlta_000	.973136	.0656153	-0.40	0.686	.8526677 1.110624
AGE	1.032478	.0130141	2.54	0.011	1.007283 1.058303
SEX	.7544267	.0502027	-4.23	0.000	.6621776 .8595271
NonWhite	1.059448	.1826908	0.33	0.738	.7556114 1.485458
householdszie	.9329236	.039725	-1.63	0.103	.8582246 1.014124
SES	.8196043	.0404854	-4.03	0.000	.7439745 .9029225
LE8_TOTALSCORE	.999024	.0003557	-2.74	0.006	.9983272 .9997214

-> Model for the mediator

Iteration 0: Log likelihood = **-50798.36**
 Iteration 1: Log likelihood = **-50798.36**

Linear regression (Maximum Likelihood) Number of obs = **36,352**
 Wald chi2(7) = **1598.95**
 Log likelihood = **-50798.36** Prob > chi2 = **0.0000**

<u>zlta</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0514088	.0149928	3.43	0.001	.0220235 .0807941
AGE	-.0044021	.0009787	-4.50	0.000	-.0063203 -.0024839
SEX	.3988787	.0103769	38.44	0.000	.3785405 .419217
NonWhite	-.1377145	.0248664	-5.54	0.000	-.1864518 -.0889772
householdszie	.0011087	.0048027	0.23	0.817	-.0083045 .0105219
SES	-.0134924	.0077832	-1.73	0.083	-.0287471 .0017623
LE8_TOTALSCORE	-.0004079	.0000553	-7.38	0.000	-.0005162 -.0002996
_cons	-.145794	.0707996	-2.06	0.039	-.2845587 -.0070294
sigma2					
_cons	.9578416	.0071047	134.82	0.000	.9439166 .9717665

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.255002	.1615771	7.77	0.000	.9383168 1.571687
ereri_cde	1.255578	.161501	7.77	0.000	.9390416 1.572114
ereri_intref	.000043	.0016461	0.03	0.979	-.0031834 .0032694
ereri_intmed	-.001745	.0067245	-0.26	0.795	-.0149248 .0114349
ereri_pie	.0011262	.0020555	0.55	0.584	-.0029024 .0051549

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): zlta4h
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -9112.1632

Iteration 2: Log likelihood = -9103.2838

Iteration 3: Log likelihood = -9103.2594

Iteration 4: Log likelihood = -9103.2594

Refining estimates:

Iteration 0: Log likelihood = -9103.2594

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 = -9103.2594

LR chi2(9) = 195.70

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.248201	.1607628	11.33	0.000	1.954196 2.586439
zlta4h	.9640451	.0375649	-0.94	0.347	.8931604 1.040556
_infectionburXzlta4h_000	1.047667	.0732743	0.67	0.506	.9134608 1.201591
AGE	1.034441	.0129639	2.70	0.007	1.009341 1.060164
SEX	.7561181	.04893	-4.32	0.000	.6660496 .8583663
NonWhite	1.07255	.1823916	0.41	0.680	.7685413 1.496815
householdsize	.933472	.0392832	-1.64	0.102	.8595681 1.01373
SES	.8207244	.0402445	-4.03	0.000	.7455184 .9035169
LE8_TOTALSCORE	.9990864	.0003538	-2.58	0.010	.9983932 .9997801

-> Model for the mediator

Iteration 0: Log likelihood = **-51725.704**
 Iteration 1: Log likelihood = **-51725.704**

Linear regression (Maximum Likelihood) Number of obs = 36,726
 Wald chi2(7) = 779.62
 Log likelihood = **-51725.704** Prob > chi2 = 0.0000

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0327875	.0150839	2.17	0.030	.0032235 .0623514
AGE	.0121397	.0009838	12.34	0.000	.0102116 .0140679
SEX	-.0696766	.0104384	-6.68	0.000	-.0901354 -.0492178
NonWhite	-.1306318	.0249748	-5.23	0.000	-.1795815 -.0816821
householdsize	-.0055648	.0047527	-1.17	0.242	-.0148799 .0037504
SES	-.0756052	.0078291	-9.66	0.000	-.0909499 -.0602605
LE8_TOTALSCORE	-.0008683	.0000556	-15.62	0.000	-.0009772 -.0007593
_cons	-.18111	.0711435	-2.55	0.011	-.3205486 -.0416714
sigma2					
_cons	.9791865	.0072259	135.51	0.000	.9650239 .993349

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.247092	.1603994	7.77	0.000	.9327149 1.561469
ereri_cde	1.247174	.1607072	7.76	0.000	.932194 1.562155
ereri_intref	-.0008153	.0017479	-0.47	0.641	-.0042411 .0026106
ereri_intmed	.0019327	.0045549	0.42	0.671	-.0069947 .0108602
ereri_pie	-.0011999	.0013902	-0.86	0.388	-.0039246 .0015249

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): zltbp2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -9128.3221
Iteration 2: Log likelihood = -9113.7319
Iteration 3: Log likelihood = -9113.4404
Iteration 4: Log likelihood = -9113.4401
Refining estimates:
Iteration 0: Log likelihood = -9113.4401

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 = -9113.4401                         LR chi2(9)      = 223.47
                                                               Prob > chi2 = 0.0000

```

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.229955	.1754952	10.19	0.000	1.911205 2.601865
zltbp2	1.220739	.0488013	4.99	0.000	1.128741 1.320235
_infectionburXzltbp2_000	.9571697	.0652528	-0.64	0.521	.8374526 1.094001
AGE	1.020562	.0130093	1.60	0.110	.9953805 1.046381
SEX	.7199801	.0469235	-5.04	0.000	.6336433 .8180807
NonWhite	1.069142	.1817219	0.39	0.694	.7662259 1.491812
householdsize	.9439011	.0391026	-1.39	0.163	.8702902 1.023738
SES	.8305201	.0407322	-3.79	0.000	.7544034 .9143168
LE8_TOTALSCORE	.9989499	.0003517	-2.98	0.003	.9982607 .9996395

-> Model for the mediator

```

Iteration 0: Log likelihood = -49181.029
Iteration 1: Log likelihood = -49181.029

Linear regression (Maximum Likelihood)                      Number of obs = 36,896
                                                               Wald chi2(7) = 6921.17
                                                               Prob > chi2 = 0.0000
Log likelihood = -49181.029

```

zltbp2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.1681218	.013937	12.06	0.000	.1408058 .1954377
AGE	.0647186	.0009099	71.13	0.000	.0629353 .0665019
SEX	.2626832	.0096577	27.20	0.000	.2437545 .281612
NonWhite	.029973	.0231272	1.30	0.195	-.0153554 .0753015
householdsize	-.0164174	.0044031	-3.73	0.000	-.0250474 -.0077875
SES	-.0494689	.0072477	-6.83	0.000	-.0636741 -.0352638
LE8_TOTALSCORE	.0007484	.0000514	14.55	0.000	.0006476 .0008492
_cons	-4.663684	.0657823	-70.90	0.000	-4.792615 -4.534753
sigma2					
_cons	.8420216	.0061994	135.82	0.000	.829871 .8541721

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.276486	.1667966	7.65	0.000	.9495702 1.603401
ereri_cde	1.215177	.1721337	7.06	0.000	.8778014 1.552553
ereri_intref	.0024977	.014116	0.18	0.860	-.0251691 .0301646
ereri_intmed	.0247091	.0215642	1.15	0.252	-.017556 .0669741
ereri_pie	.0341015	.0075212	4.53	0.000	.0193603 .0488428

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): zltbp3
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8793.0698**
 Iteration 2: Log likelihood = **-8784.9387**
 Iteration 3: Log likelihood = **-8784.92**
 Iteration 4: Log likelihood = **-8784.92**
 Refining estimates:
 Iteration 0: Log likelihood = **-8784.92**

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) =	194.55
Log likelihood =	-8784.92	Prob > chi2 =	0.0000

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.250836	.1642169	11.12	0.000	1.95093 2.596844
zltbp3	.8890647	.038495	-2.72	0.007	.8167287 .9678074
_infectionburXzltbp3_000	1.07639	.082113	0.96	0.335	.9269047 1.249982
AGE	1.038846	.0132231	2.99	0.003	1.01325 1.065089
SEX	.7289914	.0483502	-4.77	0.000	.6401277 .8301912
NonWhite	1.108242	.1885646	0.60	0.546	.7939715 1.546908
householdszie	.939318	.0395936	-1.49	0.138	.8648351 1.020216
SES	.8203742	.0410398	-3.96	0.000	.7437551 .9048863
LE8_TOTALSCORE	.9990564	.0003652	-2.58	0.010	.998341 .9997724

-> Model for the mediator

Iteration 0: Log likelihood = **-49103.552**
 Iteration 1: Log likelihood = **-49103.552**

Linear regression (Maximum Likelihood)	Number of obs =	35,573
	Wald chi2(7) =	2852.28
Log likelihood =	Prob > chi2 =	0.0000

<u>zltbp3</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.1007224	.0149044	6.76	0.000	.0715103 .1299344
AGE	.010761	.0009719	11.07	0.000	.0088562 .0126659
SEX	-.2600394	.010313	-25.21	0.000	-.2802525 -.2398262
NonWhite	-.0481046	.0246472	-1.95	0.051	-.0964122 .0002031
householdszie	.0026153	.0046938	0.56	0.577	-.0065844 .011815
SES	-.1110352	.0077351	-14.35	0.000	-.1261956 -.0958747
LE8_TOTALSCORE	-.0018975	.0000549	-34.55	0.000	-.0020051 -.0017899
_cons	.6744113	.0702394	9.60	0.000	.5367446 .812078
sigma2					
_cons	.9257447	.0069414	133.37	0.000	.9121399 .9393496

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.226297	.1621684	7.56	0.000	.9084532 1.544141
ereri_cde	1.240817	.1630724	7.61	0.000	.9212012 1.560433
ereri_intref	-.0046376	.0093595	-0.50	0.620	-.0229819 .0137067
ereri_intmed	.0018914	.0150511	0.13	0.900	-.0276083 .031391
ereri_pie	-.0117736	.0046447	-2.53	0.011	-.0208771 -.0026701

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): zltbr
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 -.07513 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 = -9020.5916

Iteration 1: Log likelihood = -8931.2707

Iteration 2: Log likelihood = -8921.3412

Iteration 3: Log likelihood = -8921.2526

Iteration 4: Log likelihood = -8921.2526

Refining estimates:

Iteration 0: Log likelihood = -8921.2526

Cox regression with Breslow method for ties

No. of subjects = 36,266 Number of obs = 36,266

No. of failures = 964

Time at risk = 440,538.392

LR chi2(9) = 198.68

Log likelihood = -8921.2526

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.248437	.1678421	10.85	0.000	1.942406
zltbr		1.101363	.0423884	2.51	0.012	1.02134
_infectionburXzltbr_000		.9454164	.0605952	-0.88	0.381	.8338089
AGE		1.033822	.0131154	2.62	0.009	1.008433
SEX		.7649851	.0501502	-4.09	0.000	.6727454
NonWhite		1.096374	.1893282	0.53	0.594	.7815711
householdsize		.9432272	.0391886	-1.41	0.159	.8694631
SES		.8258478	.0409145	-3.86	0.000	.7494272
LE8_TOTALSCORE		.9990932	.0003578	-2.53	0.011	.9983921

-> Model for the mediator

Iteration 0: Log likelihood = -50145.075
Iteration 1: Log likelihood = -50145.075

Linear regression (Maximum Likelihood) Number of obs = 36,266
Log likelihood = -50145.075 Wald chi2(7) = 2724.81
Prob > chi2 = 0.0000

	zltbr	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.2218774	.0147757	15.02	0.000	.1929176 .2508373
AGE		.0257728	.0009644	26.73	0.000	.0238827 .0276629
SEX		-.1845408	.0102387	-18.02	0.000	-.2046082 -.1644734
NonWhite		-.3818034	.0245525	-15.55	0.000	-.4299255 -.3336813
householdsiz		-.003058	.0046546	-0.66	0.511	-.0121809 .0060648
SES		-.0886926	.0076854	-11.54	0.000	-.1037558 -.0736295
LE8_TOTALSCORE		-.0011192	.0000546	-20.51	0.000	-.0012262 -.0010123
_cons		-.7214509	.0696734	-10.35	0.000	-.8580083 -.5848935
sigma2						
_cons		.930091	.006907	134.66	0.000	.9165535 .9436285

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.264512	.1638879	7.72	0.000	.9432981 1.585727
ereri_cde	1.246744	.1673074	7.45	0.000	.9188277 1.574661
ereri_intref	-.0024492	.0024001	-1.02	0.308	-.0071533 .0022549
ereri_intmed	-.0014356	.0270172	-0.05	0.958	-.0543884 .0515172
ereri_pie	.0216531	.0088452	2.45	0.014	.0043168 .0389895

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

WU XING: FIVE ELEMENTS FOR THE SOCIETY AND INDIVIDUAL

Outcome (yvar): Age_dementia
 Exposure (avar): infectionburdenhospbr
 Mediator (mvar): zlto1
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8828.9487
 Iteration 2: Log likelihood = -8818.7549
 Iteration 3: Log likelihood = -8818.5774
 Iteration 4: Log likelihood = -8818.5769
 Refining estimates:
 Iteration 0: Log likelihood = -8818.5769

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) = 189.51
Log likelihood = -8818.5769	Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.218557	.1608209	10.99	0.000	1.924722 2.557251
zlto1	.9485608	.039196	-1.28	0.201	.8747667 1.02858
_infectionburXzlto1_000	1.142829	.0794894	1.92	0.055	.9971857 1.309744
AGE	1.03707	.0131585	2.87	0.004	1.011597 1.063183
SEX	.750256	.0492873	-4.37	0.000	.6596153 .8533521
NonWhite	1.057093	.1845531	0.32	0.750	.7507684 1.488404
householdsize	.9352635	.0397963	-1.57	0.116	.8604282 1.016608
SES	.82671	.0411403	-3.82	0.000	.749884 .9114069
LE8_TOTALSCORE	.9990665	.0003582	-2.60	0.009	.9983646 .9997688

-> Model for the mediator

Iteration 0: Log likelihood = -50732.641
 Iteration 1: Log likelihood = -50732.641

Linear regression (Maximum Likelihood)

Number of obs = 35,761	
Wald chi2(7) = 19.04	
Log likelihood = -50732.641	Prob > chi2 = 0.0080

zltol	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	-.0046229	.0154487	-0.30	0.765	-.0349018
AGE	-.0002116	.0010062	-0.21	0.833	-.0021837
SEX	.0401679	.0106858	3.76	0.000	.0192242
NonWhite	-.0198259	.0255678	-0.78	0.438	-.0699379
householdsize	.0002736	.0048604	0.06	0.955	-.0092526
SES	-.0140887	.0080117	-1.76	0.079	-.0297913
LE8_TOTALSCORE	-.0000436	.0000569	-0.77	0.444	-.0001552
_cons	-.0270218	.0726792	-0.37	0.710	-.1694705
sigma2					
_cons	.9994398	.0074742	133.72	0.000	.9847906
					1.014089

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.22205	.1607841	7.60	0.000	.9069188
ereri_cde	1.216901	.1605525	7.58	0.000	.9022242
ereri_intref	.0059776	.0104061	0.57	0.566	-.014418
ereri_intmed	-.0010733	.0036378	-0.30	0.768	-.0082031
ereri_pie	.0002442	.0008381	0.29	0.771	-.0013985

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): zlxn
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 .04628 2.215 -.07415 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 = **-8956.2442**
 Iteration 1: Log likelihood = **-8867.8052**
 Iteration 2: Log likelihood = **-8859.3942**
 Iteration 3: Log likelihood = **-8859.3626**
 Iteration 4: Log likelihood = **-8859.3626**
 Refining estimates:
 Iteration 0: Log likelihood = **-8859.3626**

Cox regression with Breslow method for ties

No. of subjects = **36,002** Number of obs = **36,002**
 No. of failures = **957**
 Time at risk = **437,467.55**
LR chi2(9) = 193.76
Prob > chi2 = 0.0000
Log likelihood = -8859.3626

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.220549	.1602424	11.05	0.000	1.92768 2.557915
zlxn	1.018364	.0385434	0.48	0.631	.9455538 1.09678
_infectionburXzlxn_000	1.018313	.0698782	0.26	0.791	.8901653 1.164909
AGE	1.036976	.0131173	2.87	0.004	1.011583 1.063007
SEX	.744135	.048947	-4.49	0.000	.6541271 .8465278
NonWhite	1.019771	.1780696	0.11	0.911	.7242164 1.435943
householdszie	.9448417	.0393661	-1.36	0.173	.8707518 1.025236
SES	.8080868	.0401384	-4.29	0.000	.7331251 .8907134
LE8_TOTALSCORE	.9990634	.0003567	-2.62	0.009	.9983645 .9997628

-> Model for the mediator

Iteration 0: Log likelihood = **-50867.304**
 Iteration 1: Log likelihood = **-50867.304**

Linear regression (Maximum Likelihood) Number of obs = **36,002**
 Wald chi2(7) = **436.27**
Log likelihood = -50867.304 Prob > chi2 = **0.0000**

<u>zlxn</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	-.0336834	.0153135	-2.20	0.028	-.0636972 -.0036695
AGE	.004398	.001001	4.39	0.000	.002436 .00636
SEX	-.1987773	.0105919	-18.77	0.000	-.219537 -.1780177
NonWhite	.1316962	.0254226	5.18	0.000	.0818687 .1815237
householdszie	-.0029311	.0050215	-0.58	0.559	-.012773 .0069109
SES	.0337136	.0079641	4.23	0.000	.0181041 .049323
LE8_TOTALSCORE	-.0001085	.0000564	-1.92	0.054	-.000219 2.05e-06
_cons	.1016476	.0725645	1.40	0.161	-.0405762 .2438714
sigma2					
_cons	.9879998	.0073639	134.17	0.000	.9735668 1.002433

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.219105	.1600964	7.61	0.000	.905322 1.532888
ereri_cde	1.220246	.1601852	7.62	0.000	.9062891 1.534203
ereri_intref	.0015772	.0052527	0.30	0.764	-.0087179 .0118724
ereri_intmed	-.0021056	.0045777	-0.46	0.646	-.0110777 .0068666
ereri_pie	-.0006127	.0013042	-0.47	0.638	-.0031689 .0019434

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): zly6d
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 .04619 2.216 -.07514 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 = -9030.9462

Iteration 1: Log likelihood = -8941.3551

Iteration 2: Log likelihood = -8931.8486

Iteration 3: Log likelihood = -8931.7808

Iteration 4: Log likelihood = -8931.7807

Refining estimates:

Iteration 0: Log likelihood = -8931.7807

Cox regression with Breslow method for ties

No. of subjects = 36,240 Number of obs = 36,240

No. of failures = 965

Time at risk = 440,230.576

Log likelihood = -8931.7807

LR chi2(9) = 198.33

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.239881	.1658775	10.89	0.000	1.937261 2.589774
zly6d	1.086263	.0411082	2.19	0.029	1.008608 1.169897
_infectionburXzly6d_000	.9565381	.0605369	-0.70	0.483	.8449516 1.082861
AGE	1.034211	.0130949	2.66	0.008	1.008861 1.060197
SEX	.7607711	.0496428	-4.19	0.000	.6694379 .8645651
NonWhite	1.019066	.1782657	0.11	0.914	.7232711 1.435831
householdsize	.9385246	.0394845	-1.51	0.132	.8642411 1.019193
SES	.8234477	.0407572	-3.92	0.000	.7473174 .9073335
LE8_TOTALSCORE	.9990546	.0003566	-2.65	0.008	.9983559 .9997537

-> Model for the mediator

Iteration 0: Log likelihood = **-50710.507**
 Iteration 1: Log likelihood = **-50710.507**

Linear regression (Maximum Likelihood) Number of obs = 36,240
 Wald chi2(7) = 1450.94
 Log likelihood = **-50710.507** Prob > chi2 = 0.0000

zly6d	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.1732204	.0150133	11.54	0.000	.1437948 .2026459
AGE	.0228225	.0009809	23.27	0.000	.0209001 .024745
SEX	-.0635254	.0104135	-6.10	0.000	-.0839355 -.0431153
NonWhite	.2027681	.0250049	8.11	0.000	.1537595 .2517767
householdsize	-.0003243	.0047341	-0.07	0.945	-.0096029 .0089543
SES	-.0896616	.0078166	-11.47	0.000	-.104982 -.0743413
LE8_TOTALSCORE	-.0006944	.0000555	-12.51	0.000	-.0008031 -.0005856
_cons	-.96837	.0708508	-13.67	0.000	-1.107235 -.829505
sigma2					
_cons	.9614776	.0071427	134.61	0.000	.9474783 .975477

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.251384	.1626877	7.69	0.000	.9325225 1.570246
ereri_cde	1.238278	.1654368	7.48	0.000	.9140274 1.562528
ereri_intref	-.0017835	.0025424	-0.70	0.483	-.0067666 .0031996
ereri_intmed	.0004543	.020727	0.02	0.983	-.0401699 .0410786
ereri_pie	.014436	.0067683	2.13	0.033	.0011705 .0277016

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): zly75
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8948.81
Iteration 2: Log likelihood = -8939.639
Iteration 3: Log likelihood = -8939.6035
Iteration 4: Log likelihood = -8939.6035
Refining estimates:
Iteration 0: Log likelihood = -8939.6035

```

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) =	193.67
Log likelihood =	-8939.6035	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.25831	.161693	11.38	0.000	1.962629 2.598536
zly75	1.003186	.0390303	0.08	0.935	.9295317 1.082676
_infectionburXzly75_000	.9494997	.0663312	-0.74	0.458	.8280007 1.088827
AGE	1.032414	.0130118	2.53	0.011	1.007224 1.058234
SEX	.7596104	.0496353	-4.21	0.000	.6682989 .8633979
NonWhite	1.051325	.1819885	0.29	0.772	.7488426 1.47599
householdsize	.9328151	.0397065	-1.63	0.102	.8581498 1.013977
SES	.8193197	.0404674	-4.03	0.000	.743723 .9026004
LE8_TOTALSCORE	.9990153	.0003556	-2.77	0.006	.9983186 .9997125

-> Model for the mediator

Iteration 0: Log likelihood = -51259.709	Number of obs = 36,352
Iteration 1: Log likelihood = -51259.709	Wald chi2(7) = 647.79
Log likelihood = -51259.709	Prob > chi2 = 0.0000

	zly75	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0213288	.0151843	1.40	0.160	-.0084319 .0510894
AGE		.0041644	.0009912	4.20	0.000	.0022217 .0061071
SEX		.1140869	.0105094	10.86	0.000	.0934889 .134685
NonWhite		-.5419777	.025184	-21.52	0.000	-.5913375 -.4926179
householdsize		-.0044521	.0048641	-0.92	0.360	-.0139854 .0050813
SES		.0022683	.0078826	0.29	0.774	-.0131812 .0177178
LE8_TOTALSCORE		-.0002399	.000056	-4.29	0.000	-.0003496 -.0001303
_cons		-.2729443	.0717038	-3.81	0.000	-.4134812 -.1324074
sigma2						
_cons		.982465	.0072873	134.82	0.000	.9681821 .9967479

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.258926	.1617346	7.78	0.000	.9419325 1.57592
ereri_cde	1.258315	.1616936	7.78	0.000	.9414018 1.575229
ereri_intref	.0029556	.0067141	0.44	0.660	-.0102038 .0161151
ereri_intmed	-.0024125	.0033972	-0.71	0.478	-.0090709 .0042459
ereri_pie	.0000678	.0008313	0.08	0.935	-.0015615 .0016971

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): zly9
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

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

```
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 .04657 2.219 -.07515 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 = **-8965.3198**
 Iteration 1: Log likelihood = **-8872.4915**
 Iteration 2: Log likelihood = **-8863.169**
 Iteration 3: Log likelihood = **-8863.1487**
 Iteration 4: Log likelihood = **-8863.1487**
 Refining estimates:
 Iteration 0: Log likelihood = **-8863.1487**

Cox regression with Breslow method for ties

No. of subjects =	36,007	Number of obs =	36,007
No. of failures =	958		
Time at risk =	437,445.215	LR chi2(9) =	204.34
Log likelihood =	-8863.1487	Prob > chi2 =	0.0000

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.309467	.1667789	11.59	0.000	2.004666 2.660612
zly9	1.048832	.0409403	1.22	0.222	.971583 1.132223
_infectionburXzly9_000	.9515751	.0629999	-0.75	0.453	.8357733 1.083422
AGE	1.034644	.0131148	2.69	0.007	1.009257 1.060671
SEX	.7494421	.0492318	-4.39	0.000	.6589031 .8524218
NonWhite	1.068223	.1841493	0.38	0.702	.7619467 1.497612
householdszie	.9336551	.0396427	-1.62	0.106	.859102 1.014678
SES	.8118011	.0402296	-4.21	0.000	.7366607 .8946061
LE8_TOTALSCORE	.9990658	.0003571	-2.61	0.009	.9983661 .999766

-> Model for the mediator

Iteration 0: Log likelihood = **-50637.463**
 Iteration 1: Log likelihood = **-50637.463**

Linear regression (Maximum Likelihood)	Number of obs =	36,007	
	Wald chi2(7) =	919.05	
Log likelihood =	-50637.463	Prob > chi2 =	0.0000

<u>zly9</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0981906	.0152003	6.46	0.000	.0683985 .1279827
AGE	.0167099	.0009912	16.86	0.000	.0147672 .0186526
SEX	.1796618	.0105214	17.08	0.000	.1590403 .2002834
NonWhite	.0432322	.0251691	1.72	0.086	-.0060982 .0925627
householdszie	.0186143	.0047785	3.90	0.000	.0092486 .02798
SES	-.0810854	.0078888	-10.28	0.000	-.0965473 -.0656236
LE8_TOTALSCORE	-.0005233	.000056	-9.34	0.000	-.0006331 -.0004135
_cons	-1.081736	.0716166	-15.10	0.000	-1.222102 -.9413701
sigma2					
_cons	.9750841	.0072671	134.18	0.000	.9608407 .9893274

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.308029	.165718	7.89	0.000	.9832277 1.63283
ereri_cde	1.308866	.1666055	7.86	0.000	.9823252 1.635407
ereri_intref	-.0003929	.0023423	-0.17	0.867	-.0049838 .004198
ereri_intmed	-.0051366	.0127816	-0.40	0.688	-.030188 .0199149
ereri_pie	.0046924	.003919	1.20	0.231	-.0029887 .0123735

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): zly96
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8896.3304**

Iteration 2: Log likelihood = **-8888.7246**

Iteration 3: Log likelihood = **-8888.7087**

Iteration 4: Log likelihood = **-8888.7087**

Refining estimates:

Iteration 0: Log likelihood = **-8888.7087**

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) = 193.48

Log likelihood = -8888.7087

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.227153	.1620715	11.00	0.000	1.931112 2.568577
zly96	.9982173	.0394799	-0.05	0.964	.9237612 1.078675
_infectionburXzly96_000	.9436794	.0668042	-0.82	0.413	.8214232 1.084132
AGE	1.037803	.0131455	2.93	0.003	1.012356 1.06389
SEX	.7358372	.0488069	-4.62	0.000	.6461345 .8379934
NonWhite	1.02229	.1785428	0.13	0.900	.7259585 1.439581
householdsize	.9434177	.0393774	-1.40	0.163	.8693118 1.023841
SES	.8089143	.0401055	-4.28	0.000	.7340073 .8914657
LE8_TOTALSCORE	.9990059	.0003575	-2.78	0.005	.9983054 .9997069

-> Model for the mediator

Iteration 0: Log likelihood = **-50288.24**
 Iteration 1: Log likelihood = **-50288.24**

Linear regression (Maximum Likelihood) Number of obs = **36,164**
 Wald chi2(7) = **2110.81**
 Log likelihood = **-50288.24** Prob > chi2 = **0.0000**

zly96	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0840253	.0149295	5.63	0.000	.054764 .1132867
AGE	.0178025	.0009768	18.22	0.000	.015888 .0197171
SEX	-.3076557	.0103342	-29.77	0.000	-.3279105 -.287401
NonWhite	.1198819	.02478	4.84	0.000	.071314 .1684498
householdsize	.0067068	.0049009	1.37	0.171	-.0028989 .0163125
SES	-.074934	.0077684	-9.65	0.000	-.0901598 -.0597082
LE8_TOTALSCORE	-.0009877	.000055	-17.96	0.000	-.0010955 -.0008799
_cons	-.1432465	.0707959	-2.02	0.043	-.2820039 -.0044892
sigma2					
_cons	.944825	.0070263	134.47	0.000	.9310537 .9585964

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.221236	.1615085	7.56	0.000	.9046851 1.537787
ereri_cde	1.227125	.1621177	7.57	0.000	.9093803 1.54487
ereri_intref	.0052911	.0091462	0.58	0.563	-.012635 .0232173
ereri_intmed	-.0110304	.0118807	-0.93	0.353	-.0343163 .0122554
ereri_pie	-.0001499	.0033228	-0.05	0.964	-.0066626 .0063627

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): zlyar
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8795.7306
Iteration 2: Log likelihood = -8787.5536
Iteration 3: Log likelihood = -8787.5334
Iteration 4: Log likelihood = -8787.5334
Refining estimates:
Iteration 0: Log likelihood = -8787.5334

```

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) =	189.33
Log likelihood =	-8787.5334	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.250009	.1626711	11.22	0.000	1.952738 2.592533
zlyar	.9349292	.0390862	-1.61	0.108	.8613762 1.014763
_infectionburXzlyar_000	1.09021	.0783448	1.20	0.229	.9469805 1.255103
AGE	1.037921	.0132021	2.93	0.003	1.012365 1.064122
SEX	.744841	.0490006	-4.48	0.000	.6547356 .8473469
NonWhite	1.112455	.1893093	0.63	0.531	.7969508 1.552865
householdsize	.9393138	.0395918	-1.49	0.137	.8648341 1.020208
SES	.830348	.0414002	-3.73	0.000	.7530436 .9155881
LE8_TOTALSCORE	.999215	.0003591	-2.19	0.029	.9985114 .9999191

-> Model for the mediator

Iteration 0: Log likelihood = -50442.586	Number of obs = 35,573
Iteration 1: Log likelihood = -50442.586	Wald chi2(7) = 65.69
Log likelihood = -50442.586	Prob > chi2 = 0.0000

	zlyar	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0066227	.0154761	0.43	0.669	-.0237099 .0369553
AGE		.004215	.0010092	4.18	0.000	.0022371 .0061929
SEX		-.0167751	.0107086	-1.57	0.117	-.0377636 .0042134
NonWhite		.0266386	.0255927	1.04	0.298	-.023522 .0767993
householdsize		-.0021596	.0048739	-0.44	0.658	-.0117122 .0073931
SES		.01789	.0080318	2.23	0.026	.002148 .0336319
LE8_TOTALSCORE		-.0003564	.000057	-6.25	0.000	-.0004682 -.0002446
_cons		-.0456172	.0729337	-0.63	0.532	-.1885647 .0973303
sigma2						
_cons		.9981287	.0074841	133.37	0.000	.9834601 1.012797

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.245445	.1622052	7.68	0.000	.9275285 1.563361
ereri_cde	1.247111	.1622486	7.69	0.000	.9291093 1.565112
ereri_intref	-.0019497	.0037596	-0.52	0.604	-.0093183 .005419
ereri_intmed	.0007293	.0019327	0.38	0.706	-.0030588 .0045174
ereri_pie	-.0004455	.001077	-0.41	0.679	-.0025564 .0016654

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): zlyn
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8967.0737**
 Iteration 2: Log likelihood = **-8958.0004**
 Iteration 3: Log likelihood = **-8957.9663**
 Iteration 4: Log likelihood = **-8957.9663**
 Refining estimates:
 Iteration 0: Log likelihood = **-8957.9663**

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) =	199.30
Log likelihood =	-8957.9663	Prob > chi2 =	0.0000

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.252335	.1617396	11.31	0.000	1.956628 2.592731
zlyn	.9232613	.0352297	-2.09	0.036	.8567312 .9949578
_infectionburXzlyn_000	1.002805	.0718219	0.04	0.969	.8714698 1.153932
AGE	1.031925	.0129869	2.50	0.013	1.006783 1.057695
SEX	.7502358	.0488648	-4.41	0.000	.6603237 .8523908
NonWhite	1.101972	.1875212	0.57	0.568	.7894461 1.53822
householdszie	.9366423	.0393702	-1.56	0.119	.8625711 1.017074
SES	.8150523	.0401955	-4.15	0.000	.7399582 .8977673
LE8_TOTALSCORE	.9989978	.0003555	-2.82	0.005	.9983014 .9996948

-> Model for the mediator

Iteration 0: Log likelihood = **-51279.139**
 Iteration 1: Log likelihood = **-51279.139**

Linear regression (Maximum Likelihood)	Number of obs =	36,264	
	Wald chi2(7) =	355.22	
Log likelihood =	-51279.139	Prob > chi2 =	0.0000

<u>zlyn</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	-.0153455	.0152505	-1.01	0.314	-.045236 .0145449
AGE	-.0025377	.0009958	-2.55	0.011	-.0044895 -.0005859
SEX	-.0397308	.0105638	-3.76	0.000	-.0604355 -.019026
NonWhite	.1585986	.0252776	6.27	0.000	.1090554 .2081419
householdszie	-.0000548	.0048043	-0.01	0.991	-.0094711 .0093615
SES	-.024883	.0079228	-3.14	0.002	-.0404114 -.0093547
LE8_TOTALSCORE	-.0008545	.0000563	-15.19	0.000	-.0009648 -.0007442
_cons	.6344598	.0719696	8.82	0.000	.493402 .7755176
sigma2					
_cons	.9902722	.0073541	134.66	0.000	.9758584 1.004686

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.254522	.1613376	7.78	0.000	.9383062 1.570738
ereri_cde	1.248601	.1611535	7.75	0.000	.9327455 1.564456
ereri_intref	.0032577	.0105415	0.31	0.757	-.0174032 .0239186
ereri_intmed	.0014379	.0026125	0.55	0.582	-.0036826 .0065583
ereri_pie	.001226	.0013528	0.91	0.365	-.0014254 .0038774

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): zlypd1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -8734.2191

Iteration 2: Log likelihood = -8726.7175

Iteration 3: Log likelihood = -8726.7016

Iteration 4: Log likelihood = -8726.7016

Refining estimates:

Iteration 0: Log likelihood = -8726.7016

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) = 185.73

Log likelihood = -8726.7016

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.212884	.1611153	10.91	0.000	1.9186 2.552306
zlypd1	1.044112	.0375047	1.20	0.229	.9731324 1.12027
_infectionburXzlypd1_000	.9477265	.0694955	-0.73	0.464	.8208534 1.094209
AGE	1.037626	.0132144	2.90	0.004	1.012047 1.063852
SEX	.7483244	.0494188	-4.39	0.000	.6574719 .8517313
NonWhite	1.09686	.1890867	0.54	0.592	.7823721 1.537762
householdsize	.9303264	.0401551	-1.67	0.094	.854861 1.012454
SES	.8155244	.0407203	-4.08	0.000	.7394949 .8993706
LE8_TOTALSCORE	.9991941	.0003605	-2.23	0.025	.9984879 .9999009

-> Model for the mediator

Iteration 0: Log likelihood = -50480.08
 Iteration 1: Log likelihood = -50480.08

Linear regression (Maximum Likelihood)
 Number of obs = 35,601
 Wald chi2(7) = 70.17
 Prob > chi2 = 0.0000
 Log likelihood = -50480.08

	zlypd1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0024418	.0154505	0.16	0.874	-.0278406 .0327243
AGE		-.0040131	.0010116	-3.97	0.000	-.0059957 -.0020304
SEX		.0179624	.0107035	1.68	0.093	-.0030161 .0389409
NonWhite		-.1811661	.0255396	-7.09	0.000	-.2312228 -.1311093
householdsize		-.0045319	.0050778	-0.89	0.372	-.0144842 .0054204
SES		.0037761	.0080406	0.47	0.639	-.0119833 .0195355
LE8_TOTALSCORE		3.70e-06	.0000571	0.06	0.948	-.0001081 .0001155
_cons		.2306388	.0733376	3.14	0.002	.0868998 .3743779
sigma2						
_cons		.9980048	.0074803	133.42	0.000	.9833438 1.012666

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.210932	.1609506	7.52	0.000	.895475 1.52639
ereri_cde	1.211774	.1609574	7.53	0.000	.8963033 1.527245
ereri_intref	-.0007848	.0022019	-0.36	0.722	-.0051004 .0035309
ereri_intmed	-.0001622	.0010865	-0.15	0.881	-.0022917 .0019673
ereri_pie	.0001054	.0006728	0.16	0.875	-.0012132 .001424

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): zlypd3
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 2.217 -.07451 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 = -9020.1313
Iteration 1: Log likelihood = -8933.6054
Iteration 2: Log likelihood = -8925.4976
Iteration 3: Log likelihood = -8925.476
Iteration 4: Log likelihood = -8925.476
Refining estimates:
Iteration 0: Log likelihood = -8925.476

```

Cox regression with Breslow method for ties

No. of subjects =	36,242	Number of obs =	36,242
No. of failures =	964		
Time at risk =	440,281.347	LR chi2(9) =	189.31
Log likelihood =	-8925.476	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.224253	.1602816	11.09	0.000	1.931283 2.561666
zlypd3	1.062682	.0407423	1.59	0.113	.9857552 1.145612
_infectionburXzlypd3_000	.9585995	.068212	-0.59	0.552	.8338107 1.102064
AGE	1.034413	.0130701	2.68	0.007	1.009111 1.06035
SEX	.766193	.0500077	-4.08	0.000	.6741898 .8707513
NonWhite	1.044831	.182467	0.25	0.802	.7419827 1.471289
householdszie	.9363187	.0396279	-1.55	0.120	.8617835 1.0173
SES	.8206215	.0406095	-3.99	0.000	.7447665 .9042023
LE8_TOTALSCORE	.9990583	.000356	-2.64	0.008	.9983609 .9997563

-> Model for the mediator

Iteration 0: Log likelihood = -51275.452	Number of obs = 36,242
Iteration 1: Log likelihood = -51275.452	Wald chi2(7) = 299.67
Log likelihood = -51275.452	Prob > chi2 = 0.0000

	zlypd3	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0150097	.01528	-0.98	0.326	-.0449579 .0149386
AGE		-.016061	.0009962	-16.12	0.000	-.0180136 -.0141085
SEX		-.0716453	.0105753	-6.77	0.000	-.0923725 -.050918
NonWhite		-.0806036	.0253312	-3.18	0.001	-.1302518 -.0309554
householdsize		-.0145932	.00482	-3.03	0.002	-.0240402 -.0051462
SES		-.0149819	.0079384	-1.89	0.059	-.030541 .0005772
LE8_TOTALSCORE		4.15e-06	.0000563	0.07	0.941	-.0001062 .0001146
_cons		1.11132	.072051	15.42	0.000	.9701029 1.252538
sigma2						
_cons		.9917719	.0073675	134.61	0.000	.9773319 1.006212

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.219745	.1601415	7.62	0.000	.9058734 1.533616
ereri_cde	1.221856	.1600209	7.64	0.000	.9082211 1.535492
ereri_intref	-.0014946	.0036228	-0.41	0.680	-.0085951 .005606
ereri_intmed	.0002952	.0021057	0.14	0.889	-.0038318 .0044222
ereri_pie	-.0009121	.0010918	-0.84	0.403	-.0030519 .0012277

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): zlypd8
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8796.4953**
 Iteration 2: Log likelihood = **-8787.7099**
 Iteration 3: Log likelihood = **-8787.6685**
 Iteration 4: Log likelihood = **-8787.6685**
 Refining estimates:
 Iteration 0: Log likelihood = **-8787.6685**

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) =	189.06
Log likelihood =	-8787.6685	Prob > chi2 =	0.0000

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.246097	.1627991	11.16	0.000	1.948644 2.588954
zlypd8	1.052195	.0382094	1.40	0.161	.9799092 1.129814
_infectionburXzlypd8_000	1.001905	.0702294	0.03	0.978	.8732945 1.149455
AGE	1.03741	.0131985	2.89	0.004	1.011862 1.063604
SEX	.7454485	.0490266	-4.47	0.000	.6552935 .848007
NonWhite	1.072396	.1841345	0.41	0.684	.7659503 1.501446
householdszie	.9405715	.039649	-1.45	0.146	.8659846 1.021583
SES	.8299764	.0414254	-3.73	0.000	.752629 .9152726
LE8_TOTALSCORE	.9992324	.0003586	-2.14	0.032	.9985299 .9999354

-> Model for the mediator

Iteration 0: Log likelihood = **-50245.742**
 Iteration 1: Log likelihood = **-50245.742**

Linear regression (Maximum Likelihood)	Number of obs =	35,573	
	Wald chi2(7) =	462.29	
Log likelihood =	-50245.742	Prob > chi2 =	0.0000

<u>zlypd8</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0597251	.0153907	3.88	0.000	.0295599 .0898904
AGE	.0038521	.0010036	3.84	0.000	.0018851 .0058191
SEX	.0314271	.0106495	2.95	0.003	.0105544 .0522998
NonWhite	.4566225	.0254514	17.94	0.000	.4067386 .5065064
householdszie	-.0139607	.004847	-2.88	0.004	-.0234606 -.0044608
SES	-.0311162	.0079874	-3.90	0.000	-.0467713 -.0154611
LE8_TOTALSCORE	-.0002722	.0000567	-4.80	0.000	-.0003833 -.000161
_cons	-.1446979	.0725313	-1.99	0.046	-.2868565 -.0025392
sigma2					
_cons	.9871433	.0074018	133.37	0.000	.9726361 1.001651

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.253372	.1627019	7.70	0.000	.9344824 1.572262
ereri_cde	1.24503	.1626086	7.66	0.000	.926323 1.563737
ereri_intref	.00125	.0061101	0.20	0.838	-.0107255 .0132255
ereri_intmed	.004049	.0084314	0.48	0.631	-.0124762 .0205741
ereri_pie	.0030434	.0023129	1.32	0.188	-.0014899 .0075766

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): zmad111
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 .04636 2.216 -.0745 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 = -8962.8444

Iteration 1: Log likelihood = -8874.9194

Iteration 2: Log likelihood = -8865.642

Iteration 3: Log likelihood = -8865.5546

Iteration 4: Log likelihood = -8865.5545

Refining estimates:

Iteration 0: Log likelihood = -8865.5545

Cox regression with Breslow method for ties

No. of subjects = 36,044 Number of obs = 36,044

No. of failures = 958

Time at risk = 438,012.172

LR chi2(9) = 194.58

Log likelihood = -8865.5545

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.190899	.1617426	10.62	0.000	1.895756 2.53199
zmad111		.9864289	.0394732	-0.34	0.733	.9120191 1.06691
_infectionburXzmad111_000		1.044726	.0725104	0.63	0.528	.9118507 1.196964
AGE		1.038508	.0131707	2.98	0.003	1.013013 1.064646
SEX		.7367898	.0484354	-4.65	0.000	.6477195 .8381086
NonWhite		1.016114	.1775096	0.09	0.927	.7215097 1.43101
householdszie		.9442672	.0393588	-1.38	0.169	.8701924 1.024648
SES		.8104592	.040219	-4.23	0.000	.7353435 .893248
LE8_TOTALSCORE		.9990198	.0003613	-2.71	0.007	.9983119 .9997283

-> Model for the mediator

Iteration 0: Log likelihood = **-49869.511**
 Iteration 1: Log likelihood = **-49869.511**

Linear regression (Maximum Likelihood) Number of obs = 36,044
 Wald chi2(7) = 2640.67
 Prob > chi2 = 0.0000

Log likelihood = **-49869.511**

	zmad111	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.1524098	.01485	10.26	0.000	.1233043 .1815153
AGE		.0159502	.0009714	16.42	0.000	.0140463 .0178541
SEX		-.1971351	.010279	-19.18	0.000	-.2172817 -.1769886
NonWhite		-.1720356	.0246564	-6.98	0.000	-.2203613 -.12371
householdszie		.005342	.004872	1.10	0.273	-.004207 .014891
SES		-.0608448	.0077274	-7.87	0.000	-.0759902 -.0456994
LE8_TOTALSCORE		-.0019255	.0000547	-35.20	0.000	-.0020327 -.0018183
_cons		.276669	.0704002	3.93	0.000	.1386871 .4146508
sigma2						
_cons		.9317127	.0069403	134.25	0.000	.9181099 .9453155

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.199671	.1596478	7.51	0.000	.8867675 1.512575
ereri_cde	1.190451	.1617677	7.36	0.000	.8733924 1.50751
ereri_intref	-.0008446	.0016842	-0.50	0.616	-.0041455 .0024564
ereri_intmed	.0121452	.0199962	0.61	0.544	-.0270467 .051337
ereri_pie	-.0020804	.0060895	-0.34	0.733	-.0140157 .0098549

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): zmaea
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8797.2065
Iteration 2: Log likelihood = -8787.8099
Iteration 3: Log likelihood = -8787.7322
Iteration 4: Log likelihood = -8787.7321
Refining estimates:
Iteration 0: Log likelihood = -8787.7321

```

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) =	188.93
Log likelihood =	-8787.7321	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.245066	.1623967	11.18	0.000	1.948308 2.587026
zmaea	.9586676	.0381542	-1.06	0.289	.8867291 1.036442
_infectionburXzmaea_000	1.121079	.0814871	1.57	0.116	.9722226 1.292728
AGE	1.037577	.0131958	2.90	0.004	1.012034 1.063765
SEX	.7444824	.0489867	-4.48	0.000	.6544036 .8469605
NonWhite	1.110257	.188918	0.61	0.539	.7954001 1.549749
householdsize	.9386795	.039725	-1.50	0.135	.8639616 1.019859
SES	.8280137	.0413106	-3.78	0.000	.7508791 .913072
LE8_TOTALSCORE	.9992242	.0003588	-2.16	0.031	.9985213 .9999277

-> Model for the mediator

Iteration 0: Log likelihood = -50454.302	Number of obs = 35,573
Iteration 1: Log likelihood = -50454.302	Wald chi2(7) = 42.22
Log likelihood = -50454.302	Prob > chi2 = 0.0000

	zmaea	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0008011	.0154812	-0.05	0.959	-.0311437 .0295415
AGE		.0020054	.0010095	1.99	0.047	.0000269 .003984
SEX		-.0447649	.0107122	-4.18	0.000	-.0657604 -.0237695
NonWhite		.0735581	.0256011	2.87	0.004	.0233809 .1237353
householdsize		.000162	.0048755	0.03	0.973	-.0093937 .0097178
SES		-.0062902	.0080344	-0.78	0.434	-.0220374 .0094569
LE8_TOTALSCORE		-.000141	.000057	-2.47	0.013	-.0002528 -.000292
_cons		.0142416	.0729578	0.20	0.845	-.1287529 .1572362
sigma2						
_cons		.9987864	.0074891	133.37	0.000	.9841081 1.013465

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.248796	.1623993	7.69	0.000	.9304991 1.567093
ereri_cde	1.243965	.1622381	7.67	0.000	.925984 1.561946
ereri_intref	.004961	.0100618	0.49	0.622	-.0147598 .0246817
ereri_intmed	-.0001637	.0031651	-0.05	0.959	-.0063672 .0060399
ereri_pie	.0000338	.0006543	0.05	0.959	-.0012486 .0013162

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): zmaged1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8796.3666**
 Iteration 2: Log likelihood = **-8787.7953**
 Iteration 3: Log likelihood = **-8787.7637**
 Iteration 4: Log likelihood = **-8787.7637**
 Refining estimates:
 Iteration 0: Log likelihood = **-8787.7637**

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) =	188.87
Log likelihood =	-8787.7637	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.252976	.1629281	11.23	0.000	1.955242 2.596049
zmaged1		.9450892	.037777	-1.41	0.158	.8738737 1.022108
_infectionburXzmaged1_000		1.099715	.0799145	1.31	0.191	.953728 1.268047
AGE		1.037709	.0131972	2.91	0.004	1.012163 1.0639
SEX		.7476554	.0491876	-4.42	0.000	.6572062 .8505528
NonWhite		1.109717	.1888046	0.61	0.541	.7950435 1.548937
householdszie		.9397721	.0396069	-1.47	0.141	.8652637 1.020696
SES		.8287288	.0413069	-3.77	0.000	.7515977 .9137753
LE8_TOTALSCORE		.9992143	.0003593	-2.19	0.029	.9985104 .9999187

-> Model for the mediator

Iteration 0: Log likelihood = **-50425.211**
 Iteration 1: Log likelihood = **-50425.211**

Linear regression (Maximum Likelihood)	Number of obs =	35,573
	Wald chi2(7) =	100.52
Log likelihood =	Prob > chi2 =	0.0000

	zmaged1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0248522	.0154685	1.61	0.108	-.0054656 .05517
AGE		-.0024913	.0010087	-2.47	0.014	-.0044682 -.0005143
SEX		.0379517	.0107034	3.55	0.000	.0169735 .05893
NonWhite		-.0600885	.0255802	-2.35	0.019	-.1102247 -.0099523
householdszie		-.0010173	.0048715	-0.21	0.835	-.0105653 .0085306
SES		-.0153484	.0080278	-1.91	0.056	-.0310827 .0003859
LE8_TOTALSCORE		-.0004617	.000057	-8.10	0.000	-.0005734 -.00035
_cons		.3234443	.0728981	4.44	0.000	.1805666 .466322
sigma2						
_cons		.9971542	.0074768	133.37	0.000	.9824999 1.011808

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.252487	.1626857	7.70	0.000	.9336291 1.571345
ereri_cde	1.250742	.1625567	7.69	0.000	.9321368 1.569347
ereri_intref	-.0004133	.0054107	-0.08	0.939	-.011018 .0101914
ereri_intmed	.0035609	.004179	0.85	0.394	-.0046298 .0117516
ereri_pie	-.0014026	.001321	-1.06	0.288	-.0039917 .0011866

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): zmanf
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -9037.5878

Iteration 2: Log likelihood = -9028.2736

Iteration 3: Log likelihood = -9028.2249

Iteration 4: Log likelihood = -9028.2249

Refining estimates:

Iteration 0: Log likelihood = -9028.2249

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) = 195.32

Log likelihood = -9028.2249

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.235536	.1600308	11.24	0.000	1.942891 2.57226
zmanf	.9410826	.0351765	-1.62	0.104	.8746028 1.012616
_infectionburXzmanf_000	.9776019	.0687454	-0.32	0.747	.8517364 1.122067
AGE	1.035713	.0129919	2.80	0.005	1.01056 1.061492
SEX	.7601307	.0493654	-4.22	0.000	.669281 .8633126
NonWhite	1.096392	.1865586	0.54	0.589	.7854671 1.530395
householdsize	.9359307	.0393477	-1.57	0.115	.8619025 1.016317
SES	.8261987	.0406964	-3.88	0.000	.7501645 .9099394
LE8_TOTALSCORE	.9989916	.0003542	-2.85	0.004	.9982976 .9996861

-> Model for the mediator

Iteration 0: Log likelihood = **-51807.581**
 Iteration 1: Log likelihood = **-51807.581**

Linear regression (Maximum Likelihood)
 Number of obs = 36,595
 Wald chi2(7) = 236.71
 Prob > chi2 = 0.0000
 Log likelihood = **-51807.581**

	zmanf	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0126969	.0152045	-0.84	0.404	-.0424971 .0171034
AGE		-.0017774	.0009923	-1.79	0.073	-.0037223 .0001674
SEX		.0352209	.010535	3.34	0.001	.0145727 .0558691
NonWhite		.0290509	.0252576	1.15	0.250	-.0204532 .0785549
householdsize		-.0031366	.0047966	-0.65	0.513	-.0125378 .0062646
SES		-.0324364	.0079075	-4.10	0.000	-.0479348 -.0169381
LE8_TOTALSCORE		-.000739	.0000561	-13.17	0.000	-.0008489 -.000629
_cons		.4278346	.0716739	5.97	0.000	.2873562 .5683129
sigma2						
_cons		.993546	.007345	135.27	0.000	.97915 1.007942

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.241446	.1600242	7.76	0.000	.9278042 1.555088
ereri_cde	1.233407	.1596946	7.72	0.000	.920411 1.546402
ereri_intref	.0056677	.0110439	0.51	0.608	-.015978 .0273133
ereri_intmed	.0016003	.0026094	0.61	0.540	-.003514 .0067146
ereri_pie	.0007713	.0010389	0.74	0.458	-.0012649 .0028075

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): zmansc1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -9042.3418
Iteration 2: Log likelihood = -9030.2991
Iteration 3: Log likelihood = -9030.1621
Iteration 4: Log likelihood = -9030.162
Refining estimates:
Iteration 0: Log likelihood = -9030.162

```

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) =	204.16
Log likelihood =	-9030.162	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.242098	.1635426	11.07	0.000	1.943419 2.58668
zmansc1	1.12203	.0424523	3.04	0.002	1.041835 1.208397
_infectionburXzmansc1_000	.9765488	.066168	-0.35	0.726	.8551044 1.115241
AGE	1.031659	.0129749	2.48	0.013	1.006539 1.057405
SEX	.7662801	.0496958	-4.10	0.000	.6748144 .8701433
NonWhite	1.092614	.1883495	0.51	0.607	.7793512 1.531795
householdsize	.9346714	.0394163	-1.60	0.109	.8605233 1.015208
SES	.830708	.0409862	-3.76	0.000	.7541385 .9150518
LE8_TOTALSCORE	.9990278	.0003532	-2.75	0.006	.9983357 .9997204

-> Model for the mediator

Iteration 0: Log likelihood = -51480.709	Number of obs = 36,540
Iteration 1: Log likelihood = -51480.709	Wald chi2(7) = 741.02
Log likelihood = -51480.709	Prob > chi2 = 0.0000

	zmanscl	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.126089	.0151268	8.34	0.000	.096441 .155737
AGE		.0117363	.0009865	11.90	0.000	.0098028 .0136698
SEX		-.0112183	.01047	-1.07	0.284	-.0317392 .0093025
NonWhite		-.3395527	.0250933	-13.53	0.000	-.3887346 -.2903707
householdsize		-.0041329	.0047674	-0.87	0.386	-.0134768 .0052111
SES		-.111597	.0078594	-14.20	0.000	-.1270012 -.0961929
LE8_TOTALSCORE		.0003729	.0000557	6.69	0.000	.0002636 .0004821
_cons		-.8767806	.0713334	-12.29	0.000	-1.016591 -.7369698
sigma2						
_cons		.9800965	.007251	135.17	0.000	.9658847 .9943082

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.263587	.1617321	7.81	0.000	.9465979 1.580576
ereri_cde	1.236542	.1624892	7.61	0.000	.9180689 1.555015
ereri_intref	.0011056	.0097071	0.11	0.909	-.0179199 .0201311
ereri_intmed	.0113158	.0166746	0.68	0.497	-.0213659 .0439975
ereri_pie	.0146237	.0051529	2.84	0.005	.0045242 .0247231

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): zmap2k6
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

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

```
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 = **-8946.3705**
 Iteration 2: Log likelihood = **-8935.8787**
 Iteration 3: Log likelihood = **-8935.8097**
 Iteration 4: Log likelihood = **-8935.8097**
 Refining estimates:
 Iteration 0: Log likelihood = **-8935.8097**

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) = **201.26**
 Log likelihood = **-8935.8097** Prob > chi2 = **0.0000**

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.25195	.1624743	11.25	0.000	1.954996 2.594008
zmap2k6		.914733	.0352198	-2.31	0.021	.8482438 .986434
_infectionburXzmap2k6_000		.9849479	.0705706	-0.21	0.832	.8559048 1.133447
AGE		1.032549	.0130035	2.54	0.011	1.007374 1.058352
SEX		.7635119	.0498265	-4.13	0.000	.6718412 .8676907
NonWhite		1.063448	.1832768	0.36	0.721	.7586098 1.490782
householdszie		.933	.0397223	-1.63	0.103	.8583055 1.014195
SES		.8182258	.0404087	-4.06	0.000	.7427385 .9013853
LE8_TOTALSCORE		.9989633	.0003554	-2.92	0.004	.998267 .9996602

-> Model for the mediator

Iteration 0: Log likelihood = **-51494.291**
 Iteration 1: Log likelihood = **-51494.291**

Linear regression (Maximum Likelihood) Number of obs = **36,352**
 Log likelihood = **-51494.291** Wald chi2(7) = **173.34**
 Prob > chi2 = **0.0000**

	zmap2k6	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0257915	.0152826	-1.69	0.091	-.0557448 .0041618
AGE		-.0044249	.0009976	-4.44	0.000	-.0063802 -.0024696
SEX		.0515173	.0105774	4.87	0.000	.0307859 .0722487
NonWhite		.0711419	.0253471	2.81	0.005	.0214626 .1208213
householdszie		-.0025943	.0048955	-0.53	0.596	-.0121894 .0070007
SES		-.0146716	.0079336	-1.85	0.064	-.0302212 .0008779
LE8_TOTALSCORE		-.0005785	.0000563	-10.27	0.000	-.0006888 -.0004681
_cons		.4819545	.072168	6.68	0.000	.3405078 .6234013
sigma2						
_cons		.9952269	.007382	134.82	0.000	.9807585 1.009695

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.261191	.1619189	7.79	0.000	.9438357 1.578546
ereri_cde	1.247408	.1616967	7.71	0.000	.9304888 1.564328
ereri_intref	.0077085	.0140114	0.55	0.582	-.0197534 .0351703
ereri_intmed	.0037727	.0043056	0.88	0.381	-.0046661 .0122115
ereri_pie	.0023013	.0016895	1.36	0.173	-.0010101 .0056126

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): zmap3k5
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -8796.9908

Iteration 2: Log likelihood = -8788.7612

Iteration 3: Log likelihood = -8788.7403

Iteration 4: Log likelihood = -8788.7403

Refining estimates:

Iteration 0: Log likelihood = -8788.7403

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) = 186.91

Log likelihood = -8788.7403

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.245942	.1624407	11.19	0.000	1.949101 2.587991
zmap3k5		.9991885	.0388423	-0.02	0.983	.9258868 1.078293
_infectionburXzmap3k5_000		.9590626	.0698632	-0.57	0.566	.8314591 1.106249
AGE		1.037734	.0131999	2.91	0.004	1.012182 1.06393
SEX		.7453415	.0490295	-4.47	0.000	.6551824 .8479074
NonWhite		1.111216	.1891193	0.62	0.536	.7960337 1.551192
householdszie		.9396161	.0395894	-1.48	0.139	.8651397 1.020504
SES		.8290774	.041351	-3.76	0.000	.7518662 .9142176
LE8_TOTALSCORE		.9992168	.000359	-2.18	0.029	.9985133 .9999207

-> Model for the mediator

Iteration 0: Log likelihood = -50413.939
 Iteration 1: Log likelihood = -50413.939

Linear regression (Maximum Likelihood)
 Number of obs = 35,573
 Wald chi2(7) = 123.14
 Log likelihood = -50413.939 Prob > chi2 = 0.0000

	zmap3k5	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0049474	.0154636	-0.32	0.749	-.0352556 .0253608
AGE		-.0032968	.0010083	-3.27	0.001	-.0052731 -.0013205
SEX		-.0098906	.0107	-0.92	0.355	-.0308623 .011081
NonWhite		.136855	.0255721	5.35	0.000	.0867347 .1869753
householdszie		-.0059885	.0048699	-1.23	0.219	-.0155334 .0035564
SES		-.0084652	.0080253	-1.05	0.292	-.0241945 .0072641
LE8_TOTALSCORE		-.0004654	.000057	-8.17	0.000	-.0005771 -.0003538
_cons		.4535085	.072875	6.22	0.000	.3106761 .596341
sigma2						
_cons		.9965224	.0074721	133.37	0.000	.9818774 1.011167

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.248384	.162383	7.69	0.000	.9301188 1.566648
ereri_cde	1.245942	.1624406	7.67	0.000	.9275646 1.56432
ereri_intref	.0019673	.0058136	0.34	0.735	-.0094271 .0133617
ereri_intmed	.0004699	.0016325	0.29	0.773	-.0027297 .0036695
ereri_pie	4.02e-06	.0001927	0.02	0.983	-.0003737 .0003817

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): zmap4k5
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8872.54
Iteration 2: Log likelihood = -8864.5461
Iteration 3: Log likelihood = -8864.522
Iteration 4: Log likelihood = -8864.522
Refining estimates:
Iteration 0: Log likelihood = -8864.522

```

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) =	200.04
Log likelihood =	-8864.522	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.212415	.1601741	10.97	0.000	1.919735 2.549715
zmap4k5	.9149993	.035239	-2.31	0.021	.8484744 .9867401
_infectionburXzmap4k5_000	1.028689	.073881	0.39	0.694	.8936146 1.18418
AGE	1.038485	.0131357	2.99	0.003	1.013056 1.064552
SEX	.7373551	.0483163	-4.65	0.000	.6484857 .8384032
NonWhite	1.02077	.1782132	0.12	0.906	.724969 1.437265
householdsize	.9442394	.039391	-1.38	0.169	.8701065 1.024688
SES	.8097725	.0401477	-4.26	0.000	.7347867 .8924106
LE8_TOTALSCORE	.998957	.0003571	-2.92	0.004	.9982574 .9996571

-> Model for the mediator

Iteration 0: Log likelihood =	-51106.277	Number of obs =	36,107
Iteration 1: Log likelihood =	-51106.277	Wald chi2(7) =	254.57
Linear regression (Maximum Likelihood)		Prob > chi2 =	0.0000
Log likelihood =	-51106.277		

	zmap4k5	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0097638	.0153122	-0.64	0.524	-.0397752 .0202476
AGE		-.0042098	.0010022	-4.20	0.000	-.0061741 -.0022456
SEX		-.0192857	.0106022	-1.82	0.069	-.0400656 .0014943
NonWhite		.0343057	.0254342	1.35	0.177	-.0155443 .0841557
householdsize		.0018927	.0050274	0.38	0.707	-.0079607 .0117462
SES		-.0186202	.0079714	-2.34	0.019	-.0342438 -.0029966
LE8_TOTALSCORE		-.0007958	.0000564	-14.10	0.000	-.0009064 -.0006852
_cons		.6754744	.0726337	9.30	0.000	.533115 .8178339
sigma2						
_cons		.9929715	.0073902	134.36	0.000	.978487 1.007456

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.209169	.1593247	7.59	0.000	.8968979 1.521439
ereri_cde	1.207819	.1594009	7.58	0.000	.8953991 1.520239
ereri_intref	.0000438	.0085363	0.01	0.996	-.0166872 .0167747
ereri_intmed	.0004379	.0015264	0.29	0.774	-.0025539 .0034297
ereri_pie	.0008677	.0014125	0.61	0.539	-.0019007 .0036361

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): zmapk9
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8947.7487**
 Iteration 2: Log likelihood = **-8939.2766**
 Iteration 3: Log likelihood = **-8939.2582**
 Iteration 4: Log likelihood = **-8939.2582**
 Refining estimates:
 Iteration 0: Log likelihood = **-8939.2582**

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) =	194.36
Log likelihood =	-8939.2582	Prob > chi2 =	0.0000

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.258455	.161782	11.37	0.000	1.962622 2.598881
zmapk9	.9585471	.0378569	-1.07	0.284	.8871479 1.035693
_infectionburXzmapk9_000	1.012104	.0733015	0.17	0.868	.8781664 1.166469
AGE	1.032928	.0130219	2.57	0.010	1.007718 1.058768
SEX	.7592045	.0495163	-4.22	0.000	.6681012 .8627307
NonWhite	1.055807	.1819797	0.32	0.753	.7531312 1.480124
householdszie	.93305	.0397212	-1.63	0.104	.8583573 1.014242
SES	.8190664	.0404581	-4.04	0.000	.7434876 .9023282
LE8_TOTALSCORE	.9989821	.0003568	-2.85	0.004	.9982829 .9996817

-> Model for the mediator

Iteration 0: Log likelihood = **-51290.759**
 Iteration 1: Log likelihood = **-51290.759**

Linear regression (Maximum Likelihood)	Number of obs =	36,352
	Wald chi2(7) =	584.64
Log likelihood =	Prob > chi2 =	0.0000

zmapk9	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.029398	.0151972	1.93	0.053	-.000388 .0591841
AGE	.0085934	.000992	8.66	0.000	.006649 .0105377
SEX	-.0425771	.0105184	-4.05	0.000	-.0631928 -.0219615
NonWhite	-.0024284	.0252055	-0.10	0.923	-.0518304 .0469735
householdszie	-.0035899	.0048682	-0.74	0.461	-.0131314 .0059517
SES	-.0173547	.0078893	-2.20	0.028	-.0328174 -.001892
LE8_TOTALSCORE	-.0010971	.000056	-19.59	0.000	-.0012069 -.0009874
_cons	.0999548	.0717651	1.39	0.164	-.0407022 .2406118
sigma2					
_cons	.9841447	.0072998	134.82	0.000	.9698374 .998452

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.255363	.1616494	7.77	0.000	.9385364 1.57219
ereri_cde	1.257129	.1616349	7.78	0.000	.9403303 1.573928
ereri_intref	.0002446	.0049963	0.05	0.961	-.0095478 .0100371
ereri_intmed	-.0007664	.0042262	-0.18	0.856	-.0090497 .0075168
ereri_pie	-.0012438	.0013257	-0.94	0.348	-.0038423 .0013546

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): zmapt
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -8730.6563

Iteration 2: Log likelihood = -8723.1858

Iteration 3: Log likelihood = -8723.1701

Iteration 4: Log likelihood = -8723.1701

Refining estimates:

Iteration 0: Log likelihood = -8723.1701

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) = 192.79

Log likelihood = -8723.1701

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.229204	.1626995	10.98	0.000	1.932078
zmapt		1.122241	.0451446	2.87	0.004	1.037158
_infectionburXzmapt_000		.9015239	.0656735	-1.42	0.155	.781573
AGE		1.037219	.0132058	2.87	0.004	1.011656
SEX		.7485188	.0494282	-4.39	0.000	.6576486
NonWhite		1.091824	.1881139	0.51	0.610	.7789259
householdsize		.9304895	.0400792	-1.67	0.094	.8551602
SES		.8172015	.0408141	-4.04	0.000	.7409978
LE8_TOTALSCORE		.9992056	.0003605	-2.20	0.028	.9984993
						.9999124

-> Model for the mediator

Iteration 0: Log likelihood = -50502.293
Iteration 1: Log likelihood = -50502.293

Linear regression (Maximum Likelihood) Number of obs = 35,601
Log likelihood = -50502.293 Wald chi2(7) = 25.69
Prob > chi2 = 0.0006

	zmapt	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0263928	.0154602	1.71	0.088	-.0039085 .0566942
AGE		.0020976	.0010122	2.07	0.038	.0001136 .0040815
SEX		-.0066475	.0107102	-0.62	0.535	-.0276391 .0143441
NonWhite		-.0209998	.0255556	-0.82	0.411	-.0710878 .0290882
householdszie		.0004067	.005081	0.08	0.936	-.0095518 .0103652
SES		-.0150274	.0080457	-1.87	0.062	-.0307966 .0007418
LE8_TOTALSCORE		-.0001482	.0000571	-2.60	0.009	-.0002601 -.0000363
_cons		-.0465659	.0733834	-0.63	0.526	-.1903947 .0972628
sigma2						
_cons		.999251	.0074896	133.42	0.000	.9845716 1.01393

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.216114	.1612886	7.54	0.000	.8999937 1.532234
ereri_cde	1.221579	.1614213	7.57	0.000	.9051994 1.537959
ereri_intref	-.0061474	.0046162	-1.33	0.183	-.0151951 .0029002
ereri_intmed	-.0023666	.003959	-0.60	0.550	-.010126 .0053928
ereri_pie	.0030485	.0020815	1.46	0.143	-.0010312 .0071281

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): zmarco
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8974.6537
 Iteration 2: Log likelihood = -8964.6267
 Iteration 3: Log likelihood = -8964.5806
 Iteration 4: Log likelihood = -8964.5806
 Refining estimates:
 Iteration 0: Log likelihood = -8964.5806

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) =	200.50
Log likelihood =	-8964.5806	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.295744	.1642639	11.61	0.000	1.995348 2.641363
zmarco	.9423951	.0370708	-1.51	0.131	.872468 1.017927
_infectionburXzmarco_000	.9858117	.0685693	-0.21	0.837	.8601767 1.129797
AGE	1.034391	.0130419	2.68	0.007	1.009142 1.060271
SEX	.7613746	.0499595	-4.15	0.000	.6694909 .8658687
NonWhite	1.014004	.1794589	0.08	0.937	.7167932 1.434451
householdsize	.9277178	.039852	-1.75	0.081	.8528071 1.009209
SES	.8216527	.0407474	-3.96	0.000	.7455477 .9055263
LE8_TOTALSCORE	.9989868	.0003574	-2.83	0.005	.9982865 .9996875

-> Model for the mediator

Iteration 0: Log likelihood =	-50832.089	Number of obs =	36,441
Iteration 1: Log likelihood =	-50832.089	Wald chi2(7) =	1792.60
Log likelihood =	-50832.089	Prob > chi2 =	0.0000

	zmarco	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0927287	.0149199	6.22	0.000	.0634861 .1219712
AGE		.0174703	.0009745	17.93	0.000	.0155604 .0193802
SEX		.2146936	.0103389	20.77	0.000	.1944298 .2349574
NonWhite		.1309183	.0247559	5.29	0.000	.0823976 .1794391
householdsize		-.0015699	.0047051	-0.33	0.739	-.0107917 .0076519
SES		-.0813728	.0077585	-10.49	0.000	-.0965791 -.0661665
LE8_TOTALSCORE		-.0013587	.0000551	-24.65	0.000	-.0014667 -.0012506
_cons		-.7218108	.0704273	-10.25	0.000	-.8598458 -.5837758
sigma2						
_cons		.9530885	.0070608	134.98	0.000	.9392496 .9669274

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.28261	.1634641	7.85	0.000	.9622265 1.602994
ereri_cde	1.292583	.1639549	7.88	0.000	.9712375 1.613929
ereri_intref	.005663	.0114298	0.50	0.620	-.016739 .0280649
ereri_intmed	-.0101496	.0130561	-0.78	0.437	-.0357391 .01544
ereri_pie	-.0054866	.0037329	-1.47	0.142	-.012803 .0018298

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): zmasp1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8871.5783**
 Iteration 2: Log likelihood = **-8861.7915**
 Iteration 3: Log likelihood = **-8861.7201**
 Iteration 4: Log likelihood = **-8861.7201**
 Refining estimates:
 Iteration 0: Log likelihood = **-8861.7201**

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) =	205.64
Log likelihood =	-8861.7201	Prob > chi2 =	0.0000

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.199753	.1591492	10.90	0.000	1.908933 2.534879
zmasp1	.8896367	.0342655	-3.04	0.002	.8249498 .9593959
_infectionburXzmasp1_000	1.016783	.0715253	0.24	0.813	.885831 1.167094
AGE	1.038474	.0131476	2.98	0.003	1.013022 1.064565
SEX	.7464261	.0489919	-4.46	0.000	.6563235 .8488984
NonWhite	1.009447	.1763004	0.05	0.957	.7168378 1.421498
householdszie	.9446875	.0392	-1.37	0.170	.8708981 1.024729
SES	.8121744	.040231	-4.20	0.000	.7370299 .8949803
LE8_TOTALSCORE	.998844	.0003604	-3.21	0.001	.9981378 .9995507

-> Model for the mediator

Iteration 0: Log likelihood = **-50802.679**
 Iteration 1: Log likelihood = **-50802.679**

Linear regression (Maximum Likelihood)	Number of obs =	36,107	
	Wald chi2(7) =	871.21	
Log likelihood =	-50802.679	Prob > chi2 =	0.0000

<u>zmasp1</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	-.0183679	.015184	-1.21	0.226	-.048128 .0113922
AGE	.0059243	.0009938	5.96	0.000	.0039764 .0078721
SEX	.0286316	.0105134	2.72	0.006	.0080257 .0492375
NonWhite	-.1337713	.0252212	-5.30	0.000	-.183204 -.0843387
householdszie	.0041425	.0049853	0.83	0.406	-.0056284 .0139135
SES	.0073316	.0079046	0.93	0.354	-.0081612 .0228244
LE8_TOTALSCORE	-.0015656	.000056	-27.98	0.000	-.0016752 -.0014559
_cons	.3836105	.0720255	5.33	0.000	.2424431 .524778
sigma2					
_cons	.9764128	.007267	134.36	0.000	.9621698 .9906558

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.200016	.1587592	7.56	0.000	.8888539 1.511179
ereri_cde	1.192125	.1580642	7.54	0.000	.8823251 1.501926
ereri_intref	.0038416	.0130723	0.29	0.769	-.0217796 .0294628
ereri_intmed	.001899	.0029614	0.64	0.521	-.0039053 .0077032
ereri_pie	.0021503	.0019155	1.12	0.262	-.001604 .0059046

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): zmatn2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 .04635 2.216 -.07454 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 = -9083.3359

Iteration 1: Log likelihood = -8996.6987

Iteration 2: Log likelihood = -8988.3673

Iteration 3: Log likelihood = -8988.3424

Iteration 4: Log likelihood = -8988.3424

Refining estimates:

Iteration 0: Log likelihood = -8988.3424

Cox regression with Breslow method for ties

No. of subjects = 36,480 Number of obs = 36,480

No. of failures = 970

Time at risk = 443,094.176

Log likelihood = -8988.3424

LR chi2(9) = 189.99

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.216823	.1601849	11.02	0.000	1.924085 2.554099
zmatn2	.9842704	.0392725	-0.40	0.691	.9102305 1.064333
_infectionburXzmatn2_000	1.061207	.0741488	0.85	0.395	.9253905 1.216958
AGE	1.036183	.013056	2.82	0.005	1.010907 1.062091
SEX	.7554034	.0509912	-4.16	0.000	.6617915 .8622569
NonWhite	1.094658	.1864518	0.53	0.595	.783961 1.52849
householdsize	.9391705	.0392574	-1.50	0.133	.865295 1.019353
SES	.8295096	.0409532	-3.79	0.000	.7530039 .9137883
LE8_TOTALSCORE	.9990312	.0003572	-2.71	0.007	.9983313 .9997316

-> Model for the mediator

Iteration 0: Log likelihood = -50303.996
 Iteration 1: Log likelihood = -50303.996

Linear regression (Maximum Likelihood)
 Number of obs = 36,480
 Wald chi2(7) = 3036.54
 Log likelihood = -50303.996 Prob > chi2 = 0.0000

	zmatn2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr	.0998385	.0146812	6.80	0.000	.0710638	.1286132
AGE	.0099832	.000958	10.42	0.000	.0081056	.0118608
SEX	.4765867	.0101707	46.86	0.000	.4566525	.4965209
NonWhite	-.212971	.0243822	-8.73	0.000	-.2607593	-.1651828
householdsize	-.0128299	.0046287	-2.77	0.006	-.0219021	-.0037578
SES	-.0526609	.0076346	-6.90	0.000	-.0676244	-.0376973
LE8_TOTALSCORE	-.0011972	.0000542	-22.10	0.000	-.0013034	-.001091
_cons	-.7110328	.0692205	-10.27	0.000	-.8467025	-.5753631
sigma2						
_cons	.9231324	.0068352	135.06	0.000	.9097357	.9365292

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.226339	.1595761	7.68	0.000	.9135759 1.539103
ereri_cde	1.216414	.1601372	7.60	0.000	.9025509 1.530277
ereri_intref	.0002657	.003716	0.07	0.943	-.0070174 .0075489
ereri_intmed	.0112413	.0135902	0.83	0.408	-.0153949 .0378775
ereri_pie	-.0015816	.0039841	-0.40	0.691	-.0093902 .0062269

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): zmatn3
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8886.4868
Iteration 2: Log likelihood = -8878.8892
Iteration 3: Log likelihood = -8878.8737
Refining estimates:
Iteration 0: Log likelihood = -8878.8737

```

Cox regression with Breslow method for ties

No. of subjects =	36,107	Number of obs =	36,107
No. of failures =	959		
Time at risk =	438,771.909	LR chi2(9) =	192.90
Log likelihood =	-8878.8737	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.216399	.1610938	10.95	0.000	1.92212 2.555734
zmatn3	1.030864	.039585	0.79	0.429	.9561268 1.111444
_infectionburXzmatn3_000	.9622617	.0644716	-0.57	0.566	.843845 1.097296
AGE	1.036515	.0131321	2.83	0.005	1.011094 1.062576
SEX	.7460613	.0494429	-4.42	0.000	.6551846 .8495428
NonWhite	1.030325	.1807156	0.17	0.865	.7305947 1.453022
householdszie	.9436313	.039368	-1.39	0.164	.8695419 1.024033
SES	.8102276	.0401648	-4.25	0.000	.7352094 .8929003
LE8_TOTALSCORE	.9990071	.0003568	-2.78	0.005	.9983081 .9997066

-> Model for the mediator

```

Iteration 0: Log likelihood = -50200.214
Iteration 1: Log likelihood = -50200.214

```

Linear regression (Maximum Likelihood)	Number of obs = 36,107
	Wald chi2(7) = 2126.04
Log likelihood = -50200.214	Prob > chi2 = 0.0000

zmatn3	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0749249	.0149381	5.02	0.000	.0456467 .1042031
AGE	.0160349	.0009773	16.41	0.000	.0141194 .0179504
SEX	-.3285664	.0103399	-31.78	0.000	-.3488322 -.3083006
NonWhite	-.5346812	.0247961	-21.56	0.000	-.5832807 -.4860817
householdsize	-.0105106	.0049027	-2.14	0.032	-.0201198 -.0009015
SES	.004333	.0077732	0.56	0.577	-.0109023 .0195682
LE8_TOTALSCORE	.0007274	.000055	13.22	0.000	.0006196 .0008353
_cons	-.7878485	.0708409	-11.12	0.000	-.9266941 -.6490029
sigma2					
_cons	.9443665	.0070285	134.36	0.000	.930591 .958142

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.215046	.1602865	7.58	0.000	.9008906 1.529202
ereri_cde	1.216253	.1610232	7.55	0.000	.9006532 1.531852
ereri_intref	.0001336	.0023598	0.06	0.955	-.0044916 .0047588
ereri_intmed	-.00362	.0096626	-0.37	0.708	-.0225583 .0153182
ereri_pie	.0022801	.0029194	0.78	0.435	-.0034417 .008002

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): zmavs
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8795.3451**
 Iteration 2: Log likelihood = **-8787.3411**
 Iteration 3: Log likelihood = **-8787.3242**
 Iteration 4: Log likelihood = **-8787.3242**
 Refining estimates:
 Iteration 0: Log likelihood = **-8787.3242**

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) =	189.74
Log likelihood =	-8787.3242	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.25921	.1634929	11.26	0.000	1.960458 2.603489
zmavs		.9315563	.03719	-1.78	0.076	.8614441 1.007375
_infectionburXzmavs_000		1.05015	.0770098	0.67	0.505	.9095593 1.212473
AGE		1.038046	.013195	2.94	0.003	1.012504 1.064233
SEX		.74959	.0493445	-4.38	0.000	.6588558 .8528197
NonWhite		1.11795	.1902544	0.66	0.512	.8008726 1.560562
householdszie		.939234	.039588	-1.49	0.137	.8647613 1.02012
SES		.8283264	.0413059	-3.78	0.000	.7511988 .9133729
LE8_TOTALSCORE		.9991897	.0003594	-2.25	0.024	.9984855 .9998943

-> Model for the mediator

Iteration 0: Log likelihood = **-50347.708**
 Iteration 1: Log likelihood = **-50347.708**

Linear regression (Maximum Likelihood)	Number of obs =	35,573
	Wald chi2(7) =	256.30
Log likelihood =	-50347.708	Prob > chi2 = 0.0000

	zmavs	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0099931	.0154349	0.65	0.517	-.0202587 .0402449
AGE		-.0031351	.0010065	-3.11	0.002	-.0051077 -.0011625
SEX		.0619119	.0106801	5.80	0.000	.0409793 .0828446
NonWhite		.1274053	.0255245	4.99	0.000	.0773782 .1774324
householdszie		-.0058668	.0048609	-1.21	0.227	-.015394 .0036604
SES		-.0243266	.0080104	-3.04	0.002	-.0400267 -.0086266
LE8_TOTALSCORE		-.0006919	.0000569	-12.17	0.000	-.0008034 -.0005805
_cons		.4441486	.0727395	6.11	0.000	.3015818 .5867154
sigma2						
_cons		.9928186	.0074443	133.37	0.000	.978228 1.007409

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.253472	.1627997	7.70	0.000	.9343903 1.572554
ereri_cde	1.255948	.1629137	7.71	0.000	.9366434 1.575253
ereri_intref	-.0019818	.0043001	-0.46	0.645	-.0104099 .0064463
ereri_intmed	.0002136	.0014803	0.14	0.885	-.0026878 .0031149
ereri_pie	-.0007082	.0011639	-0.61	0.543	-.0029895 .001573

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): zmax
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -8734.2342

Iteration 2: Log likelihood = -8724.2852

Iteration 3: Log likelihood = -8724.2167

Iteration 4: Log likelihood = -8724.2167

Refining estimates:

Iteration 0: Log likelihood = -8724.2167

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) = 190.70

Log likelihood = -8724.2167 Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.195022	.161317	10.70	0.000	1.900562 2.535102
zmax		.9421377	.036895	-1.52	0.128	.8725302 1.017298
_infectionburXzmax_000		.9374432	.0685265	-0.88	0.377	.8123117 1.08185
AGE		1.036984	.0131999	2.85	0.004	1.011433 1.063181
SEX		.7498692	.0495277	-4.36	0.000	.6588172 .8535051
NonWhite		1.102251	.1899578	0.56	0.572	.7862988 1.54516
householdszie		.9290971	.0401718	-1.70	0.089	.8536057 1.011265
SES		.8136484	.0406304	-4.13	0.000	.7377871 .8973099
LE8_TOTALSCORE		.9991274	.0003611	-2.42	0.016	.9984198 .9998354

-> Model for the mediator

Iteration 0: Log likelihood = **-50313.991**
 Iteration 1: Log likelihood = **-50313.991**

Linear regression (Maximum Likelihood)
 Number of obs = 35,601
 Wald chi2(7) = 404.56
 Log likelihood = **-50313.991** Prob > chi2 = 0.0000

	zmax	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0081082	.0153786	-0.53	0.598	-.0382497 .0220333
AGE		-.0105633	.0010069	-10.49	0.000	-.0125368 -.0085899
SEX		.0023728	.0106537	0.22	0.824	-.018508 .0232537
NonWhite		.0703369	.0254208	2.77	0.006	.0205131 .1201606
householdszie		-.0036708	.0050542	-0.73	0.468	-.0135767 .0062352
SES		-.0344638	.0080032	-4.31	0.000	-.0501499 -.0187778
LE8_TOTALSCORE		-.0008608	.0000568	-15.16	0.000	-.0009721 -.0007495
_cons		1.066316	.0729963	14.61	0.000	.9232465 1.209387
sigma2						
_cons		.9887362	.0074108	133.42	0.000	.9742113 1.003261

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.210008	.1609163	7.52	0.000	.8946182 1.525399
ereri_cde	1.193005	.1609375	7.41	0.000	.8775733 1.508436
ereri_intref	.014779	.0166974	0.89	0.376	-.0179472 .0475052
ereri_intmed	.0017411	.003501	0.50	0.619	-.0051208 .008603
ereri_pie	.0004834	.0009705	0.50	0.618	-.0014188 .0023856

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): zmb
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -9140.6611
Iteration 2: Log likelihood = -9128.1528
Iteration 3: Log likelihood = -9127.9765
Iteration 4: Log likelihood = -9127.9764
Refining estimates:
Iteration 0: Log likelihood = -9127.9764

```

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) =	194.40
Log likelihood =	-9127.9764	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.195822	.1631037	10.59	0.000	1.898326 2.539941
zmb	1.011461	.0418338	0.28	0.783	.9327036 1.096869
_infectionburXzmb_000	1.052083	.0708689	0.75	0.451	.9219612 1.20057
AGE	1.033654	.0129779	2.64	0.008	1.008528 1.059406
SEX	.7690774	.0539597	-3.74	0.000	.6702679 .8824532
NonWhite	1.06349	.1808331	0.36	0.717	.7620748 1.484122
householdsiz	.9385954	.0390717	-1.52	0.128	.8650569 1.018385
SES	.8221311	.0403139	-3.99	0.000	.7467954 .9050666
LE8_TOTALSCORE	.9990887	.000353	-2.58	0.010	.9983972 .9997807

-> Model for the mediator

Iteration 0: Log likelihood =	-47937.081	Number of obs =	36,896
Iteration 1: Log likelihood =	-47937.081	Wald chi2(7) =	9977.65
Linear regression (Maximum Likelihood)		Prob > chi2 =	0.0000
Log likelihood =	-47937.081		

	zmb	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.1224213	.0134749	9.09	0.000	.0960109 .1488316
AGE		.0257919	.0008797	29.32	0.000	.0240677 .0275161
SEX		-.8395308	.0093375	-89.91	0.000	-.857832 -.8212296
NonWhite		.1440562	.0223604	6.44	0.000	.1002306 .1878819
householdsize		.0026891	.0042571	0.63	0.528	-.0056548 .0110329
SES		-.0151713	.0070074	-2.17	0.030	-.0289055 -.0014371
LE8_TOTALSCORE		-.0005111	.0000497	-10.28	0.000	-.0006085 -.0004136
_cons		-.0420895	.0636015	-0.66	0.508	-.166746 .0825671
sigma2						
_cons		.787116	.0057951	135.82	0.000	.7757578 .7984743

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.213939	.1603766	7.57	0.000	.8996064 1.528271
ereri_cde	1.195993	.1631608	7.33	0.000	.8762038 1.515783
ereri_intref	.00116	.0040346	0.29	0.774	-.0067477 .0090677
ereri_intmed	.0153896	.0155604	0.99	0.323	-.0151083 .0458874
ereri_pie	.0013961	.0050727	0.28	0.783	-.0085463 .0113384

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): zmcam
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -9045.2869
 Iteration 2: Log likelihood = -9036.8151
 Iteration 3: Log likelihood = -9036.795
 Iteration 4: Log likelihood = -9036.795
 Refining estimates:
 Iteration 0: Log likelihood = -9036.795

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	LR chi2(9) =	191.98
Log likelihood =	-9036.795	Prob > chi2 =	0.0000

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.250128	.1613198	11.31	0.000	1.955157 2.589602
zmcam	1.038934	.0403186	0.98	0.325	.9628412 1.12104
_infectionburXzmcam_000	1.003656	.0708082	0.05	0.959	.8740422 1.152491
AGE	1.032324	.0130063	2.53	0.012	1.007145 1.058133
SEX	.7540119	.0492599	-4.32	0.000	.6633899 .8570133
NonWhite	1.085948	.1847635	0.48	0.628	.77801 1.515768
householdszie	.9359499	.0394382	-1.57	0.116	.8617581 1.016529
SES	.825838	.0407442	-3.88	0.000	.7497204 .9096837
LE8_TOTALSCORE	.9990307	.0003555	-2.73	0.006	.9983342 .9997277

-> Model for the mediator

Iteration 0: Log likelihood = -51130.935
 Iteration 1: Log likelihood = -51130.935

Linear regression (Maximum Likelihood)	Number of obs = 36,596
	Wald chi2(7) = 1627.22
Log likelihood = -51130.935	Prob > chi2 = 0.0000

<u>zmcam</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	-.04259	.0149383	-2.85	0.004	-.0718686 -.0133114
AGE	.0278501	.0009742	28.59	0.000	.0259407 .0297595
SEX	.20091	.01034	19.43	0.000	.180644 .2211761
NonWhite	.0919491	.0247657	3.71	0.000	.0434093 .1404889
householdszie	-.0139401	.004711	-2.96	0.003	-.0231735 -.0047067
SES	.0399382	.0077622	5.15	0.000	.0247246 .0551518
LE8_TOTALSCORE	.0009777	.0000552	17.73	0.000	.0008696 .0010858
_cons	-2.437671	.070418	-34.62	0.000	-2.575688 -2.299655
sigma2					
_cons	.9574024	.0070777	135.27	0.000	.9435303 .9712745

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.246484	.1608298	7.75	0.000	.9312638 1.561705
ereri_cde	1.248974	.1610497	7.76	0.000	.9333224 1.564625
ereri_intref	.0015176	.0063376	0.24	0.811	-.0109039 .0139391
ereri_intmed	-.0023817	.0059502	-0.40	0.689	-.0140439 .0092804
ereri_pie	-.0016254	.0017457	-0.93	0.352	-.0050469 .0017961

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): zmcfd2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 .0465 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 = -8971.2757

Iteration 1: Log likelihood = -8880.5763

Iteration 2: Log likelihood = -8871.3189

Iteration 3: Log likelihood = -8871.2944

Iteration 4: Log likelihood = -8871.2944

Refining estimates:

Iteration 0: Log likelihood = -8871.2944

Cox regression with Breslow method for ties

No. of subjects = 36,255 Number of obs = 36,255

No. of failures = 959

Time at risk = 440,418.521

Log likelihood = -8871.2944

LR chi2(9) = 199.96

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.295798	.1644577	11.60	0.000	1.995072 2.641854
zmcfd2	.9556289	.0378018	-1.15	0.251	.884338 1.032667
_infectionburXzmcfd2_000	.9904167	.0720404	-0.13	0.895	.8588231 1.142174
AGE	1.035912	.0131441	2.78	0.005	1.010468 1.061997
SEX	.7515015	.0492768	-4.36	0.000	.6608694 .8545629
NonWhite	1.015406	.1797592	0.09	0.931	.7177113 1.436579
householdszie	.9211448	.0402093	-1.88	0.060	.8456132 1.003423
SES	.8288549	.0412217	-3.77	0.000	.7518746 .9137166
LE8_TOTALSCORE	.998983	.0003586	-2.84	0.005	.9982805 .999686

-> Model for the mediator

Iteration 0: Log likelihood = -51225.16
 Iteration 1: Log likelihood = -51225.16

Linear regression (Maximum Likelihood)
 Number of obs = 36,255
 Wald chi2(7) = 438.54
 Log likelihood = -51225.16 Prob > chi2 = 0.0000

	zmcfd2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0628932	.0152339	4.13	0.000	.0330353 .0927511
AGE		.0018193	.0009949	1.83	0.067	-.0001307 .0037693
SEX		.1040502	.0105538	9.86	0.000	.0833652 .1247352
NonWhite		-.1298349	.0252677	-5.14	0.000	-.1793587 -.080311
householdszie		-.0080997	.0047993	-1.69	0.091	-.0175061 .0013067
SES		-.043149	.0079176	-5.45	0.000	-.0586672 -.0276308
LE8_TOTALSCORE		-.0008127	.0000563	-14.44	0.000	-.000923 -.0007024
_cons		.1499198	.0718817	2.09	0.037	.0090342 .2908054
sigma2						
_cons		.9880212	.0073383	134.64	0.000	.9736383 1.002404

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.289154	.1639698	7.86	0.000	.9677788 1.610529
ereri_cde	1.293967	.164195	7.88	0.000	.9721508 1.615783
ereri_intref	.0031209	.0091368	0.34	0.733	-.0147868 .0210287
ereri_intmed	-.005084	.0092852	-0.55	0.584	-.0232827 .0131148
ereri_pie	-.0028504	.0025748	-1.11	0.268	-.0078969 .0021961

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): zmdga1
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8896.5329
 Iteration 2: Log likelihood = -8888.9034
 Iteration 3: Log likelihood = -8888.8865
 Iteration 4: Log likelihood = -8888.8865
 Refining estimates:
 Iteration 0: Log likelihood = -8888.8865

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) =	193.12
Log likelihood =	-8888.8865	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.207281	.15917	10.98	0.000	1.916356 2.54237
zmdga1	.9704367	.0383577	-0.76	0.448	.8980953 1.048605
_infectionburXzmdga1_000	1.047426	.073408	0.66	0.509	.9129935 1.201653
AGE	1.037489	.0131151	2.91	0.004	1.012099 1.063515
SEX	.7469263	.051001	-4.27	0.000	.6533663 .8538839
NonWhite	1.013712	.1771996	0.08	0.938	.7196512 1.42793
householdsize	.9434453	.0393755	-1.39	0.163	.8693428 1.023864
SES	.8100574	.04012	-4.25	0.000	.7351197 .8926341
LE8_TOTALSCORE	.9990266	.0003563	-2.73	0.006	.9983284 .9997253

-> Model for the mediator

Iteration 0: Log likelihood = -49953.092
 Iteration 1: Log likelihood = -49953.092

Linear regression (Maximum Likelihood)

Number of obs =	36,164
Wald chi2(7) =	2826.85
Prob > chi2 =	0.0000

Log likelihood = -49953.092

	zmdga1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0159586	.0147918	-1.08	0.281	-.04495 .0130328
AGE		.0057954	.0009678	5.99	0.000	.0038985 .0076923
SEX		.5228111	.0102389	51.06	0.000	.5027432 .542879
NonWhite		-.2881239	.0245514	-11.74	0.000	-.3362437 -.240004
householdsize		.001038	.0048557	0.21	0.831	-.0084791 .0105551
SES		-.0174461	.0076967	-2.27	0.023	-.0325314 -.0023607
LE8_TOTALSCORE		.0000809	.0000545	1.48	0.138	-.0000259 .0001877
_cons		-1.177958	.0701428	-16.79	0.000	-1.315435 -1.040481
sigma2						
_cons		.9274741	.0068973	134.47	0.000	.9139557 .9409926

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.206283	.1590704	7.58	0.000	.8945108 1.518055
ereri_cde	1.206857	.1590925	7.59	0.000	.8950409 1.518672
ereri_intref	1.37e-06	.0025578	0.00	1.000	-.0050118 .0050145
ereri_intmed	-.0010539	.0023755	-0.44	0.657	-.0057099 .003602
ereri_pie	.000479	.0007717	0.62	0.535	-.0010335 .0019915

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): zmdk
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 2.217 -.07464 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 = **-9081.5141**
 Iteration 1: Log likelihood = **-8994.3337**
 Iteration 2: Log likelihood = **-8985.6179**
 Iteration 3: Log likelihood = **-8985.5953**
 Iteration 4: Log likelihood = **-8985.5953**
 Refining estimates:
 Iteration 0: Log likelihood = **-8985.5953**

Cox regression with Breslow method for ties

No. of subjects =	36,433	Number of obs =	36,433
No. of failures =	970		
Time at risk =	442,574.113	LR chi2(9) =	191.84
Log likelihood =	-8985.5953	Prob > chi2 =	0.0000

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.273889	.1639971	11.39	0.000	1.974145 2.619145
zmdk	.9806559	.0382596	-0.50	0.617	.9084638 1.058585
_infectionburXzmdk_000	.9579191	.0683795	-0.60	0.547	.8328508 1.101769
AGE	1.033412	.0130419	2.60	0.009	1.008164 1.059293
SEX	.7664205	.0498532	-4.09	0.000	.6746821 .8706328
NonWhite	1.067731	.1839854	0.38	0.704	.7617062 1.496704
householdszie	.9337913	.0395013	-1.62	0.105	.8594928 1.014513
SES	.818409	.0404632	-4.05	0.000	.742824 .9016851
LE8_TOTALSCORE	.9990376	.0003564	-2.70	0.007	.9983393 .9997364

-> Model for the mediator

Iteration 0: Log likelihood = **-51045.059**
 Iteration 1: Log likelihood = **-51045.059**

Linear regression (Maximum Likelihood)	Number of obs =	36,433
	Wald chi2(7) =	1324.77
Log likelihood =	Prob > chi2 =	0.0000

<u>zmdk</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.1140194	.0150385	7.58	0.000	.0845445 .1434943
AGE	.0194583	.00098	19.85	0.000	.0175375 .0213791
SEX	.0289148	.0104044	2.78	0.005	.0085226 .0493071
NonWhite	-.1531854	.0249214	-6.15	0.000	-.2020304 -.1043404
householdszie	-.0131747	.0047351	-2.78	0.005	-.0224553 -.0038941
SES	-.0880793	.0078081	-11.28	0.000	-.1033829 -.0727757
LE8_TOTALSCORE	-.0009866	.0000554	-17.81	0.000	-.0010952 -.0008781
_cons	-.7074956	.0708645	-9.98	0.000	-.8463875 -.5686037
sigma2					
_cons	.9648874	.007149	134.97	0.000	.9508756 .9788991

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.263117	.1628807	7.75	0.000	.9438772 1.582358
ereri_cde	1.273262	.1640144	7.76	0.000	.9517996 1.594724
ereri_intref	.0060473	.0106103	0.57	0.569	-.0147484 .0268431
ereri_intmed	-.013967	.0164827	-0.85	0.397	-.0462724 .0183384
ereri_pie	-.0022247	.0044482	-0.50	0.617	-.010943 .0064935

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): zmed18
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -8794.8708

Iteration 2: Log likelihood = -8786.6842

Iteration 3: Log likelihood = -8786.6632

Iteration 4: Log likelihood = -8786.6632

Refining estimates:

Iteration 0: Log likelihood = -8786.6632

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) = 191.07

Log likelihood = -8786.6632

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.255629	.1633424	11.23	0.000	1.957165 2.599607
zmed18	.9238447	.0359166	-2.04	0.042	.8560646 .9969914
_infectionburXzmed18_000	1.03701	.07503	0.50	0.615	.8999053 1.195004
AGE	1.037676	.0131918	2.91	0.004	1.01214 1.063856
SEX	.7495633	.0493338	-4.38	0.000	.6588477 .8527694
NonWhite	1.112314	.1892478	0.63	0.532	.7969023 1.552565
householdsize	.9396535	.0396277	-1.48	0.140	.8651078 1.020623
SES	.8275617	.0412755	-3.79	0.000	.7504917 .9125463
LE8_TOTALSCORE	.9991764	.0003593	-2.29	0.022	.9984724 .9998809

-> Model for the mediator

Iteration 0: Log likelihood = -50360.302
 Iteration 1: Log likelihood = -50360.302

Linear regression (Maximum Likelihood)
 Number of obs = 35,573
 Wald chi2(7) = 230.94
 Log likelihood = -50360.302 Prob > chi2 = 0.0000

zmed18	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	-.0057778	.0154403	-0.37	0.708	-.0360404 .0244847
AGE	-.0038765	.0010068	-3.85	0.000	-.0058499 -.0019032
SEX	.0517585	.0106839	4.84	0.000	.0308184 .0726985
NonWhite	.0194093	.0255335	0.76	0.447	-.0306355 .0694541
householdsize	.0024067	.0048626	0.49	0.621	-.0071238 .0119373
SES	-.0195399	.0080132	-2.44	0.015	-.0352455 -.0038343
LE8_TOTALSCORE	-.0007459	.0000569	-13.11	0.000	-.0008574 -.0006344
_cons	.520606	.0727652	7.15	0.000	.3779888 .6632233
sigma2					
_cons	.9935219	.0074496	133.37	0.000	.9789209 1.008123

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.251286	.1625954	7.70	0.000	.9326047 1.569967
ereri_cde	1.2518	.1626994	7.69	0.000	.9329155 1.570685
ereri_intref	-.0010722	.0064814	-0.17	0.869	-.0137755 .0116312
ereri_intmed	.0000998	.0008678	0.11	0.908	-.001601 .0018006
ereri_pie	.0004578	.0012441	0.37	0.713	-.0019806 .0028961

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): zmegf10
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8986.3268
Iteration 2: Log likelihood = -8978.1612
Iteration 3: Log likelihood = -8978.1426
Iteration 4: Log likelihood = -8978.1426
Refining estimates:
Iteration 0: Log likelihood = -8978.1426

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 = -8978.1426
LR chi2(9) = 189.95
Prob > chi2 = 0.0000

```

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.237846	.1602949	11.25	0.000	1.944731 2.575141
zmegf10	1.010748	.039701	0.27	0.785	.9358554 1.091634
_infectionburXzmegf10_000	1.001629	.0709863	0.02	0.982	.8717291 1.150886
AGE	1.035682	.013045	2.78	0.005	1.010427 1.061568
SEX	.7535539	.0498259	-4.28	0.000	.6619601 .8578212
NonWhite	1.092082	.1860017	0.52	0.605	.7821314 1.524862
householdsize	.9392075	.0392604	-1.50	0.134	.8653263 1.019397
SES	.8259758	.040848	-3.87	0.000	.7496729 .9100451
LE8_TOTALSCORE	.999031	.0003554	-2.73	0.006	.9983346 .9997279

-> Model for the mediator

```

Iteration 0: Log likelihood = -51292.554
Iteration 1: Log likelihood = -51292.554

Linear regression (Maximum Likelihood)
Number of obs = 36,432
Wald chi2(7) = 812.35
Prob > chi2 = 0.0000
Log likelihood = -51292.554

```

	zmegf10	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0148267	.0151273	-0.98	0.327	-.0444758
AGE		.0072698	.0009868	7.37	0.000	.0053357
SEX		.2199835	.0104762	21.00	0.000	.1994506
NonWhite		.1870819	.0251128	7.45	0.000	.1378618
householdsize		-.0091321	.0047664	-1.92	0.055	-.018474
SES		.0481995	.0078633	6.13	0.000	.0327877
LE8_TOTALSCORE		.0007436	.0000558	13.32	0.000	.0006342
_cons		-1.129409	.071298	-15.84	0.000	-.1.26915
sigma2						
_cons		.9781617	.0072474	134.97	0.000	.963957

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.237486	.1602792	7.72	0.000	.9233447
ereri_cde	1.23775	.1602879	7.72	0.000	.9235914
ereri_intref	.0001449	.0019418	0.07	0.941	-.003661
ereri_intmed	-.0002502	.0020711	-0.12	0.904	-.0043095
ereri_pie	-.0001585	.0006043	-0.26	0.793	-.0013429

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): zmegf9
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-9088.8356**
 Iteration 2: Log likelihood = **-9073.6929**
 Iteration 3: Log likelihood = **-9073.4756**
 Iteration 4: Log likelihood = **-9073.4755**
 Refining estimates:
 Iteration 0: Log likelihood = **-9073.4755**

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) =	221.13
Log likelihood =	-9073.4755	Prob > chi2 =	0.0000

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.224329	.161974	10.98	0.000	1.92848 2.565564
zmegf9	.8428927	.0341173	-4.22	0.000	.7786077 .9124855
_infectionburXzmegf9_000	.9904598	.0712855	-0.13	0.894	.8601498 1.140511
AGE	1.031873	.0129575	2.50	0.012	1.006787 1.057584
SEX	.7690444	.0499757	-4.04	0.000	.6770751 .8735062
NonWhite	1.00603	.1734031	0.03	0.972	.7176201 1.410351
householdszie	.9343688	.0391021	-1.62	0.105	.8607889 1.014238
SES	.8220075	.0402965	-4.00	0.000	.7467034 .9049058
LE8_TOTALSCORE	.9987131	.0003577	-3.60	0.000	.9980122 .9994145

-> Model for the mediator

Iteration 0: Log likelihood = **-51289.794**
 Iteration 1: Log likelihood = **-51289.794**

Linear regression (Maximum Likelihood)	Number of obs =	36,787
	Wald chi2(7) =	1861.99
Log likelihood =	Prob > chi2 =	0.0000

<u>zmegf9</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	-.0020963	.0148325	-0.14	0.888	-.0311676 .0269749
AGE	-.0132411	.0009687	-13.67	0.000	-.0151398 -.0113425
SEX	.082271	.0102832	8.00	0.000	.0621164 .1024257
NonWhite	-.2169599	.0246234	-8.81	0.000	-.2652208 -.168699
householdszie	-.0209164	.004686	-4.46	0.000	-.0301009 -.011732
SES	-.0010059	.007716	-0.13	0.896	-.016129 .0141173
LE8_TOTALSCORE	-.0021496	.0000548	-39.25	0.000	-.002257 -.0020422
_cons	1.803275	.0700376	25.75	0.000	1.666003 1.940546
sigma2					
_cons	.9517973	.007018	135.62	0.000	.9380423 .9655523

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.228734	.1588961	7.73	0.000	.9173035 1.540165
ereri_cde	1.207486	.1591283	7.59	0.000	.8956002 1.519372
ereri_intref	.0204052	.0235458	0.87	0.386	-.0257436 .0665541
ereri_intmed	.0004848	.0034437	0.14	0.888	-.0062647 .0072343
ereri_pie	.0003584	.0025374	0.14	0.888	-.0046149 .0053317

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): zmep1b
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -8982.7944

Iteration 2: Log likelihood = -8962.0699

Iteration 3: Log likelihood = -8961.5705

Iteration 4: Log likelihood = -8961.5698

Refining estimates:

Iteration 0: Log likelihood = -8961.5698

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 = -8961.5698

LR chi2(9) = 206.52

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.248054	.1620768	11.24	0.000	1.951813 2.589259
zmeplb	.9586604	.0364172	-1.11	0.266	.8898763 1.032761
_infectionburXzmeplb_000	.8737843	.0614165	-1.92	0.055	.7613336 1.002844
AGE	1.033413	.0130242	2.61	0.009	1.008199 1.059258
SEX	.7602804	.0496851	-4.19	0.000	.6688779 .864173
NonWhite	1.003854	.1775848	0.02	0.983	.7097253 1.419876
householdszie	.9271228	.0397977	-1.76	0.078	.852312 1.0085
SES	.8345086	.0413381	-3.65	0.000	.7572962 .9195934
LE8_TOTALSCORE	.9990086	.0003562	-2.78	0.005	.9983107 .9997069

-> Model for the mediator

Iteration 0: Log likelihood = **-51496.118**
 Iteration 1: Log likelihood = **-51496.118**

Linear regression (Maximum Likelihood) Number of obs = 36,441
 Wald chi2(7) = 424.29
 Log likelihood = **-51496.118** Prob > chi2 = 0.0000

zmeplb	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	-.0463356	.0151943	-3.05	0.002	-.0761158 -.0165553
AGE	.0053609	.0009924	5.40	0.000	.0034159 .0073059
SEX	.1060718	.010529	10.07	0.000	.0854353 .1267083
NonWhite	-.054012	.0252112	-2.14	0.032	-.103425 -.004599
householdszie	.0014113	.0047916	0.29	0.768	-.0079801 .0108027
SES	.0951947	.0079011	12.05	0.000	.0797088 .1106807
LE8_TOTALSCORE	-.0008538	.0000561	-15.21	0.000	-.0009638 -.0007438
_cons	-.0447031	.0717224	-0.62	0.533	-.1852764 .0958702
sigma2					
_cons	.9884636	.0073229	134.98	0.000	.9741111 1.002816

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.297983	.1642129	7.90	0.000	.9761313 1.619834
ereri_cde	1.247295	.1619614	7.70	0.000	.9298561 1.564733
ereri_intref	.0319038	.0227288	1.40	0.160	-.0126438 .0764515
ereri_intmed	.0168263	.0086808	1.94	0.053	-.0001877 .0338402
ereri_pie	.0019581	.0018771	1.04	0.297	-.0017209 .0056372

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): zmepe
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8984.4169
 Iteration 2: Log likelihood = -8976.3357
 Iteration 3: Log likelihood = -8976.3187
 Iteration 4: Log likelihood = -8976.3187
 Refining estimates:
 Iteration 0: Log likelihood = -8976.3187

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) =	193.60
Log likelihood =	-8976.3187	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.241065	.1605813	11.26	0.000	1.947432 2.578971
zmepe	.9292044	.035885	-1.90	0.057	.8614669 1.002268
_infectionburXzmepe_000	1.041446	.0727498	0.58	0.561	.9081894 1.194255
AGE	1.035631	.0130452	2.78	0.005	1.010376 1.061517
SEX	.7293249	.0495808	-4.64	0.000	.6383442 .8332728
NonWhite	1.066296	.182084	0.38	0.707	.7629993 1.490156
householdsize	.9392786	.0393173	-1.50	0.135	.8652945 1.019588
SES	.8268666	.0408255	-3.85	0.000	.7505998 .9108828
LE8_TOTALSCORE	.999046	.0003547	-2.69	0.007	.998351 .9997414

-> Model for the mediator

Iteration 0: Log likelihood = -49889.999
 Iteration 1: Log likelihood = -49889.999

Linear regression (Maximum Likelihood)
 Number of obs = 36,432
 Wald chi2(7) = 3793.30
 Log likelihood = -49889.999 Prob > chi2 = 0.0000

	zmepe	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0160051	.014556	1.10	0.272	-.0125243 .0445344
AGE		-.0036063	.0009496	-3.80	0.000	-.0054674 -.0017452
SEX		-.5902637	.0100805	-58.55	0.000	-.6100212 -.5705063
NonWhite		-.4068423	.0241644	-16.84	0.000	-.4542036 -.359481
householdsize		.011689	.0045864	2.55	0.011	.0026999 .0206781
SES		.0089142	.0075663	1.18	0.239	-.0059155 .023744
LE8_TOTALSCORE		.0001077	.0000537	2.00	0.045	2.42e-06 .0002129
_cons		1.058548	.0686054	15.43	0.000	.9240838 1.193012
sigma2						
_cons		.9056738	.0067104	134.97	0.000	.8925218 .9188259

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.235314	.1602519	7.71	0.000	.9212264 1.549402
ereri_cde	1.237836	.1601364	7.73	0.000	.9239749 1.551698
ereri_intref	-.0013478	.0049374	-0.27	0.785	-.0110249 .0083292
ereri_intmed	1.48e-07	.0022291	0.00	1.000	-.0043687 .004369
ereri_pie	-.0011745	.0012332	-0.95	0.341	-.0035916 .0012425

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): zmertk
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

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

```
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 = -9076.2406
 Iteration 2: Log likelihood = -9063.3354
 Iteration 3: Log likelihood = -9063.1993
 Iteration 4: Log likelihood = -9063.1993
 Refining estimates:
 Iteration 0: Log likelihood = -9063.1993

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) =	206.35
Log likelihood =	-9063.1993	Prob > chi2 =	0.0000

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.259134	.1678386	10.97	0.000	1.953005 2.613248
zmertk	1.084876	.0427775	2.07	0.039	1.004191 1.172043
_infectionburXzmertk_000	1.011706	.0703605	0.17	0.867	.8827875 1.159451
AGE	1.032387	.0130086	2.53	0.011	1.007203 1.0582
SEX	.770576	.050395	-3.99	0.000	.6778719 .875958
NonWhite	1.05284	.1813433	0.30	0.765	.7511895 1.475622
householdszie	.9384629	.0392702	-1.52	0.129	.8645665 1.018675
SES	.8198117	.0402477	-4.05	0.000	.744604 .9026156
LE8_TOTALSCORE	.9990936	.0003536	-2.56	0.010	.9984007 .999787

-> Model for the mediator

Iteration 0: Log likelihood = -50959.089
 Iteration 1: Log likelihood = -50959.089

Linear regression (Maximum Likelihood)	Number of obs =	36,824	
	Wald chi2(7) =	2675.54	
Log likelihood =	-50959.089	Prob > chi2 =	0.0000

<u>zmertk</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.1032099	.014691	7.03	0.000	.0744161 .1320037
AGE	.0334761	.0009582	34.94	0.000	.0315981 .0353542
SEX	-.2984522	.0101723	-29.34	0.000	-.3183895 -.2785148
NonWhite	-.0214423	.0243335	-0.88	0.378	-.0691352 .0262506
householdszie	-.0116636	.0046375	-2.52	0.012	-.020753 -.0025742
SES	-.0354146	.0076279	-4.64	0.000	-.050365 -.0204641
LE8_TOTALSCORE	-.0003184	.0000542	-5.88	0.000	-.0004245 -.0002123
_cons	-1.388428	.0692639	-20.05	0.000	-1.524183 -1.252674
sigma2					
_cons	.9322387	.0068703	135.69	0.000	.9187731 .9457043

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.282728	.1644743	7.80	0.000	.9603638 1.605091
ereri_cde	1.25671	.1671348	7.52	0.000	.929132 1.584288
ereri_intref	.0041874	.009663	0.43	0.665	-.0147518 .0231266
ereri_intmed	.0133865	.014036	0.95	0.340	-.0141234 .0408965
ereri_pie	.0084435	.0042778	1.97	0.048	.0000591 .0168278

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): zmesd
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -9032.2254

Iteration 2: Log likelihood = -9023.3638

Iteration 3: Log likelihood = -9023.33

Iteration 4: Log likelihood = -9023.33

Refining estimates:

Iteration 0: Log likelihood = -9023.33

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) = 196.97

Log likelihood = -9023.33 Prob > chi2 = 0.0000

-> Model for the mediator

Iteration 0: Log likelihood = -51595.026
Iteration 1: Log likelihood = -51595.026

Linear regression (Maximum Likelihood)
Number of obs = 36,459
Log likelihood = -51595.026 Wald chi2(7) = 276.15
Prob > chi2 = 0.0000

	zmesd	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0006011	.0152248	0.04	0.969	-.0292389 .0304411
AGE		-.0031959	.0009965	-3.21	0.001	-.005149 -.0012429
SEX		.0335849	.01055	3.18	0.001	.0129074 .0542625
NonWhite		.0294882	.0252935	1.17	0.244	-.0200861 .0790626
householdszie		-.0013257	.0050133	-0.26	0.791	-.0111516 .0085003
SES		-.0309552	.007924	-3.91	0.000	-.046486 -.0154244
LE8_TOTALSCORE		-.0008095	.0000562	-14.41	0.000	-.0009195 -.0006994
_cons		.5452789	.0722638	7.55	0.000	.4036446 .6869133
sigma2						
_cons		.9924555	.0073506	135.02	0.000	.9780485 1.006862

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.234131	.1595172	7.74	0.000	.9214834 1.54678
ereri_cde	1.230298	.1594621	7.72	0.000	.9177577 1.542838
ereri_intref	.0039352	.010428	0.38	0.706	-.0165034 .0243737
ereri_intmed	-.0000597	.0015146	-0.04	0.969	-.0030284 .0029089
ereri_pie	-.0000416	.0010547	-0.04	0.969	-.0021088 .0020256

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): zmet
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 -.0753 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 = -9117.371
Iteration 1: Log likelihood = -9026.2499
Iteration 2: Log likelihood = -9018.5931
Iteration 3: Log likelihood = -9018.5777
Refining estimates:
Iteration 0: Log likelihood = -9018.5777

Cox regression with Breslow method for ties

No. of subjects =      36,538                               Number of obs = 36,538
No. of failures =       974
Time at risk      = 443,846.759
Log likelihood = -9018.5777
                                         LR chi2(9)      = 197.59
                                         Prob > chi2   = 0.0000

```

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.274454	.1639257	11.40	0.000	1.974826 2.619543
zmet	.9021565	.0357635	-2.60	0.009	.8347152 .9750468
_infectionburXzmet_000	1.180406	.081475	2.40	0.016	1.031048 1.351399
AGE	1.034595	.0130389	2.70	0.007	1.009352 1.060469
SEX	.7739866	.0520661	-3.81	0.000	.67838 .8830673
NonWhite	1.040841	.1794474	0.23	0.816	.7423902 1.459274
householdsize	.9324319	.040118	-1.63	0.104	.8570261 1.014472
SES	.8274051	.0407959	-3.84	0.000	.7511887 .9113545
LE8_TOTALSCORE	.9991363	.0003577	-2.41	0.016	.9984354 .9998377

-> Model for the mediator

```

Iteration 0: Log likelihood = -49965.218
Iteration 1: Log likelihood = -49965.218

Linear regression (Maximum Likelihood)                               Number of obs = 36,538
                                                               Wald chi2(7) = 3959.07
                                                               Prob > chi2 = 0.0000
Log likelihood = -49965.218

```

	zmet	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.075554	.0144983	-5.21	0.000	-.1039702 -.0471378
AGE		-.0032863	.0009473	-3.47	0.001	-.0051431 -.0014296
SEX		.4943521	.0100471	49.20	0.000	.4746602 .514044
NonWhite		-.1838422	.024036	-7.65	0.000	-.230952 -.1367325
householdsize		-.0254645	.0046481	-5.48	0.000	-.0345745 -.0163544
SES		.0424232	.0075394	5.63	0.000	.0276462 .0572002
LE8_TOTALSCORE		.00158	.0000535	29.52	0.000	.0014751 .0016848
_cons		-1.271164	.0685683	-18.54	0.000	-1.405555 -1.136773
sigma2						
_cons		.9022133	.006675	135.16	0.000	.8891306 .9152961

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.26083	.1623348	7.77	0.000	.9426594 1.579
ereri_cde	1.269746	.1629843	7.79	0.000	.9503025 1.589189
ereri_intref	.0018522	.0097494	0.19	0.849	-.0172562 .0209606
ereri_intmed	-.0185782	.0110225	-1.69	0.092	-.0401818 .0030255
ereri_pie	.0078099	.0033727	2.32	0.021	.0011996 .0144203

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): zmetap1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8734.7624**
 Iteration 2: Log likelihood = **-8726.9996**
 Iteration 3: Log likelihood = **-8726.9791**
 Iteration 4: Log likelihood = **-8726.9791**
 Refining estimates:
 Iteration 0: Log likelihood = **-8726.9791**

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) =	185.17
Log likelihood =	-8726.9791	Prob > chi2 =	0.0000

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.212794	.1612858	10.90	0.000	1.918221 2.552602
zmetap1	.9707577	.0385418	-0.75	0.455	.8980815 1.049315
_infectionburXzmetap1_000	.9966766	.0746882	-0.04	0.965	.8605331 1.154359
AGE	1.037367	.0132101	2.88	0.004	1.011796 1.063584
SEX	.7487605	.0494473	-4.38	0.000	.6578555 .8522271
NonWhite	1.091522	.1880802	0.51	0.611	.7786853 1.530041
householdsize	.9301191	.0401432	-1.68	0.093	.8546757 1.012222
SES	.8162082	.0407381	-4.07	0.000	.740144 .9000894
LE8_TOTALSCORE	.9991933	.0003605	-2.24	0.025	.998487 .9999001

-> Model for the mediator

Iteration 0: Log likelihood = **-50497.372**
 Iteration 1: Log likelihood = **-50497.372**

Linear regression (Maximum Likelihood)	Number of obs =	35,601	
	Wald chi2(7) =	35.54	
Log likelihood =	-50497.372	Prob > chi2 =	0.0000

<u>zmetap1</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	-.0135534	.015458	-0.88	0.381	-.0438506 .0167438
AGE	-.0051065	.0010121	-5.05	0.000	-.0070902 -.0031229
SEX	.0008678	.0107087	0.08	0.935	-.0201209 .0218565
NonWhite	-.06241	.025552	-2.44	0.015	-.112491 -.0123289
householdsize	-.0065458	.0050803	-1.29	0.198	-.0165029 .0034113
SES	.0007949	.0080445	0.10	0.921	-.0149722 .0165619
LE8_TOTALSCORE	.0000785	.0000571	1.38	0.169	-.0000333 .0001904
_cons	.2860445	.0733732	3.90	0.000	.1422356 .4298534
sigma2					
_cons	.9989748	.0074875	133.42	0.000	.9842995 1.01365

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.214001	.1611631	7.53	0.000	.8981269 1.529875
ereri_cde	1.212328	.1611943	7.52	0.000	.896393 1.528263
ereri_intref	.0006825	.0045126	0.15	0.880	-.008162 .0095271
ereri_intmed	.0005879	.0020915	0.28	0.779	-.0035114 .0046872
ereri_pie	.0004023	.0007074	0.57	0.570	-.0009842 .0017888

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): zmetap1d
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -8946.7512

Iteration 2: Log likelihood = -8937.8096

Iteration 3: Log likelihood = -8937.7811

Iteration 4: Log likelihood = -8937.7811

Refining estimates:

Iteration 0: Log likelihood = -8937.7811

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 = -8937.7811

LR chi2(9) = 197.31

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.257425	.1620399	11.34	0.000	1.961162 2.598444
zmetap1d		.9336974	.0364537	-1.76	0.079	.8649147 1.00795
_infectionburXzmetap1d_000		1.000619	.0722751	0.01	0.993	.8685321 1.152793
AGE		1.032196	.0130081	2.51	0.012	1.007013 1.058009
SEX		.7586435	.0494803	-4.24	0.000	.6676065 .8620946
NonWhite		1.065017	.1835671	0.37	0.715	.7597012 1.493036
householdsize		.9329897	.0396912	-1.63	0.103	.8583513 1.014118
SES		.8167213	.0403509	-4.10	0.000	.7413435 .8997632
LE8_TOTALSCORE		.9989697	.0003561	-2.89	0.004	.998272 .9996679

-> Model for the mediator

Iteration 0: Log likelihood = -51397.515
 Iteration 1: Log likelihood = -51397.515

Linear regression (Maximum Likelihood)
 Number of obs = 36,352
 Wald chi2(7) = 368.33
 Log likelihood = -51397.515 Prob > chi2 = 0.0000

	zmetap1d	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0120581	.0152419	0.79	0.429	-.0178155 .0419318
AGE		-.0045808	.000995	-4.60	0.000	-.0065309 -.0026307
SEX		-.0150522	.0105493	-1.43	0.154	-.0357285 .005624
NonWhite		.1412291	.0252797	5.59	0.000	.0916819 .1907764
householdsize		-.0043382	.0048825	-0.89	0.374	-.0139078 .0052313
SES		-.0508414	.0079125	-6.43	0.000	-.0663497 -.0353332
LE8_TOTALSCORE		-.0007941	.0000562	-14.14	0.000	-.0009041 -.000684
_cons		.6938491	.0719762	9.64	0.000	.5527784 .8349198
sigma2						
_cons		.9899421	.0073428	134.82	0.000	.9755505 1.004334

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.255479	.1615046	7.77	0.000	.9389357 1.572022
ereri_cde	1.254356	.1615481	7.76	0.000	.9377274 1.570984
ereri_intref	.0029729	.0098508	0.30	0.763	-.0163342 .02228
ereri_intmed	-.0010228	.0021557	-0.47	0.635	-.0052479 .0032022
ereri_pie	-.0008269	.0011458	-0.72	0.470	-.0030726 .0014188

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): zmetap2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -9096.5934
Iteration 2: Log likelihood = -9087.9833
Iteration 3: Log likelihood = -9087.9617
Iteration 4: Log likelihood = -9087.9617
Refining estimates:
Iteration 0: Log likelihood = -9087.9617

```

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) =	203.31
Log likelihood =	-9087.9617	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.264311	.161461	11.46	0.000	1.968972 2.60395
zmetap2	.889218	.0336707	-3.10	0.002	.8256139 .9577219
_infectionburXzmetap2_000	1.125078	.0800918	1.66	0.098	.9785602 1.293534
AGE	1.034513	.0129595	2.71	0.007	1.009422 1.060227
SEX	.7568933	.0489974	-4.30	0.000	.6667027 .8592847
NonWhite	1.090098	.1853628	0.51	0.612	.7811338 1.521269
householdsize	.9334707	.0392751	-1.64	0.102	.8595815 1.013711
SES	.8208174	.0402267	-4.03	0.000	.7456428 .903571
LE8_TOTALSCORE	.9989911	.0003548	-2.84	0.004	.9982959 .9996868

-> Model for the mediator

Iteration 0: Log likelihood = -51728.418	Number of obs = 36,668
Iteration 1: Log likelihood = -51728.418	Wald chi2(7) = 606.40
Linear regression (Maximum Likelihood)	Prob > chi2 = 0.0000
Log likelihood = -51728.418	

zmetap2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	-.0097403	.015134	-0.64	0.520	-.0394024 .0199217
AGE	-.0012496	.0009869	-1.27	0.205	-.0031839 .0006847
SEX	-.0756035	.0104706	-7.22	0.000	-.0961255 -.0550815
NonWhite	.1615145	.0250482	6.45	0.000	.112421 .2106081
householdsize	.0018606	.0047669	0.39	0.696	-.0074823 .0112035
SES	-.0180148	.007854	-2.29	0.022	-.0334084 -.0026213
LE8_TOTALSCORE	-.0011468	.0000558	-20.56	0.000	-.0012561 -.0010375
_cons	.7533578	.0713625	10.56	0.000	.6134899 .8932257
sigma2					
_cons	.9837046	.007265	135.40	0.000	.9694655 .9979438

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.249358	.1601524	7.80	0.000	.9354651 1.563251
ereri_cde	1.255966	.1601887	7.84	0.000	.9420023 1.56993
ereri_intref	-.0065987	.0043527	-1.52	0.130	-.0151299 .0019325
ereri_intmed	-.0011539	.0022601	-0.51	0.610	-.0055837 .0032758
ereri_pie	.0011443	.0018169	0.63	0.529	-.0024167 .0047053

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): zmfap3
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8821.1893**
 Iteration 2: Log likelihood = **-8813.6547**
 Iteration 3: Log likelihood = **-8813.6359**
 Iteration 4: Log likelihood = **-8813.6359**
 Refining estimates:
 Iteration 0: Log likelihood = **-8813.6359**

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) =	183.55
Log likelihood =	-8813.6359	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.194618	.1594374	10.82	0.000	1.903355 2.530452
zmfap3		1.036437	.037921	0.98	0.328	.9647159 1.113491
_infectionburXzmfap3_000		.9188739	.069317	-1.12	0.262	.7925814 1.06529
AGE		1.037284	.0131762	2.88	0.004	1.011778 1.063433
SEX		.7512777	.0493597	-4.35	0.000	.6605043 .8545261
NonWhite		1.112798	.1893247	0.63	0.530	.7972565 1.553226
householdszie		.9382659	.0397064	-1.51	0.132	.8635829 1.019408
SES		.8337433	.0414858	-3.65	0.000	.7562718 .9191509
LE8_TOTALSCORE		.9989985	.0003579	-2.80	0.005	.9982973 .9997003

-> Model for the mediator

Iteration 0: Log likelihood = **-50724.655**
 Iteration 1: Log likelihood = **-50724.655**

Linear regression (Maximum Likelihood)	Number of obs =	35,755
	Wald chi2(7) =	17.99
Log likelihood =	-50724.655	Prob > chi2 = 0.0120

	zmfap3	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0100722	.0154354	-0.65	0.514	-.040325 .0201805
AGE		-.0015791	.0010075	-1.57	0.117	-.0035538 .0003955
SEX		.0171573	.0106886	1.61	0.108	-.0037919 .0381066
NonWhite		-.0566102	.025594	-2.21	0.027	-.1067735 -.0064469
householdszie		-.0012317	.0048742	-0.25	0.800	-.0107849 .0083215
SES		-.0132429	.0080261	-1.65	0.099	-.0289738 .0024879
LE8_TOTALSCORE		-.0001318	.0000569	-2.31	0.021	-.0002434 -.0000202
_cons		.1405179	.0728401	1.93	0.054	-.002246 .2832819
sigma2						
_cons		.9994692	.0074751	133.71	0.000	.9848183 1.01412

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.196647	.1593126	7.51	0.000	.8844001 1.508894
ereri_cde	1.193794	.1593021	7.49	0.000	.8815672 1.50602
ereri_intref	.0017736	.0070372	0.25	0.801	-.0120191 .0155663
ereri_intmed	.0014402	.0026723	0.54	0.590	-.0037974 .0066779
ereri_pie	-.0003604	.0006638	-0.54	0.587	-.0016615 .0009407

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): zmfap5
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -9136.4097

Iteration 2: Log likelihood = -9128.1854

Iteration 3: Log likelihood = -9128.1682

Iteration 4: Log likelihood = -9128.1682

Refining estimates:

Iteration 0: Log likelihood = -9128.1682

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) = 194.02

Log likelihood = -9128.1682

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.269294	.1650711	11.27	0.000	1.967765 2.617026
zmfap5	.9974894	.0400165	-0.06	0.950	.9220627 1.079086
_infectionburXzmfap5_000	.9490889	.0668799	-0.74	0.458	.8266561 1.089655
AGE	1.035065	.0129953	2.75	0.006	1.009906 1.060852
SEX	.7489921	.0494671	-4.38	0.000	.6580513 .8525006
NonWhite	1.070798	.1820225	0.40	0.687	.7673863 1.494175
householdsize	.936909	.0392103	-1.56	0.119	.8631258 1.017
SES	.823144	.040333	-3.97	0.000	.74777 .9061155
LE8_TOTALSCORE	.9990256	.0003606	-2.70	0.007	.9983191 .9997327

-> Model for the mediator

Iteration 0: Log likelihood = **-49932.765**
 Iteration 1: Log likelihood = **-49932.765**

Linear regression (Maximum Likelihood) Number of obs = 36,896
 Wald chi2(7) = 5171.55
 Log likelihood = **-49932.765** Prob > chi2 = 0.0000

	zmfap5	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr	.1171915	.0142238	8.24	0.000	.0893133	.1450697
AGE	.0227025	.0009286	24.45	0.000	.0208825	.0245225
SEX	-.3964761	.0098565	-40.22	0.000	-.4157944	-.3771577
NonWhite	.1060882	.0236032	4.49	0.000	.0598267	.1523496
householdsize	.0034292	.0044937	0.76	0.445	-.0053784	.0122368
SES	-.0098471	.0073968	-1.33	0.183	-.0243446	.0046504
LE8_TOTALSCORE	-.0023675	.0000525	-45.10	0.000	-.0024704	-.0022646
_cons	.3959889	.0671364	5.90	0.000	.2644041	.5275738
sigma2						
_cons	.8770417	.0064572	135.82	0.000	.8643858	.8896976

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.25966	.1633093	7.71	0.000	.9395791 1.57974
ereri_cde	1.269238	.1651509	7.69	0.000	.9455483 1.592928
ereri_intref	.004971	.0088538	0.56	0.574	-.0123821 .0223242
ereri_intmed	-.014255	.0167197	-0.85	0.394	-.047025 .018515
ereri_pie	-.0002945	.0047001	-0.06	0.950	-.0095067 .0089176

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): zmfge8
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -9031.8882
 Iteration 2: Log likelihood = -9022.3564
 Iteration 3: Log likelihood = -9022.3091
 Iteration 4: Log likelihood = -9022.3091
 Refining estimates:
 Iteration 0: Log likelihood = -9022.3091

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) =	199.01
Log likelihood =	-9022.3091	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.24354	.1601216	11.32	0.000	1.950668 2.580383
zmfge8	.9336599	.0369601	-1.73	0.083	.8639584 1.008985
_infectionburXzmfge8_000	.9546366	.0667287	-0.66	0.507	.8324142 1.094805
AGE	1.034897	.0130059	2.73	0.006	1.009717 1.060705
SEX	.7457066	.0485194	-4.51	0.000	.6564241 .8471328
NonWhite	1.094409	.186011	0.53	0.596	.784342 1.527053
householdsize	.9389779	.0392832	-1.51	0.132	.8650564 1.019216
SES	.8236812	.0405026	-3.94	0.000	.748003 .9070161
LE8_TOTALSCORE	.9988492	.0003605	-3.19	0.001	.9981428 .9995561

-> Model for the mediator

Iteration 0: Log likelihood = -50770.55	Number of obs = 36,459
Iteration 1: Log likelihood = -50770.55	Wald chi2(7) = 1975.73
Log likelihood = -50770.55	Prob > chi2 = 0.0000

	zmfge8	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0563142	.0148843	3.78	0.000	.0271414 .085487
AGE		.0019026	.0009742	1.95	0.051	-6.74e-06 .003812
SEX		-.1703234	.0103141	-16.51	0.000	-.1905386 -.1501082
NonWhite		.1104247	.0247279	4.47	0.000	.0619588 .1588905
householdsize		-.0102113	.0049012	-2.08	0.037	-.0198176 -.0006051
SES		.0014165	.0077468	0.18	0.855	-.013767 .0166001
LE8_TOTALSCORE		-.0020722	.0000549	-37.74	0.000	-.0021798 -.0019646
_cons		1.193276	.0706479	16.89	0.000	1.054809 1.331744
sigma2						
_cons		.9485691	.0070256	135.02	0.000	.9347992 .9623389

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.238897	.1599707	7.74	0.000	.9253599 1.552434
ereri_cde	1.240098	.1596781	7.77	0.000	.9271345 1.553061
ereri_intref	.0133539	.015666	0.85	0.394	-.017351 .0440588
ereri_intmed	-.0106969	.0082984	-1.29	0.197	-.0269615 .0055677
ereri_pie	-.0038581	.0024428	-1.58	0.114	-.0086459 .0009297

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): zmgll
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-9025.3548**
 Iteration 2: Log likelihood = **-9016.1384**
 Iteration 3: Log likelihood = **-9016.0898**
 Iteration 4: Log likelihood = **-9016.0898**
 Refining estimates:
 Iteration 0: Log likelihood = **-9016.0898**

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) =	196.28
Log likelihood =	-9016.0898	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.230865	.1603418	11.16	0.000	1.937732	2.568341
zmgll	.9222616	.0345786	-2.16	0.031	.856919	.9925868
_infectionburXzmgll_000	1.001306	.0707506	0.02	0.985	.8718113	1.150036
AGE	1.035893	.0130042	2.81	0.005	1.010716	1.061696
SEX	.7640024	.0496998	-4.14	0.000	.6725467	.8678946
NonWhite	1.093832	.1861092	0.53	0.598	.7836527	1.526784
householdszie	.9379146	.0392875	-1.53	0.126	.8639886	1.018166
SES	.8265643	.0407356	-3.86	0.000	.7504587	.9103879
LE8_TOTALSCORE	.9989878	.0003541	-2.86	0.004	.998294	.999682

-> Model for the mediator

Iteration 0: Log likelihood = **-51754.32**
 Iteration 1: Log likelihood = **-51754.32**

Linear regression (Maximum Likelihood)	Number of obs =	36,537
	Wald chi2(7) =	178.31
Log likelihood =	-51754.32	Prob > chi2 = 0.0000

	zmgll	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0282031	.0152285	-1.85	0.064	-.0580505
AGE		-.0031802	.0009939	-3.20	0.001	-.0051281
SEX		.0810224	.0105516	7.68	0.000	.0603417
NonWhite		.0079876	.0252988	0.32	0.752	-.0415972
householdszie		-.0013339	.004803	-0.28	0.781	-.0107477
SES		-.0067726	.0079205	-0.86	0.393	-.0222964
LE8_TOTALSCORE		-.0005819	.0000562	-10.35	0.000	-.000692
_cons		.3645712	.0718025	5.08	0.000	.223841
sigma2						
_cons		.9951162	.0073625	135.16	0.000	.9806861
						1.009546

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.235658	.1598162	7.73	0.000	.9224244 1.548892
ereri_cde	1.22725	.1597267	7.68	0.000	.9141912 1.540308
ereri_intref	.0033939	.0104506	0.32	0.745	-.017089 .0238768
ereri_intmed	.0027297	.0041979	0.65	0.516	-.005498 .0109574
ereri_pie	.002285	.0016276	1.40	0.160	-.000905 .005475

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): zmgmt
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8945.5251**

Iteration 2: Log likelihood = **-8937.1706**

Iteration 3: Log likelihood = **-8937.1531**

Iteration 4: Log likelihood = **-8937.1531**

Refining estimates:

Iteration 0: Log likelihood = **-8937.1531**

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) = 198.57

Log likelihood = -8937.1531

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.266589	.1625849	11.41	0.000	1.969315
zmgmt		.9145845	.0344721	-2.37	0.018	.8494557
_infectionburXzmgmt_000		1.074838	.0768547	1.01	0.313	.934284
AGE		1.032603	.013011	2.55	0.011	1.007414
SEX		.7617072	.0496887	-4.17	0.000	.6702878
NonWhite		1.060987	.1828806	0.34	0.731	.7568156
householdsize		.9332725	.0397188	-1.62	0.105	.8585834
SES		.8185377	.0404288	-4.05	0.000	.7430134
LE8_TOTALSCORE		.9989857	.0003556	-2.85	0.004	.998289

-> Model for the mediator

Iteration 0: Log likelihood = -51509.099
Iteration 1: Log likelihood = -51509.099

Linear regression (Maximum Likelihood)
Number of obs = 36,352
Log likelihood = -51509.099 Wald chi2(7) = 143.59
Prob > chi2 = 0.0000

	zmgmt	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0133397	.0152888	-0.87	0.383	-.0433051 .0166258
AGE		-.0017513	.000998	-1.75	0.079	-.0037074 .0002048
SEX		.0318773	.0105817	3.01	0.003	.0111375 .0526171
NonWhite		.0408752	.0253574	1.61	0.107	-.0088243 .0905748
householdszie		-.0041988	.0048975	-0.86	0.391	-.0137978 .0054002
SES		-.0081455	.0079368	-1.03	0.305	-.0237013 .0074104
LE8_TOTALSCORE		-.0006147	.0000563	-10.91	0.000	-.0007252 -.0005043
_cons		.3730023	.0721974	5.17	0.000	.2314979 .5145067
sigma2						
_cons		.9960381	.007388	134.82	0.000	.9815579 1.010518

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.258755	.1617505	7.78	0.000	.9417297 1.57578
ereri_cde	1.261779	.1618132	7.80	0.000	.9446309 1.578927
ereri_intref	-.0035398	.0038865	-0.91	0.362	-.0111573 .0040776
ereri_intmed	-.0006761	.0020518	-0.33	0.742	-.0046975 .0033453
ereri_pie	.0011917	.0014565	0.82	0.413	-.0016628 .0040463

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): zmia
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -9043.2082
 Iteration 2: Log likelihood = -9034.3319
 Iteration 3: Log likelihood = -9034.3032
 Iteration 4: Log likelihood = -9034.3032
 Refining estimates:
 Iteration 0: Log likelihood = -9034.3032

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) =	195.88
Log likelihood =	-9034.3032	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.267866	.1638823	11.33	0.000	1.968372 2.612929
zmia	1.071724	.0405455	1.83	0.067	.9951315 1.154213
_infectionburXzmia_000	.9487063	.0637689	-0.78	0.433	.8316046 1.082298
AGE	1.032489	.0129991	2.54	0.011	1.007323 1.058284
SEX	.7724362	.0502089	-3.97	0.000	.6800391 .8773873
NonWhite	1.036916	.1792199	0.21	0.834	.7389627 1.455006
householdsize	.9316632	.0395095	-1.67	0.095	.8573569 1.01241
SES	.8265264	.0408093	-3.86	0.000	.7502899 .9105093
LE8_TOTALSCORE	.9990494	.0003543	-2.68	0.007	.9983552 .999744

-> Model for the mediator

Iteration 0: Log likelihood = -51360.831
 Iteration 1: Log likelihood = -51360.831

Linear regression (Maximum Likelihood)
 Number of obs = 36,540
 Wald chi2(7) = 986.45
 Log likelihood = -51360.831 Prob > chi2 = 0.0000

	zmia	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0508847	.0150773	3.37	0.001	.0213338 .0804356
AGE		.0170078	.0009832	17.30	0.000	.0150806 .0189349
SEX		-.1361994	.0104357	-13.05	0.000	-.156653 -.1157458
NonWhite		.4286957	.0250111	17.14	0.000	.3796748 .4777166
householdsize		.0091398	.0047518	1.92	0.054	-.0001735 .0184532
SES		-.0805719	.0078337	-10.29	0.000	-.0959256 -.0652181
LE8_TOTALSCORE		.0002073	.0000556	3.73	0.000	.0000984 .0003162
_cons		-.9721437	.0710997	-13.67	0.000	-1.111497 -.8327908
sigma2						
_cons		.9736866	.0072036	135.17	0.000	.9595678 .9878054

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.265634	.1624845	7.79	0.000	.9471704 1.584098
ereri_cde	1.265526	.163362	7.75	0.000	.9453427 1.58571
ereri_intref	-.0018067	.0025515	-0.71	0.479	-.0068075 .0031942
ereri_intmed	-.0016165	.0067131	-0.24	0.810	-.0147739 .0115409
ereri_pie	.003531	.0021979	1.61	0.108	-.0007768 .0078387

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): zmicb_mica
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8948.1699**
 Iteration 2: Log likelihood = **-8934.8387**
 Iteration 3: Log likelihood = **-8934.78**
 Iteration 4: Log likelihood = **-8934.78**
 Refining estimates:
 Iteration 0: Log likelihood = **-8934.78**

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) =	203.32
Log likelihood =	-8934.78	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.193426	.1614725	10.67	0.000	1.898718 2.533877
zmicb_mica		1.043245	.041606	1.06	0.288	.964804 1.128062
_infectionburXzmicb_mica_000		1.180453	.0991561	1.98	0.048	1.001265 1.391708
AGE		1.032192	.0130146	2.51	0.012	1.006997 1.058018
SEX		.7595089	.0495264	-4.22	0.000	.668386 .8630548
NonWhite		1.078593	.1860727	0.44	0.661	.7691542 1.512524
householdsize		.9338043	.0397049	-1.61	0.107	.8591386 1.014959
SES		.8221919	.0406122	-3.96	0.000	.746325 .9057709
LE8_TOTALSCORE		.9990491	.0003553	-2.67	0.007	.9983529 .9997458

-> Model for the mediator

Iteration 0: Log likelihood = **-51429.616**
 Iteration 1: Log likelihood = **-51429.616**

Linear regression (Maximum Likelihood)	Number of obs =	36,352
	Wald chi2(7) =	303.54
Log likelihood =	-51429.616	Prob > chi2 = 0.0000

	zmicb_mica	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0471709	.0152554	3.09	0.002	.0172709 .0770709
AGE		.0037861	.0009958	3.80	0.000	.0018343 .0057379
SEX		-.0208411	.0105586	-1.97	0.048	-.0415356 -.0001466
NonWhite		-.3354455	.025302	-13.26	0.000	-.3850365 -.2858545
householdsize		-.0037549	.0048868	-0.77	0.442	-.0133329 .0058232
SES		-.0275621	.0079195	-3.48	0.001	-.043084 -.0120402
LE8_TOTALSCORE		-.0004006	.0000562	-7.13	0.000	-.0005108 -.0002904
_cons		.0199037	.0720398	0.28	0.782	-.1212916 .161099
sigma2						
_cons		.9916919	.0073558	134.82	0.000	.9772749 1.006109

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.258756	.1619959	7.77	0.000	.9412499 1.576262
ereri_cde	1.192696	.1613203	7.39	0.000	.8765138 1.508878
ereri_intref	.0439821	.032621	1.35	0.178	-.0199538 .107918
ereri_intmed	.0200792	.0104828	1.92	0.055	-.0004667 .040625
ereri_pie	.001999	.001993	1.00	0.316	-.0019072 .0059052

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): zmif
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 2.214 -.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 = -9101.6071

Iteration 1: Log likelihood = -9010.6604

Iteration 2: Log likelihood = -9002.5375

Iteration 3: Log likelihood = -9002.5204

Iteration 4: Log likelihood = -9002.5204

Refining estimates:

Iteration 0: Log likelihood = -9002.5204

Cox regression with Breslow method for ties

No. of subjects = 36,399 Number of obs = 36,399

No. of failures = 972

Time at risk = 442,131.414

LR chi2(9) = 198.17

Log likelihood = -9002.5204

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.25066	.16109	11.33	0.000	1.956075 2.58961
zmif		.9112382	.0348431	-2.43	0.015	.8454432 .9821537
_infectionburXzmif_000		1.093362	.0774274	1.26	0.208	.9516678 1.256153
AGE		1.034903	.0130117	2.73	0.006	1.009712 1.060722
SEX		.7566584	.0491932	-4.29	0.000	.6661315 .8594877
NonWhite		1.101021	.1873193	0.57	0.572	.7888218 1.536783
householdszie		.9410621	.0392869	-1.46	0.146	.8671272 1.021301
SES		.823611	.0405359	-3.94	0.000	.7478737 .9070181
LE8_TOTALSCORE		.9989394	.0003553	-2.98	0.003	.9982433 .999636

-> Model for the mediator

Iteration 0: Log likelihood = **-51440.918**
 Iteration 1: Log likelihood = **-51440.918**

Linear regression (Maximum Likelihood)
 Number of obs = 36,399
 Wald chi2(7) = 415.40
 Log likelihood = **-51440.918** Prob > chi2 = 0.0000

	zmif	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0146439	.015205	-0.96	0.335	-.0444451 .0151573
AGE		-.0023057	.0009952	-2.32	0.021	-.0042562 -.0003552
SEX		.0064995	.0105389	0.62	0.537	-.0141564 .0271553
NonWhite		.2271871	.0252676	8.99	0.000	.1776635 .2767108
householdszie		.0053659	.0050076	1.07	0.284	-.0044487 .0151805
SES		-.0224387	.0079151	-2.83	0.005	-.037952 -.0069254
LE8_TOTALSCORE		-.0009086	.0000561	-16.20	0.000	-.0010185 -.0007986
_cons		.5615556	.0721705	7.78	0.000	.420104 .7030073
sigma2						
_cons		.9886891	.0073288	134.91	0.000	.974325 1.003053

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.241612	.1601799	7.75	0.000	.927665 1.555558
ereri_cde	1.245566	.1602652	7.77	0.000	.9314517 1.55968
ereri_intref	-.0040753	.0034607	-1.18	0.239	-.0108581 .0027075
ereri_intmed	-.0012409	.0024121	-0.51	0.607	-.0059684 .0034867
ereri_pie	.0013621	.0015223	0.89	0.371	-.0016215 .0043457

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): zmilr1
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8827.9205
 Iteration 2: Log likelihood = -8818.592
 Iteration 3: Log likelihood = -8818.5331
 Iteration 4: Log likelihood = -8818.5331
 Refining estimates:
 Iteration 0: Log likelihood = -8818.5331

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) =	189.60
Log likelihood =	-8818.5331	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.200152	.1619927	10.71	0.000	1.904498 2.541704
zmilr1	1.057173	.0409825	1.43	0.152	.9798246 1.140628
_infectionburXzmilr1_000	1.021382	.071358	0.30	0.762	.890676 1.171269
AGE	1.035641	.0131627	2.76	0.006	1.010162 1.061764
SEX	.7386665	.0488237	-4.58	0.000	.648913 .8408342
NonWhite	1.049072	.1832541	0.27	0.784	.7449303 1.477389
householdsize	.9350269	.0398829	-1.57	0.115	.8600361 1.016556
SES	.8314909	.0414281	-3.70	0.000	.7541319 .9167854
LE8_TOTALSCORE	.9990765	.000358	-2.58	0.010	.998375 .9997784

-> Model for the mediator

Iteration 0: Log likelihood = -50230.212
 Iteration 1: Log likelihood = -50230.212

Linear regression (Maximum Likelihood)
 Number of obs = 35,761
 Wald chi2(7) = 1038.70
 Prob > chi2 = 0.0000
 Log likelihood = -50230.212

	zmilr1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.1215603	.0152332	7.98	0.000	.0917038 .1514168
AGE		.0141419	.0009922	14.25	0.000	.0121973 .0160865
SEX		.247853	.0105367	23.52	0.000	.2272015 .2685045
NonWhite		.040878	.0252111	1.62	0.105	-.0085349 .0902908
householdsize		-.0005636	.0047926	-0.12	0.906	-.0099568 .0088297
SES		-.082245	.0079	-10.41	0.000	-.0977286 -.0667613
LE8_TOTALSCORE		-.0000452	.0000561	-0.81	0.420	-.0001553 .0000648
_cons		-1.231421	.0716652	-17.18	0.000	-1.371882 -1.09096
sigma2						
_cons		.9717471	.0072671	133.72	0.000	.9575038 .9859905

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.223008	.1610855	7.59	0.000	.9072861 1.53873
ereri_cde	1.199473	.1618132	7.41	0.000	.8823255 1.516621
ereri_intref	.0028893	.0075442	0.38	0.702	-.011897 .0176756
ereri_intmed	.0138636	.0164072	0.84	0.398	-.018294 .0460212
ereri_pie	.0067815	.0048204	1.41	0.159	-.0026663 .0162293

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): zmitd1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8893.4517**
 Iteration 2: Log likelihood = **-8884.7148**
 Iteration 3: Log likelihood = **-8884.6705**
 Iteration 4: Log likelihood = **-8884.6705**
 Refining estimates:
 Iteration 0: Log likelihood = **-8884.6705**

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) =	201.55
Log likelihood =	-8884.6705	Prob > chi2 =	0.0000

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.205051	.1597893	10.91	0.000	1.913094 2.541564
zmitd1	.9053943	.0344256	-2.61	0.009	.8403743 .9754449
_infectionburXzmitd1_000	1.006219	.0717428	0.09	0.931	.8749888 1.157131
AGE	1.037591	.0131036	2.92	0.003	1.012223 1.063594
SEX	.7410185	.048501	-4.58	0.000	.6518031 .8424453
NonWhite	1.025557	.179049	0.14	0.885	.7283687 1.444005
householdszie	.9433592	.0393801	-1.40	0.162	.8692488 1.023788
SES	.8082349	.0400301	-4.30	0.000	.7334651 .8906267
LE8_TOTALSCORE	.9989483	.0003565	-2.95	0.003	.9982498 .9996473

-> Model for the mediator

Iteration 0: Log likelihood = **-51183.519**
 Iteration 1: Log likelihood = **-51183.519**

Linear regression (Maximum Likelihood)	Number of obs =	36,164	
	Wald chi2(7) =	261.89	
Log likelihood =	-51183.519	Prob > chi2 =	0.0000

<u>zmitd1</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	-.0109716	.0153037	-0.72	0.473	-.0409664 .0190231
AGE	-.0030278	.0010013	-3.02	0.002	-.0049903 -.0010653
SEX	.000665	.0105933	0.06	0.950	-.0200974 .0214275
NonWhite	.0823277	.0254011	3.24	0.001	.0325424 .1321129
householdszie	-.0013762	.0050238	-0.27	0.784	-.0112226 .0084702
SES	-.0175054	.0079631	-2.20	0.028	-.0331128 -.0018979
LE8_TOTALSCORE	-.0008133	.0000564	-14.43	0.000	-.0009238 -.0007028
_cons	.5878039	.0725704	8.10	0.000	.4455686 .7300392
sigma2					
_cons	.9927828	.007383	134.47	0.000	.9783125 1.007253

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.20602	.1590112	7.58	0.000	.8943635 1.517676
ereri_cde	1.199338	.1588421	7.55	0.000	.8880136 1.510663
ereri_intref	.0044269	.0126287	0.35	0.726	-.0203249 .0291788
ereri_intmed	.0011632	.0022284	0.52	0.602	-.0032044 .0055309
ereri_pie	.001091	.0015789	0.69	0.490	-.0020035 .0041855

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): zmln
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -8949.4284

Iteration 2: Log likelihood = -8938.9698

Iteration 3: Log likelihood = -8938.9051

Iteration 4: Log likelihood = -8938.9051

Refining estimates:

Iteration 0: Log likelihood = -8938.9051

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) = 195.07

Log likelihood = -8938.9051

Prob > chi2 = 0.0000

-> Model for the mediator

Iteration 0: Log likelihood = -50213.109
Iteration 1: Log likelihood = -50213.109

Linear regression (Maximum Likelihood) Number of obs = 36,352
Log likelihood = -50213.109 Wald chi2(7) = 2840.83
Prob > chi2 = 0.0000

	zmln	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0549123	.0147533	3.72	0.000	.0259963 .0838283
AGE		.0383743	.0009631	39.85	0.000	.0364867 .0402619
SEX		-.0525007	.0102111	-5.14	0.000	-.0725141 -.0324872
NonWhite		-.3654358	.0244693	-14.93	0.000	-.4133947 -.3174769
householdsiz		.0016479	.004726	0.35	0.727	-.0076149 .0109107
SES		-.0306266	.0076588	-4.00	0.000	-.0456377 -.0156155
LE8_TOTALSCORE		-.0011948	.0000544	-21.98	0.000	-.0013014 -.0010883
	_cons	-1.627617	.0696689	-23.36	0.000	-1.764166 -1.491069
sigma2						
	_cons	.9274912	.0068796	134.82	0.000	.9140075 .9409748

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.208063	.1619384	7.46	0.000	.8906698 1.525457
ereri_cde	1.198434	.1640326	7.31	0.000	.8769364 1.519932
ereri_intref	.0019795	.007115	0.28	0.781	-.0119656 .0159246
ereri_intmed	.0098305	.0080064	1.23	0.220	-.0058617 .0255228
ereri_pie	-.0021812	.0022672	-0.96	0.336	-.0066247 .0022624

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): zmme
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8968.3135
Iteration 2: Log likelihood = -8959.8487
Iteration 3: Log likelihood = -8959.8299
Iteration 4: Log likelihood = -8959.8299
Refining estimates:
Iteration 0: Log likelihood = -8959.8299

```

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) =	195.57
Log likelihood =	-8959.8299	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.257212	.161697	11.36	0.000	1.961535 2.59746
zmme	.9430016	.0382552	-1.45	0.148	.8709261 1.021042
_infectionburXzmme_000	1.038487	.0742235	0.53	0.597	.9027417 1.194645
AGE	1.03135	.0129899	2.45	0.014	1.006202 1.057127
SEX	.7411178	.0487815	-4.55	0.000	.6514181 .8431691
NonWhite	1.071808	.1825899	0.41	0.684	.7675537 1.496666
householdszie	.9367121	.0392913	-1.56	0.119	.8627831 1.016976
SES	.8172054	.0403004	-4.09	0.000	.7419152 .9001361
LE8_TOTALSCORE	.9989727	.0003603	-2.85	0.004	.9982667 .9996792

-> Model for the mediator

Iteration 0: Log likelihood =	-50024.96	Number of obs =	36,264
Iteration 1: Log likelihood =	-50024.96	Wald chi2(7) =	2977.81
Log likelihood =	-50024.96	Prob > chi2 =	0.0000

	zmme	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0629737	.0147321	4.27	0.000	.0340994 .0918481
AGE		-.0027096	.000962	-2.82	0.005	-.0045951 -.0008242
SEX		-.3383748	.0102047	-33.16	0.000	-.3583757 -.3183739
NonWhite		-.2163313	.0244184	-8.86	0.000	-.2641904 -.1684722
householdsize		-.0076695	.004641	-1.65	0.098	-.0167657 .0014267
SES		.0050989	.0076535	0.67	0.505	-.0099016 .0200994
LE8_TOTALSCORE		-.0021008	.0000543	-38.66	0.000	-.0022073 -.0019943
_cons		1.751973	.0695231	25.20	0.000	1.61571 1.888236
sigma2						
_cons		.9240909	.0068627	134.66	0.000	.9106404 .9375415

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.250368	.1611133	7.76	0.000	.9345913 1.566144
ereri_cde	1.254569	.1613411	7.78	0.000	.9383462 1.570792
ereri_intref	-.0012345	.0045166	-0.27	0.785	-.0100869 .0076178
ereri_intmed	.000722	.0088153	0.08	0.935	-.0165556 .0179996
ereri_pie	-.0036889	.0026871	-1.37	0.170	-.0089555 .0015776

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): zmmp1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 .04675 2.217 -.07631 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 = **-8635.4319**
 Iteration 1: Log likelihood = **-8551.343**
 Iteration 2: Log likelihood = **-8541.0014**
 Iteration 3: Log likelihood = **-8540.9336**
 Iteration 4: Log likelihood = **-8540.9336**
 Refining estimates:
 Iteration 0: Log likelihood = **-8540.9336**

Cox regression with Breslow method for ties

No. of subjects =	35,166	Number of obs =	35,166
No. of failures =	926		
Time at risk =	427,291.027	LR chi2(9) =	189.00
Log likelihood =	-8540.9336	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.288887	.1670579	11.35	0.000	1.9838	2.640891
_zmmp1	.9771804	.0383152	-0.59	0.556	.9048971	1.055238
_infectionburXzmmp1_000	.9243694	.0674599	-1.08	0.281	.8011713	1.066512
AGE	1.037288	.0133752	2.84	0.005	1.011402	1.063837
SEX	.7664639	.0510373	-3.99	0.000	.6726853	.8733161
NonWhite	1.038428	.184074	0.21	0.832	.7336526	1.469813
householdszie	.930807	.0405681	-1.65	0.100	.8545964	1.013814
SES	.8308501	.0420112	-3.66	0.000	.7524583	.9174087
LE8_TOTALSCORE	.9989727	.0003641	-2.82	0.005	.9982592	.9996866

-> Model for the mediator

Iteration 0: Log likelihood = **-49619.658**
 Iteration 1: Log likelihood = **-49619.658**

Linear regression (Maximum Likelihood)	Number of obs =	35,166
	Wald chi2(7) =	560.90
Log likelihood =	-49619.658	Prob > chi2 = 0.0000

	zmmp1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0557246	.0154204	3.61	0.000	.0255011
AGE		.0098155	.0010074	9.74	0.000	.007841
SEX		.0025755	.0106935	0.24	0.810	-.0183833
NonWhite		-.1886727	.0255501	-7.38	0.000	-.2387499
householdszie		-.0203509	.0048932	-4.16	0.000	-.0299413
SES		-.0299798	.0080231	-3.74	0.000	-.0457048
LE8_TOTALSCORE		-.0008693	.0000569	-15.27	0.000	-.0009808
_cons		-.1157636	.0728044	-1.59	0.112	-.2584576
sigma2						
_cons		.9842725	.0074228	132.60	0.000	.969724
						.9988209

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.288366	.1673296	7.70	0.000	.9604056 1.616326
ereri_cde	1.288318	.167034	7.71	0.000	.960937 1.615698
ereri_intref	.0130569	.0154455	0.85	0.398	-.0172157 .0433296
ereri_intmed	-.0117234	.0089159	-1.31	0.189	-.0291982 .0057514
ereri_pie	-.0012855	.0022109	-0.58	0.561	-.0056188 .0030478

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): zmmp10
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 .04633 2.216 -.07486 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 = -9045.809

Iteration 1: Log likelihood = -8957.4451

Iteration 2: Log likelihood = -8949.559

Iteration 3: Log likelihood = -8949.5427

Refining estimates:

Iteration 0: Log likelihood = -8949.5427

Cox regression with Breslow method for ties

No. of subjects =	36,351	Number of obs = 36,351
No. of failures =	966	
Time at risk =	441,499.233	LR chi2(9) = 192.53
Log likelihood =	-8949.5427	Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.247579	.1620335	11.23	0.000	1.951415 2.588691
zmmp10	1.051144	.0395263	1.33	0.185	.9764594 1.13154
_infectionburXzmmp10_000	.9256574	.0628131	-1.14	0.255	.8103817 1.057331
AGE	1.036933	.0130796	2.88	0.004	1.011612 1.062888
SEX	.7573061	.0498405	-4.22	0.000	.6656583 .8615719
NonWhite	1.102556	.1876554	0.57	0.566	.7898155 1.53913
householdsize	.940192	.0392837	-1.48	0.140	.8662657 1.020427
SES	.8256293	.0408176	-3.88	0.000	.7493819 .9096346
LE8_TOTALSCORE	.9990488	.0003555	-2.67	0.007	.9983522 .9997459

-> Model for the mediator

Iteration 0: Log likelihood = -51297.598
 Iteration 1: Log likelihood = -51297.598

Linear regression (Maximum Likelihood)
 Number of obs = 36,351
 Wald chi2(7) = 567.86
 Log likelihood = -51297.598 Prob > chi2 = 0.0000

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0949699	.0151868	6.25	0.000	.0652044 .1247354
AGE	.0046257	.000991	4.67	0.000	.0026833 .0065681
SEX	-.2009334	.0105226	-19.10	0.000	-.2215574 -.1803094
NonWhite	.0549337	.0252332	2.18	0.029	.0054776 .1043899
householdsize	-.0024512	.004789	-0.51	0.609	-.0118375 .0069351
SES	-.0745291	.0078991	-9.44	0.000	-.090011 -.0590472
LE8_TOTALSCORE	.0000998	.0000561	1.78	0.075	-.00001 .0002097
_cons	-.0365049	.071622	-0.51	0.610	-.1768815 .1038717
sigma2					
_cons	.9845915	.0073032	134.82	0.000	.9702775 .9989055

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.242111	.1610472	7.71	0.000	.926464 1.557757
ereri_cde	1.246872	.1618724	7.70	0.000	.9296082 1.564137
ereri_intref	.0010744	.0053705	0.20	0.841	-.0094516 .0116004
ereri_intmed	-.0105843	.0127699	-0.83	0.407	-.0356128 .0144442
ereri_pie	.0047482	.003668	1.29	0.195	-.0024408 .0119373

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): zmmp12
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 2.217 -.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 = -9136.5161
 Iteration 1: Log likelihood = -9049.7906
 Iteration 2: Log likelihood = -9036.0769
 Iteration 3: Log likelihood = -9035.8698
 Iteration 4: Log likelihood = -9035.8696
 Refining estimates:
 Iteration 0: Log likelihood = -9035.8696

Cox regression with Breslow method for ties

No. of subjects =	36,436	Number of obs =	36,436
No. of failures =	976		
Time at risk =	442,615.154	LR chi2(9) =	201.29
Log likelihood =	-9035.8696	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.247501	.1751542	10.39	0.000	1.929139 2.618403
zmmp12	1.109928	.043409	2.67	0.008	1.028027 1.198354
_infectionburXzmmp12_000	.9718678	.0643415	-0.43	0.666	.8535997 1.106522
AGE	1.028032	.01306	2.18	0.030	1.002751 1.05395
SEX	.7753622	.0505052	-3.91	0.000	.6824321 .8809471
NonWhite	1.094394	.1861115	0.53	0.596	.7841863 1.527313
householdsize	.9305147	.0394756	-1.70	0.090	.8562732 1.011193
SES	.8361455	.0413459	-3.62	0.000	.758912 .9212388
LE8_TOTALSCORE	.9992448	.0003575	-2.11	0.035	.9985443 .9999458

-> Model for the mediator

Iteration 0: Log likelihood = -49182.26
 Iteration 1: Log likelihood = -49182.26

Linear regression (Maximum Likelihood)

Number of obs =	36,436
Wald chi2(7) =	5399.90
Prob > chi2 =	0.0000

Log likelihood = -49182.26

	zmmpp12	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.1733375	.0142955	12.13	0.000	.1453189 .2013561
AGE		.0452012	.0009313	48.54	0.000	.043376 .0470265
SEX		-.0657754	.0098828	-6.66	0.000	-.0851454 -.0464054
NonWhite		-.0199697	.0236349	-0.84	0.398	-.0662932 .0263537
householdsize		-.0107761	.0044953	-2.40	0.017	-.0195868 -.0019655
SES		-.1577631	.0074091	-21.29	0.000	-.1722847 -.1432414
LE8_TOTALSCORE		-.001596	.0000527	-30.31	0.000	-.0016992 -.0014927
_cons		-1.831951	.0673394	-27.20	0.000	-1.963934 -1.699968
sigma2						
_cons		.8709026	.0064524	134.97	0.000	.8582562 .8835491

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.273676	.1684219	7.56	0.000	.9435747 1.603776
ereri_cde	1.244714	.1742668	7.14	0.000	.9031574 1.586271
ereri_intref	-.0007011	.0056811	-0.12	0.902	-.0118359 .0104336
ereri_intmed	.01142	.021817	0.52	0.601	-.0313405 .0541805
ereri_pie	.0182426	.0070678	2.58	0.010	.00439 .0320953

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): zmmpp13
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8733.2092**
 Iteration 2: Log likelihood = **-8725.2924**
 Iteration 3: Log likelihood = **-8725.2674**
 Iteration 4: Log likelihood = **-8725.2674**
 Refining estimates:
 Iteration 0: Log likelihood = **-8725.2674**

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) =	188.59
Log likelihood =	-8725.2674	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.222698	.1619491	10.96	0.000	1.926907 2.563895
zmmp13		1.081067	.0421112	2.00	0.045	1.001603 1.166836
_infectionburXzmmp13_000		.8984047	.062504	-1.54	0.124	.7838844 1.029656
AGE		1.037032	.0132068	2.86	0.004	1.011467 1.063242
SEX		.7394356	.0491949	-4.54	0.000	.6490373 .8424246
NonWhite		1.089694	.1877954	0.50	0.618	.7773389 1.527561
householdszie		.9300504	.0401282	-1.68	0.093	.8546343 1.012121
SES		.8170644	.0407853	-4.05	0.000	.7409125 .9010433
LE8_TOTALSCORE		.9991633	.0003608	-2.32	0.020	.9984563 .9998707

-> Model for the mediator

Iteration 0: Log likelihood = **-50172.541**
 Iteration 1: Log likelihood = **-50172.541**

Linear regression (Maximum Likelihood)	Number of obs =	35,601
	Wald chi2(7) =	691.82
Log likelihood =	-50172.541	Prob > chi2 = 0.0000

	zmmp13	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.044069	.0153176	2.88	0.004	.014047 .074091
AGE		.0088541	.0010029	8.83	0.000	.0068885 .0108198
SEX		.2222814	.0106114	20.95	0.000	.2014833 .2430794
NonWhite		-.0266917	.02532	-1.05	0.292	-.0763179 .0229345
householdszie		-.005483	.0050341	-1.09	0.276	-.0153497 .0043837
SES		-.0221406	.0079715	-2.78	0.005	-.0377644 -.0065168
LE8_TOTALSCORE		.0006091	.0000566	10.77	0.000	.0004982 .00072
_cons		-1.172285	.0727068	-16.12	0.000	-1.314788 -1.029782
sigma2						
_cons		.9809104	.0073521	133.42	0.000	.9665005 .9953203

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.215613	.1612862	7.54	0.000	.8994976 1.531728
ereri_cde	1.219641	.1614421	7.55	0.000	.9032208 1.536062
ereri_intref	-.0011772	.0053202	-0.22	0.825	-.0116045 .0092502
ereri_intmed	-.0062926	.0063071	-1.00	0.318	-.0186543 .0060692
ereri_pie	.003441	.0020982	1.64	0.101	-.0006714 .0075535

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): zmmp3
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -9033.0764

Iteration 2: Log likelihood = -9020.6731

Iteration 3: Log likelihood = -9020.5064

Iteration 4: Log likelihood = -9020.5063

Refining estimates:

Iteration 0: Log likelihood = -9020.5063

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 = -9020.5063

LR chi2(9) = 202.62

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.241221	.1639762	11.03	0.000	1.941814 2.586794
zmmp3	1.15192	.0516719	3.15	0.002	1.054969 1.25778
_infectionburXzmmp3_000	.9461773	.0645449	-0.81	0.417	.8277639 1.08153
AGE	1.0337	.0129938	2.64	0.008	1.008543 1.059483
SEX	.8754563	.0700885	-1.66	0.097	.7483208 1.024191
NonWhite	1.079319	.1834857	0.45	0.653	.7734721 1.506105
householdsize	.9417166	.0391578	-1.44	0.149	.868013 1.021679
SES	.8265486	.0406637	-3.87	0.000	.7505711 .9102169
LE8_TOTALSCORE	.9990188	.000354	-2.77	0.006	.9983252 .9997128

-> Model for the mediator

Iteration 0: Log likelihood = **-42526.721**
 Iteration 1: Log likelihood = **-42526.721**

Linear regression (Maximum Likelihood) Number of obs = **36,459**
 Wald chi2(7) = **23952.91**
 Log likelihood = **-42526.721** Prob > chi2 = **0.0000**

zmmp3	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0816265	.0118722	6.88	0.000	.0583574 .1048955
AGE	.0066629	.000777	8.57	0.000	.0051399 .0081858
SEX	-1.255929	.0082268	-152.66	0.000	-1.272053 -1.239805
NonWhite	.0203062	.0197237	1.03	0.303	-.0183515 .0589639
householdsize	-.0087762	.0039094	-2.24	0.025	-.0164384 -.001114
SES	-.0116454	.0061791	-1.88	0.059	-.0237563 .0004654
LE8_TOTALSCORE	.0000888	.0000438	2.03	0.043	2.92e-06 .0001746
_cons	1.483811	.0563508	26.33	0.000	1.373365 1.594256
sigma2					
_cons	.6034903	.0044697	135.02	0.000	.5947297 .6122508

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.249883	.1618244	7.72	0.000	.9327128 1.567053
ereri_cde	1.235732	.1629652	7.58	0.000	.9163263 1.555138
ereri_intref	-.0016072	.0058156	-0.28	0.782	-.0130056 .0097912
ereri_intmed	.0041464	.0108805	0.38	0.703	-.017179 .0254717
ereri_pie	.0116113	.0040749	2.85	0.004	.0036246 .0195981

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): zmmp7
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 .04648 2.218 -.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 = -8904.0558
 Iteration 1: Log likelihood = -8819.567
 Iteration 2: Log likelihood = -8810.1721
 Iteration 3: Log likelihood = -8810.1117
 Iteration 4: Log likelihood = -8810.1117
 Refining estimates:
 Iteration 0: Log likelihood = -8810.1117

Cox regression with Breslow method for ties

No. of subjects =	35,711	Number of obs =	35,711
No. of failures =	953		
Time at risk =	433,833.656	LR chi2(9) =	187.89
Log likelihood =	-8810.1117	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.192761	.1660205	10.37	0.000	1.890359 2.543539
zmmp7	1.091016	.0446541	2.13	0.033	1.006914 1.182142
_infectionburXzmmp7_000	.9772186	.0692847	-0.33	0.745	.850436 1.122902
AGE	1.034511	.0131892	2.66	0.008	1.008981 1.060687
SEX	.7429216	.0489752	-4.51	0.000	.6528745 .8453885
NonWhite	1.105275	.1881337	0.59	0.556	.7917421 1.542969
householdsize	.9370532	.0396577	-1.54	0.124	.8624619 1.018096
SES	.8413527	.041944	-3.47	0.001	.7630326 .9277118
LE8_TOTALSCORE	.9991261	.0003625	-2.41	0.016	.998416 .9998368

-> Model for the mediator

Iteration 0: Log likelihood = -49181.782
 Iteration 1: Log likelihood = -49181.782

Linear regression (Maximum Likelihood)
 Number of obs = 35,711
 Wald chi2(7) = 3106.63
 Log likelihood = -49181.782 Prob > chi2 = 0.0000

	zmmp7	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.1744058	.0148208	11.77	0.000	.1453576 .2034539
AGE		.0295126	.0009671	30.52	0.000	.0276172 .031408
SEX		.2033808	.010261	19.82	0.000	.1832696 .2234919
NonWhite		.1535169	.024568	6.25	0.000	.1053644 .2016694
householdsize		.0041347	.0046782	0.88	0.377	-.0050344 .0133038
SES		-.0987029	.0077044	-12.81	0.000	-.1138032 -.0836026
LE8_TOTALSCORE		-.0016542	.0000547	-30.26	0.000	-.0017614 -.0015471
_cons		-1.306988	.0699184	-18.69	0.000	-1.444026 -1.16995
sigma2						
_cons		.9199427	.0068845	133.62	0.000	.9064493 .9334362

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.215084	.1622349	7.49	0.000	.8971089 1.533058
ereri_cde	1.191114	.165498	7.20	0.000	.8667441 1.515484
ereri_intref	-.0006424	.0049737	-0.13	0.897	-.0103907 .0091059
ereri_intmed	.0093034	.023323	0.40	0.690	-.0364088 .0550157
ereri_pie	.0153083	.0073651	2.08	0.038	.000873 .0297437

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): zmmp8
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 -.07466 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 = **-9158.6112**
 Iteration 1: Log likelihood = **-9071.7725**
 Iteration 2: Log likelihood = **-9058.1054**
 Iteration 3: Log likelihood = **-9057.8765**
 Iteration 4: Log likelihood = **-9057.8764**
 Refining estimates:
 Iteration 0: Log likelihood = **-9057.8764**

Cox regression with Breslow method for ties

No. of subjects =	36,689	Number of obs =	36,689
No. of failures =	977		
Time at risk =	445,671.165	LR chi2(9) =	201.47
Log likelihood =	-9057.8764	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.204135	.1604774	10.86	0.000	1.911017 2.542214
_zmmp8		1.090634	.0420679	2.25	0.024	1.011222 1.176283
_infectionburXzmmp8_000		1.025613	.0710043	0.37	0.715	.8954761 1.174663
AGE		1.032459	.0129556	2.55	0.011	1.007376 1.058166
SEX		.7682018	.0500299	-4.05	0.000	.6761452 .8727918
NonWhite		1.087214	.1848772	0.49	0.623	.7790602 1.517257
householdszie		.934056	.0393273	-1.62	0.105	.8600706 1.014406
SES		.8196926	.0402622	-4.05	0.000	.7444597 .9025283
LE8_TOTALSCORE		.9991913	.0003572	-2.26	0.024	.9984914 .9998917

-> Model for the mediator

Iteration 0: Log likelihood = **-51156.085**
 Iteration 1: Log likelihood = **-51156.085**

Linear regression (Maximum Likelihood)	Number of obs =	36,689
	Wald chi2(7) =	1850.87
Log likelihood =	Prob > chi2 =	0.0000

	zmmp8	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0618294	.0148634	4.16	0.000	.0326976 .0909612
AGE		.0058515	.0009729	6.01	0.000	.0039446 .0077583
SEX		-.1981545	.0102992	-19.24	0.000	-.2183407 -.1779684
NonWhite		-.0907146	.024709	-3.67	0.000	-.1391434 -.0422858
householdszie		.0009888	.0048899	0.20	0.840	-.0085953 .0105729
SES		-.0575409	.0077346	-7.44	0.000	-.0727004 -.0423813
LE8_TOTALSCORE		-.0017515	.0000548	-31.93	0.000	-.001859 -.001644
_cons		.817128	.0705543	11.58	0.000	.6788442 .9554118
sigma2						
_cons		.9519491	.0070285	135.44	0.000	.9381736 .9657247

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.224293	.1591602	7.69	0.000	.9123453 1.536242
ereri_cde	1.200724	.1598083	7.51	0.000	.8875051 1.513942
ereri_intref	.0082133	.0127671	0.64	0.520	-.0168098 .0332364
ereri_intmed	.0099779	.0085996	1.16	0.246	-.006877 .0268329
ereri_pie	.0053787	.0027258	1.97	0.048	.0000363 .0107211

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): zmmp9
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 2.215 -.07479 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 = -9086.0519

Iteration 1: Log likelihood = -8999.9993

Iteration 2: Log likelihood = -8985.4304

Iteration 3: Log likelihood = -8985.2264

Iteration 4: Log likelihood = -8985.2263

Refining estimates:

Iteration 0: Log likelihood = -8985.2263

Cox regression with Breslow method for ties

No. of subjects = 36,394 Number of obs = 36,394

No. of failures = 970

Time at risk = 442,025.207

Log likelihood = -8985.2263

LR chi2(9) = 201.65

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.207576	.1619849	10.79	0.000	1.911865 2.549025
zmmp9	1.086101	.0431682	2.08	0.038	1.004705 1.174092
_infectionburXzmmp9_000	1.034625	.0733246	0.48	0.631	.9004457 1.188798
AGE	1.03459	.0130283	2.70	0.007	1.009368 1.060443
SEX	.7696021	.0506735	-3.98	0.000	.6764253 .8756138
NonWhite	1.118683	.1902542	0.66	0.510	.8015731 1.561243
householdsize	.9410804	.0393491	-1.45	0.146	.8670332 1.021451
SES	.822738	.0405282	-3.96	0.000	.7470182 .906133
LE8_TOTALSCORE	.9992093	.0003596	-2.20	0.028	.9985048 .9999143

-> Model for the mediator

Iteration 0: Log likelihood = **-50298.377**
 Iteration 1: Log likelihood = **-50298.377**

Linear regression (Maximum Likelihood) Number of obs = 36,394
 Wald chi2(7) = 2785.39
 Log likelihood = **-50298.377** Prob > chi2 = 0.0000

zmmp9	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0661767	.0147409	4.49	0.000	.037285 .0950684
AGE	.0061524	.0009649	6.38	0.000	.0042613 .0080435
SEX	-.3018332	.0102157	-29.55	0.000	-.3218557 -.2818108
NonWhite	-.1988347	.0245059	-8.11	0.000	-.2468653 -.150804
householdsize	-.0148334	.0048543	-3.06	0.002	-.0243476 -.0053191
SES	-.0728512	.0076716	-9.50	0.000	-.0878873 -.057815
LE8_TOTALSCORE	-.0018729	.0000544	-34.43	0.000	-.0019795 -.0017662
_cons	1.056695	.0699698	15.10	0.000	.9195568 1.193833
sigma2					
_cons	.9288813	.0068859	134.90	0.000	.9153852 .9423774

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.231	.1603081	7.68	0.000	.9168022 1.545199
ereri_cde	1.204671	.1613624	7.47	0.000	.8884063 1.520935
ereri_intref	.0091762	.0131954	0.70	0.487	-.0166862 .0350387
ereri_intmed	.0116727	.0094255	1.24	0.216	-.0068009 .0301463
ereri_pie	.0054808	.0029143	1.88	0.060	-.0002311 .0111927

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): zmnda
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8959.2947
 Iteration 2: Log likelihood = -8943.2368
 Iteration 3: Log likelihood = -8942.7826
 Iteration 4: Log likelihood = -8942.7811
 Refining estimates:
 Iteration 0: Log likelihood = -8942.7811

Cox regression with Breslow method for ties

No. of subjects =	36,382	Number of obs =	36,382
No. of failures =	966		
Time at risk =	441,961.344	LR chi2(9) =	201.19
Log likelihood =	-8942.7811	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.264144	.1628776	11.36	0.000	1.966394 2.60698
zmnda	.9645653	.0378638	-0.92	0.358	.8931367 1.041706
_infectionburXzmnda_000	1.152561	.0768023	2.13	0.033	1.011447 1.313363
AGE	1.034515	.0130691	2.69	0.007	1.009215 1.06045
SEX	.7491132	.0489755	-4.42	0.000	.6590185 .8515248
NonWhite	1.004611	.1777771	0.03	0.979	.7101795 1.421109
householdsize	.9266046	.0399025	-1.77	0.077	.8516067 1.008207
SES	.8322913	.0412062	-3.71	0.000	.7553234 .9171023
LE8_TOTALSCORE	.9990713	.0003577	-2.60	0.009	.9983705 .9997726

-> Model for the mediator

Iteration 0: Log likelihood = -51293.917
 Iteration 1: Log likelihood = -51293.917

Linear regression (Maximum Likelihood)

Number of obs =	36,382
Wald chi2(7) =	664.81
Prob > chi2 =	0.0000

Log likelihood = -51293.917

	zmnda	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0149533	.0151521	0.99	0.324	-.0147444 .0446509
AGE		.0014518	.00099	1.47	0.143	-.0004886 .0033922
SEX		-.1401564	.0105031	-13.34	0.000	-.1607421 -.1195708
NonWhite		-.0340332	.0251371	-1.35	0.176	-.0833009 .0152346
householdsize		.0003557	.0047781	0.07	0.941	-.0090092 .0097206
SES		-.0091063	.007882	-1.16	0.248	-.0245546 .006342
LE8_TOTALSCORE		-.0011129	.000056	-19.87	0.000	-.0012227 -.0010032
_cons		.6822635	.07154	9.54	0.000	.5420477 .8224793
sigma2						
_cons		.9820279	.0072811	134.87	0.000	.9677572 .9962985

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.278127	.1628659	7.85	0.000	.9589158 1.597338
ereri_cde	1.263242	.1627535	7.76	0.000	.9442508 1.582233
ereri_intref	.0112803	.0126652	0.89	0.373	-.013543 .0361037
ereri_intmed	.0041443	.0046261	0.90	0.370	-.0049227 .0132113
ereri_pie	-.0005393	.0008017	-0.67	0.501	-.0021106 .0010319

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): zmog
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-9112.2109**
 Iteration 2: Log likelihood = **-9102.8199**
 Iteration 3: Log likelihood = **-9102.7843**
 Iteration 4: Log likelihood = **-9102.7843**
 Refining estimates:
 Iteration 0: Log likelihood = **-9102.7843**

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) =	196.65
Log likelihood =	-9102.7843	Prob > chi2 =	0.0000

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.281296	.1631387	11.53	0.000	1.982946 2.624534
zmog	1.047191	.0410871	1.18	0.240	.9696801 1.130897
_infectionburXzmog_000	.9204149	.0609385	-1.25	0.210	.8084024 1.047948
AGE	1.033608	.0129663	2.64	0.008	1.008504 1.059337
SEX	.753364	.0490533	-4.35	0.000	.6631031 .855911
NonWhite	1.07748	.1831534	0.44	0.661	.7721817 1.503485
householdszie	.933072	.0392278	-1.65	0.099	.8592693 1.013214
SES	.8218482	.0402705	-4.00	0.000	.7465911 .9046913
LE8_TOTALSCORE	.9990862	.0003539	-2.58	0.010	.9983928 .9997801

-> Model for the mediator

Iteration 0: Log likelihood = **-51292.751**
 Iteration 1: Log likelihood = **-51292.751**

Linear regression (Maximum Likelihood)	Number of obs =	36,726
	Wald chi2(7) =	1674.42
Log likelihood =	Prob > chi2 =	0.0000

<u>zmog</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0427166	.0149071	2.87	0.004	.0134992 .0719341
AGE	.027014	.0009722	27.79	0.000	.0251084 .0289196
SEX	.2185235	.010316	21.18	0.000	.1983044 .2387425
NonWhite	-.1195775	.0246821	-4.84	0.000	-.1679535 -.0712015
householdszie	-.0108663	.004697	-2.31	0.021	-.0200723 -.0016603
SES	.0067019	.0077373	0.87	0.386	-.008463 .0218668
LE8_TOTALSCORE	.0009292	.0000549	16.91	0.000	.0008215 .0010369
_cons	-2.401226	.0703097	-34.15	0.000	-2.53903 -2.263421
sigma2					
_cons	.9563698	.0070576	135.51	0.000	.9425372 .9702023

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.27799	.162652	7.86	0.000	.9591977 1.596782
ereri_cde	1.280343	.1628737	7.86	0.000	.9611166 1.59957
ereri_intref	.0012322	.0053534	0.23	0.818	-.0092602 .0117247
ereri_intmed	-.0055573	.0058514	-0.95	0.342	-.0170259 .0059113
ereri_pie	.0019717	.0018151	1.09	0.277	-.0015858 .0055291

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): zmphosph8
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8816.9164**

Iteration 2: Log likelihood = **-8809.6823**

Iteration 3: Log likelihood = **-8809.6676**

Iteration 4: Log likelihood = **-8809.6676**

Refining estimates:

Iteration 0: Log likelihood = **-8809.6676**

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) = 191.49

Log likelihood = -8809.6676

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.21136	.1608768	10.91	0.000	1.917495 2.55026
zmphosph8		.8859655	.0356033	-3.01	0.003	.8188616 .9585683
_infectionburXzmphosph8_000		1.101869	.0802977	1.33	0.183	.9552115 1.271044
AGE		1.037286	.0131702	2.88	0.004	1.011792 1.063423
SEX		.7542972	.0495642	-4.29	0.000	.6631485 .8579742
NonWhite		1.110407	.1888803	0.62	0.538	.7955965 1.549786
householdsize		.9382176	.0397325	-1.51	0.132	.8634876 1.019415
SES		.8313955	.0413438	-3.71	0.000	.7541868 .9165083
LE8_TOTALSCORE		.9989209	.0003588	-3.01	0.003	.9982179 .9996244

-> Model for the mediator

Iteration 0: Log likelihood = **-50567.457**
 Iteration 1: Log likelihood = **-50567.457**

Linear regression (Maximum Likelihood)
 Number of obs = 35,755
 Wald chi2(7) = 333.93
 Prob > chi2 = 0.0000
 Log likelihood = **-50567.457**

	zmphosph8	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0088148	.0153676	-0.57	0.566	-.0389349 .0213052
AGE		-.0036667	.0010031	-3.66	0.000	-.0056327 -.0017008
SEX		.0044651	.0106417	0.42	0.675	-.0163922 .0253225
NonWhite		-.0233182	.0254817	-0.92	0.360	-.0732615 .026625
householdsize		.0005093	.0048528	0.10	0.916	-.009002 .0100206
SES		-.0298536	.0079909	-3.74	0.000	-.0455154 -.0141917
LE8_TOTALSCORE		-.0009367	.0000567	-16.52	0.000	-.0010478 -.0008256
_cons		.681653	.0725205	9.40	0.000	.5395154 .8237907
sigma2						
_cons		.9907193	.0074096	133.71	0.000	.9761967 1.005242

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.196716	.1593985	7.51	0.000	.8843008 1.509131
ereri_cde	1.202773	.1594762	7.54	0.000	.8902055 1.515341
ereri_intref	-.0065229	.0056248	-1.16	0.246	-.0175472 .0045014
ereri_intmed	-.0006018	.001618	-0.37	0.710	-.0037731 .0025695
ereri_pie	.0010678	.0018961	0.56	0.573	-.0026485 .0047842

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): zmpi
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8966.1432
 Iteration 2: Log likelihood = -8956.7297
 Iteration 3: Log likelihood = -8956.6899
 Iteration 4: Log likelihood = -8956.6899
 Refining estimates:
 Iteration 0: Log likelihood = -8956.6899

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) =	201.85
Log likelihood =	-8956.6899	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.260961	.1620518	11.38	0.000	1.964646 2.601968
zmpi	.9042603	.0358202	-2.54	0.011	.8367102 .977264
_infectionburXzmpi_000	1.0132	.0745935	0.18	0.859	.8770579 1.170475
AGE	1.032431	.0129933	2.54	0.011	1.007276 1.058214
SEX	.7536214	.0490833	-4.34	0.000	.6633069 .856233
NonWhite	1.071977	.1824153	0.41	0.683	.7679601 1.496346
householdsize	.9361787	.0393815	-1.57	0.117	.8620887 1.016636
SES	.8163239	.0402462	-4.12	0.000	.7411341 .8991418
LE8_TOTALSCORE	.9989801	.0003559	-2.86	0.004	.9982828 .999678

-> Model for the mediator

Iteration 0: Log likelihood = -51296.782
 Iteration 1: Log likelihood = -51296.782

Linear regression (Maximum Likelihood)

Number of obs =	36,264
Wald chi2(7) =	319.61
Prob > chi2 =	0.0000

Log likelihood = -51296.782

	zmpi	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0070596	.0152579	0.46	0.644	-.0228454 .0369645
AGE		.0029901	.0009963	3.00	0.003	.0010374 .0049428
SEX		.0169303	.010569	1.60	0.109	-.0037845 .0376451
NonWhite		-.1395785	.0252899	-5.52	0.000	-.1891459 -.0900111
householdsize		-.0024924	.0048067	-0.52	0.604	-.0119133 .0069284
SES		-.013978	.0079266	-1.76	0.078	-.029514 .0015579
LE8_TOTALSCORE		-.0008857	.0000563	-15.74	0.000	-.000996 -.0007754
_cons		.2476241	.0720046	3.44	0.001	.1064977 .3887506
sigma2						
_cons		.9912362	.0073613	134.66	0.000	.9768084 1.005664

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.256774	.1615879	7.78	0.000	.9400677 1.573481
ereri_cde	1.254524	.1610863	7.79	0.000	.9388005 1.570247
ereri_intref	.0036452	.0129397	0.28	0.778	-.0217161 .0290065
ereri_intmed	-.0006846	.0018068	-0.38	0.705	-.0042259 .0028566
ereri_pie	-.0007102	.0015597	-0.46	0.649	-.0037671 .0023467

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): zmpig6b
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

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

```
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 = **-9028.3311**
 Iteration 2: Log likelihood = **-9015.8671**
 Iteration 3: Log likelihood = **-9015.6867**
 Iteration 4: Log likelihood = **-9015.6865**
 Refining estimates:
 Iteration 0: Log likelihood = **-9015.6865**

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 =	-9015.6865	Prob > chi2 =	0.0000

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.218721	.1593681	11.09	0.000	1.927356 2.554132
zmpig6b	.9474496	.0352534	-1.45	0.147	.8808136 1.019127
_infectionburXzmpig6b_000	.9229647	.0638667	-1.16	0.247	.8059057 1.057027
AGE	1.035857	.0130084	2.81	0.005	1.010672 1.061669
SEX	.7599818	.0493856	-4.22	0.000	.6690983 .8632101
NonWhite	1.089624	.1853921	0.50	0.614	.7806397 1.520908
householdszie	.93729	.0392801	-1.55	0.122	.8633795 1.017528
SES	.8253914	.0406801	-3.89	0.000	.7493897 .9091009
LE8_TOTALSCORE	.9989796	.0003544	-2.88	0.004	.9982852 .9996745

-> Model for the mediator

Iteration 0: Log likelihood = **-51745.558**
 Iteration 1: Log likelihood = **-51745.558**

Linear regression (Maximum Likelihood)	Number of obs =	36,537	
	Wald chi2(7) =	195.92	
Log likelihood =	-51745.558	Prob > chi2 =	0.0000

<u>zmpig6b</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	-.0106501	.0152249	-0.70	0.484	-.0404903 .0191901
AGE	-.0017865	.0009936	-1.80	0.072	-.003734 .0001609
SEX	.0156554	.0105491	1.48	0.138	-.0050204 .0363311
NonWhite	-.0535679	.0252927	-2.12	0.034	-.1031408 -.0039951
householdszie	-.0052926	.0048019	-1.10	0.270	-.0147041 .004119
SES	-.0296577	.0079186	-3.75	0.000	-.0451778 -.0141376
LE8_TOTALSCORE	-.0006855	.0000562	-12.20	0.000	-.0007956 -.0005754
_cons	.4401285	.0717853	6.13	0.000	.299432 .580825
sigma2					
_cons	.9946391	.0073589	135.16	0.000	.9802159 1.009062

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.238354	.160012	7.74	0.000	.9247364 1.551972
ereri_cde	1.217053	.1591125	7.65	0.000	.9051982 1.528908
ereri_intref	.0181056	.0173124	1.05	0.296	-.015826 .0520373
ereri_intmed	.0026205	.0040255	0.65	0.515	-.0052694 .0105104
ereri_pie	.0005751	.0009129	0.63	0.529	-.0012142 .0023644

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): zmpo
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -9040.8605

Iteration 2: Log likelihood = -9023.4517

Iteration 3: Log likelihood = -9022.8215

Iteration 4: Log likelihood = -9022.819

Iteration 5: Log likelihood = -9022.819

Refining estimates:

Iteration 0: Log likelihood = -9022.819

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) = 197.99

Log likelihood = -9022.819 Prob > chi2 = 0.0000

-> Model for the mediator

Iteration 0: Log likelihood = -50961.478
Iteration 1: Log likelihood = -50961.478

Linear regression (Maximum Likelihood)
Number of obs = 36,459
Log likelihood = -50961.478 Wald chi2(7) = 1575.29
Prob > chi2 = 0.0000

	zmpo	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0881456	.0149625	5.89	0.000	.0588196 .1174715
AGE		.0073999	.0009793	7.56	0.000	.0054805 .0093193
SEX		.002031	.0103682	0.20	0.845	-.0182904 .0223523
NonWhite		-.068506	.0248578	-2.76	0.006	-.1172263 -.0197857
householdsiz		.0104949	.004927	2.13	0.033	.0008382 .0201515
SES		-.092425	.0077875	-11.87	0.000	-.1076883 -.0771617
LE8_TOTALSCORE		-.0017594	.0000552	-31.87	0.000	-.0018676 -.0016512
_cons		.392971	.0710189	5.53	0.000	.2537765 .5321654
sigma2						
_cons		.9585562	.0070995	135.02	0.000	.9446413 .972471

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.213827	.1588415	7.64	0.000	.902503 1.52515
ereri_cde	1.173324	.159337	7.36	0.000	.8610293 1.485619
ereri_intref	.0148322	.0134755	1.10	0.271	- .0115793 .0412437
ereri_intmed	.0241074	.0116993	2.06	0.039	.0011771 .0470377
ereri_pie	.0015629	.0034044	0.46	0.646	- .0051096 .0082354

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): zmrpl46
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8733.4145
Iteration 2: Log likelihood = -8725.8284
Iteration 3: Log likelihood = -8725.8114
Iteration 4: Log likelihood = -8725.8114
Refining estimates:
Iteration 0: Log likelihood = -8725.8114

```

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) =	187.51
Log likelihood =	-8725.8114	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.219216	.1616727	10.94	0.000	1.923926 2.559827
zmrpl46	.9327033	.0384426	-1.69	0.091	.8603201 1.011176
_infectionburXzmrpl46_000	1.041669	.0765115	0.56	0.578	.9020032 1.20296
AGE	1.037343	.0132094	2.88	0.004	1.011773 1.063558
SEX	.7487593	.0494506	-4.38	0.000	.6578487 .8522333
NonWhite	1.089758	.1877607	0.50	0.618	.7774487 1.527526
householdsize	.9297154	.0401536	-1.69	0.092	.8542547 1.011842
SES	.8148107	.0406905	-4.10	0.000	.7388375 .8985962
LE8_TOTALSCORE	.999175	.0003605	-2.29	0.022	.9984687 .9998818

-> Model for the mediator

Iteration 0: Log likelihood = -50477.909	Number of obs = 35,601
Iteration 1: Log likelihood = -50477.909	Wald chi2(7) = 74.52
Log likelihood = -50477.909	Prob > chi2 = 0.0000

zmrpl46	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0245109	.0154496	1.59	0.113	-.0057697 .0547915
AGE	-.0029503	.0010115	-2.92	0.004	-.0049329 -.0009677
SEX	-.0136652	.0107029	-1.28	0.202	-.0346424 .007312
NonWhite	-.0172808	.0255381	-0.68	0.499	-.0673345 .0327729
householdsize	-.0024424	.0050775	-0.48	0.630	-.0123941 .0075093
SES	-.0166754	.0080402	-2.07	0.038	-.0324338 -.000917
LE8_TOTALSCORE	-.0003959	.000057	-6.94	0.000	-.0005077 -.0002841
_cons	.3981858	.0733331	5.43	0.000	.2544555 .5419161
sigma2					
_cons	.9978831	.0074793	133.42	0.000	.9832239 1.012542

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.212894	.1610845	7.53	0.000	.8971746 1.528614
ereri_cde	1.215978	.1611421	7.55	0.000	.9001457 1.531811
ereri_intref	-.0015189	.0052692	-0.29	0.773	-.0118464 .0088086
ereri_intmed	.0001411	.0034538	0.04	0.967	-.0066283 .0069105
ereri_pie	-.0017062	.0014737	-1.16	0.247	-.0045945 .0011822

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): zmsln
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 2.216 -.0754 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 = **-9039.1405**
 Iteration 1: Log likelihood = **-8950.2301**
 Iteration 2: Log likelihood = **-8941.5732**
 Iteration 3: Log likelihood = **-8941.5507**
 Iteration 4: Log likelihood = **-8941.5507**
 Refining estimates:
 Iteration 0: Log likelihood = **-8941.5507**

Cox regression with Breslow method for ties

No. of subjects =	36,207	Number of obs =	36,207
No. of failures =	966		
Time at risk =	439,820.714	LR chi2(9) =	195.18
Log likelihood =	-8941.5507	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.300383	.1677179	11.43	0.000	1.994069 2.65375
zmsln		1.016109	.039301	0.41	0.679	.9419277 1.096132
_infectionburXzmsln_000		.9261506	.063412	-1.12	0.263	.8098437 1.059161
AGE		1.032238	.0130329	2.51	0.012	1.007007 1.0581
SEX		.7477174	.0488684	-4.45	0.000	.6578179 .8499029
NonWhite		1.087057	.1851536	0.49	0.624	.7785221 1.517867
householdszie		.93655578	.0393544	-1.56	0.119	.8625155 1.016956
SES		.8171529	.040393	-4.09	0.000	.7416983 .9002836
LE8_TOTALSCORE		.9990698	.0003568	-2.61	0.009	.9983706 .9997694

-> Model for the mediator

Iteration 0: Log likelihood = **-50263.751**
 Iteration 1: Log likelihood = **-50263.751**

Linear regression (Maximum Likelihood)	Number of obs =	36,207
	Wald chi2(7) =	2292.14
Log likelihood =	Prob > chi2 =	0.0000

	zmsln	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.1445393	.0148712	9.72	0.000	.1153923 .1736863
AGE		.024328	.0009711	25.05	0.000	.0224246 .0262314
SEX		-.0974802	.0103026	-9.46	0.000	-.1176728 -.0772875
NonWhite		-.2408697	.0246475	-9.77	0.000	-.2891779 -.1925615
householdszie		-.0144667	.0046832	-3.09	0.002	-.0236457 -.0052878
SES		-.122462	.0077262	-15.85	0.000	-.137605 -.1073189
LE8_TOTALSCORE		-.0011581	.0000549	-21.11	0.000	-.0012657 -.0010506
_cons		-.7208602	.0701831	-10.27	0.000	-.8584165 -.5833039
sigma2						
_cons		.9404365	.0069895	134.55	0.000	.9267373 .9541357

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.287482	.1655463	7.78	0.000	.9630176 1.611947
ereri_cde	1.300644	.1677734	7.75	0.000	.971814 1.629474
ereri_intref	.0070089	.0102915	0.68	0.496	-.0131621 .0271798
ereri_intmed	-.0224827	.0201446	-1.12	0.264	-.0619655 .017
ereri_pie	.0023125	.0056085	0.41	0.680	-.0086799 .0133049

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): zmsmb
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 .04616 2.216 -.07498 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 = -9081.591

Iteration 1: Log likelihood = -8995.0944

Iteration 2: Log likelihood = -8986.8238

Iteration 3: Log likelihood = -8986.7917

Iteration 4: Log likelihood = -8986.7917

Refining estimates:

Iteration 0: Log likelihood = -8986.7917

Cox regression with Breslow method for ties

No. of subjects = 36,371 Number of obs = 36,371

No. of failures = 970

Time at risk = 441,778.138

Log likelihood = -8986.7917

LR chi2(9) = 189.60

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.237161	.1630713	11.05	0.000	1.939329 2.580733
zmsmb	1.068598	.0422918	1.68	0.094	.9888406 1.154788
_infectionburXzmsmb_000	.9362674	.0641106	-0.96	0.336	.8186799 1.070744
AGE	1.035259	.0130484	2.75	0.006	1.009997 1.061152
SEX	.7750278	.0533101	-3.71	0.000	.677279 .8868843
NonWhite	1.114214	.1898598	0.63	0.526	.7978577 1.556007
householdsize	.9458772	.0391815	-1.34	0.179	.8721176 1.025875
SES	.8235153	.0406671	-3.93	0.000	.7475451 .9072061
LE8_TOTALSCORE	.9991483	.000355	-2.40	0.016	.9984527 .9998444

-> Model for the mediator

Iteration 0: Log likelihood = **-49154.559**
 Iteration 1: Log likelihood = **-49154.559**

Linear regression (Maximum Likelihood) Number of obs = **36,371**
 Wald chi2(7) = **5252.63**
 Log likelihood = **-49154.559** Prob > chi2 = **0.0000**

	zmsmb	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0661759	.0143085	4.62	0.000	.0381316 .0942201
AGE		.0145876	.0009339	15.62	0.000	.0127571 .016418
SEX		-.6311925	.0099077	-63.71	0.000	-.6506114 -.6117737
NonWhite		-.3754435	.0238055	-15.77	0.000	-.4221015 -.3287856
householdsize		-.0081354	.0045153	-1.80	0.072	-.0169853 .0007145
SES		-.0914511	.007436	-12.30	0.000	-.1060255 -.0768768
LE8_TOTALSCORE		-.0004121	.0000528	-7.80	0.000	-.0005156 -.0003086
_cons		.3134316	.0675274	4.64	0.000	.1810803 .4457829
sigma2						
_cons		.8737826	.0064795	134.85	0.000	.861083 .8864822

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.234288	.1615735	7.64	0.000	.9176094 1.550966
ereri_cde	1.235537	.1626525	7.60	0.000	.9167442 1.55433
ereri_intref	-.0013225	.0023149	-0.57	0.568	-.0058596 .0032147
ereri_intmed	-.0043273	.0088872	-0.49	0.626	-.0217459 .0130912
ereri_pie	.0044002	.002798	1.57	0.116	-.0010838 .0098843

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): zmsr1
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -9073.3715
 Iteration 2: Log likelihood = -9063.4199
 Iteration 3: Log likelihood = -9063.3561
 Iteration 4: Log likelihood = -9063.356
 Refining estimates:
 Iteration 0: Log likelihood = -9063.356

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) =	194.10
Log likelihood =	-9063.356	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.204394	.1664579	10.47	0.000	1.901137 2.556024
zmsr1	1.019678	.0406593	0.49	0.625	.9430221 1.102566
_infectionburXzmsr1_000	1.021798	.0728088	0.30	0.762	.8886125 1.174947
AGE	1.033132	.0130189	2.59	0.010	1.007928 1.058966
SEX	.7548795	.0489464	-4.34	0.000	.6647918 .8571752
NonWhite	1.084072	.1843286	0.47	0.635	.7768285 1.512832
householdsize	.9335625	.0394467	-1.63	0.104	.8593633 1.014168
SES	.8200628	.0404718	-4.02	0.000	.7444552 .9033492
LE8_TOTALSCORE	.9990775	.0003582	-2.57	0.010	.9983757 .9997797

-> Model for the mediator

Iteration 0: Log likelihood = -50221.071
 Iteration 1: Log likelihood = -50221.071

Linear regression (Maximum Likelihood)
 Number of obs = 36,751
 Wald chi2(7) = 4060.75
 Log likelihood = -50221.071 Prob > chi2 = 0.0000

	zmsr1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.1628688	.0144483	11.27	0.000	.1345507 .1911868
AGE		.0341149	.0009455	36.08	0.000	.0322619 .035968
SEX		.0243187	.0100084	2.43	0.015	.0047026 .0439348
NonWhite		.0454708	.0240103	1.89	0.058	-.0015885 .0925301
householdsize		-.0014939	.0047541	-0.31	0.753	-.0108117 .0078238
SES		-.1314401	.0075162	-17.49	0.000	-.1461717 -.1167086
LE8_TOTALSCORE		-.0019243	.0000533	-36.10	0.000	-.0020288 -.0018199
_cons		-1.158197	.068553	-16.89	0.000	-1.292559 -1.023836
sigma2						
_cons		.9004759	.0066428	135.56	0.000	.8874562 .9134956

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.219404	.1620104	7.53	0.000	.9018695 1.536939
ereri_cde	1.204719	.1665294	7.23	0.000	.8783268 1.53111
ereri_intref	-.0001039	.0019676	-0.05	0.958	-.0039603 .0037525
ereri_intmed	.0116106	.0222369	0.52	0.602	-.031973 .0551941
ereri_pie	.0031789	.0065211	0.49	0.626	-.0096022 .01596

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): zmsra
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -9042.8854
 Iteration 2: Log likelihood = -9033.412
 Iteration 3: Log likelihood = -9033.373
 Iteration 4: Log likelihood = -9033.373
 Refining estimates:
 Iteration 0: Log likelihood = -9033.373

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) =	197.74
Log likelihood =	-9033.373	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.249262	.1609558	11.33	0.000	1.954918	2.587924
zmsra	.9308583	.0361804	-1.84	0.065	.8625798	1.004541
_infectionburXzmsra_000	.9898192	.0708788	-0.14	0.886	.8602075	1.13896
AGE	1.034027	.0129873	2.66	0.008	1.008883	1.059798
SEX	.7690829	.0498965	-4.05	0.000	.67725	.8733682
NonWhite	1.067571	.1838813	0.38	0.704	.7616995	1.49627
householdsize	.9313988	.0395165	-1.68	0.094	.8570807	1.012161
SES	.8204199	.0404285	-4.02	0.000	.7448878	.9036109
LE8_TOTALSCORE	.998981	.0003551	-2.87	0.004	.9982853	.9996771

-> Model for the mediator

Iteration 0: Log likelihood = -51649.331
 Iteration 1: Log likelihood = -51649.331

Linear regression (Maximum Likelihood)	Number of obs =	36,540	
	Wald chi2(7) =	398.52	
Log likelihood =	-51649.331	Prob > chi2 =	0.0000

	zmsra	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0234982	.0151968	-1.55	0.122	-.0532833
AGE		-.0018504	.000991	-1.87	0.062	-.0037928
SEX		.0219596	.0105184	2.09	0.037	.0013439
NonWhite		.0478518	.0252094	1.90	0.058	-.0015577
householdsize		-.0006176	.0047895	-0.13	0.897	-.0100048
SES		-.0275431	.0078958	-3.49	0.000	-.0430185
LE8_TOTALSCORE		-.001021	.000056	-18.23	0.000	-.0011308
_cons		.5892421	.0716633	8.22	0.000	.4487846
sigma2						
_cons		.9891841	.0073183	135.17	0.000	.9748406
						1.003528

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.25527	.1608328	7.80	0.000	.9400439 1.570497
ereri_cde	1.246385	.1605061	7.77	0.000	.9317989 1.560971
ereri_intref	.0045502	.0108599	0.42	0.675	-.0167348 .0258353
ereri_intmed	.0026501	.0037484	0.71	0.480	-.0046966 .0099968
ereri_pie	.001685	.0014236	1.18	0.237	-.0011051 .0044751

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): zmstn
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8820.4719**

Iteration 2: Log likelihood = **-8813.1314**

Iteration 3: Log likelihood = **-8813.1161**

Iteration 4: Log likelihood = **-8813.1161**

Refining estimates:

Iteration 0: Log likelihood = **-8813.1161**

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) = 184.59

Log likelihood = -8813.1161

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.188404	.1589018	10.79	0.000	1.898109 2.523097
zmstn	.9464769	.0390899	-1.33	0.183	.872881 1.026278
_infectionburXzmstn_000	.9979296	.0707782	-0.03	0.977	.8684172 1.146757
AGE	1.037064	.0131767	2.86	0.004	1.011558 1.063215
SEX	.7231383	.0508153	-4.61	0.000	.6300964 .829919
NonWhite	1.129056	.192241	0.71	0.476	.808693 1.576329
householdsize	.9389583	.039704	-1.49	0.136	.8642773 1.020092
SES	.8353408	.0415694	-3.62	0.000	.7577134 .920921
LE8_TOTALSCORE	.9989649	.0003582	-2.89	0.004	.9982631 .9996672

-> Model for the mediator

Iteration 0: Log likelihood = **-47660.65**
 Iteration 1: Log likelihood = **-47660.65**

Linear regression (Maximum Likelihood) Number of obs = 35,755
 Wald chi2(7) = 6705.83
 Log likelihood = **-47660.65** Prob > chi2 = 0.0000

zmstn	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	-.0706849	.0141677	-4.99	0.000	-.0984532 -.0429167
AGE	-.0012865	.0009247	-1.39	0.164	-.0030989 .0005259
SEX	-.7722139	.0098108	-78.71	0.000	-.7914427 -.7529851
NonWhite	.2372286	.0234921	10.10	0.000	.1911849 .2832722
householdsize	.0225394	.0044739	5.04	0.000	.0137707 .031308
SES	.0334404	.0073669	4.54	0.000	.0190014 .0478793
LE8_TOTALSCORE	-.0003936	.0000523	-7.53	0.000	-.000496 -.0002911
_cons	1.407666	.0668581	21.05	0.000	1.276627 1.538705
sigma2					
_cons	.8420467	.0062977	133.71	0.000	.8297034 .8543899

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.197422	.1596297	7.50	0.000	.8845535 1.510291
ereri_cde	1.187532	.1588223	7.48	0.000	.8762461 1.498818
ereri_intref	.0010417	.005183	0.20	0.841	-.0091168 .0112003
ereri_intmed	.0049524	.0097	0.51	0.610	-.0140592 .023964
ereri_pie	.0038959	.0030333	1.28	0.199	-.0020493 .0098411

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): zmtpn
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8820.5944
 Iteration 2: Log likelihood = -8813.1553
 Iteration 3: Log likelihood = -8813.1381
 Iteration 4: Log likelihood = -8813.1381
 Refining estimates:
 Iteration 0: Log likelihood = -8813.1381

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) =	184.55
Log likelihood =	-8813.1381	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.198561	.1598656	10.83	0.000	1.906533 2.535319
zmtpn	.9406603	.0389495	-1.48	0.140	.8673363 1.020183
_infectionburXzmtpn_000	1.032852	.0789919	0.42	0.673	.8890757 1.199879
AGE	1.037164	.0131747	2.87	0.004	1.011661 1.06331
SEX	.7538339	.0495369	-4.30	0.000	.6627358 .8574541
NonWhite	1.114862	.1896551	0.64	0.523	.7987644 1.55605
householdsize	.9380698	.0396561	-1.51	0.130	.8634781 1.019105
SES	.8342779	.041512	-3.64	0.000	.7567573 .9197395
LE8_TOTALSCORE	.9989954	.000358	-2.80	0.005	.998294 .9996973

-> Model for the mediator

Iteration 0: Log likelihood = -50720.084
 Iteration 1: Log likelihood = -50720.084

Linear regression (Maximum Likelihood)

Number of obs =	35,755
Wald chi2(7) =	27.14
Prob > chi2 =	0.0003

Log likelihood = -50720.084

	zmtpn	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0337109	.0154334	-2.18	0.029	-.0639597 -.003462
AGE		-.0018166	.0010073	-1.80	0.071	-.003791 .0001577
SEX		.0412753	.0106872	3.86	0.000	.0203287 .0622219
NonWhite		-.0362258	.0255907	-1.42	0.157	-.0863827 .0139311
householdsize		-.0013657	.0048736	-0.28	0.779	-.0109177 .0081863
SES		.0025567	.0080251	0.32	0.750	-.0131722 .0182855
LE8_TOTALSCORE		-5.21e-06	.0000569	-0.09	0.927	-.0001168 .0001064
_cons		.0583351	.0728308	0.80	0.423	-.0844106 .2010808
sigma2						
_cons		.9992137	.0074732	133.71	0.000	.9845665 1.013861

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.197835	.1594139	7.51	0.000	.88539 1.510281
ereri_cde	1.196665	.1595352	7.50	0.000	.8839813 1.509348
ereri_intref	-.0009656	.0041291	-0.23	0.815	-.0090586 .0071274
ereri_intmed	.0000721	.0049609	0.01	0.988	-.0096511 .0097953
ereri_pie	.0020643	.0016886	1.22	0.222	-.0012453 .005374

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): zmuc13
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8734.6831**
 Iteration 2: Log likelihood = **-8727.0584**
 Iteration 3: Log likelihood = **-8727.0403**
 Iteration 4: Log likelihood = **-8727.0403**
 Refining estimates:
 Iteration 0: Log likelihood = **-8727.0403**

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) =	185.05
Log likelihood =	-8727.0403	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.220836	.1617716	10.95	0.000	1.925364 2.561653
zmuc13		.9908172	.039434	-0.23	0.817	.9164656 1.071201
_infectionburXzmuc13_000		.9630156	.0672431	-0.54	0.589	.8398422 1.104254
AGE		1.037583	.0132115	2.90	0.004	1.01201 1.063803
SEX		.7485617	.0494359	-4.39	0.000	.6576779 .8520047
NonWhite		1.098716	.1895403	0.55	0.585	.7835092 1.540731
householdszie		.9301711	.040175	-1.68	0.094	.8546703 1.012342
SES		.8152393	.0407178	-4.09	0.000	.7392155 .8990815
LE8_TOTALSCORE		.9991636	.0003636	-2.30	0.021	.9984513 .9998764

-> Model for the mediator

Iteration 0: Log likelihood = **-50007.269**
 Iteration 1: Log likelihood = **-50007.269**

Linear regression (Maximum Likelihood)	Number of obs =	35,601
	Wald chi2(7) =	1030.35
Log likelihood =	Prob > chi2 =	0.0000

	zmuc13	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0723391	.0152467	4.74	0.000	.0424562 .1022221
AGE		.0076793	.0009982	7.69	0.000	.0057227 .0096358
SEX		-.0357956	.0105623	-3.39	0.001	-.0564973 -.0150939
NonWhite		.1729074	.0252027	6.86	0.000	.123511 .2223037
householdszie		-.0109011	.0050108	-2.18	0.030	-.0207221 -.0010801
SES		-.0285253	.0079346	-3.60	0.000	-.0440767 -.0129738
LE8_TOTALSCORE		-.0014698	.0000563	-26.11	0.000	-.0015801 -.0013594
_cons		.3321236	.0723701	4.59	0.000	.1902809 .4739663
sigma2						
_cons		.9718451	.0072842	133.42	0.000	.9575684 .9861219

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.216428	.1614198	7.54	0.000	.9000512 1.532805
ereri_cde	1.220673	.1617699	7.55	0.000	.9036096 1.537736
ereri_intref	.0032896	.0072191	0.46	0.649	-.0108596 .0174388
ereri_intmed	-.0068671	.0098467	-0.70	0.486	-.0261662 .012432
ereri_pie	-.0006671	.0028806	-0.23	0.817	-.0063129 .0049787

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): zmuc16
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -8968.9554

Iteration 2: Log likelihood = -8960.5249

Iteration 3: Log likelihood = -8960.5065

Iteration 4: Log likelihood = -8960.5065

Refining estimates:

Iteration 0: Log likelihood = -8960.5065

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 = -8960.5065

LR chi2(9) = 194.22

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.256626	.1615802	11.37	0.000	1.961152 2.596616
zmuc16	.9658404	.0360679	-0.93	0.352	.8976737 1.039183
_infectionburXzmuc16_000	1.040893	.0739493	0.56	0.573	.9055934 1.196407
AGE	1.031771	.0129918	2.48	0.013	1.006619 1.057551
SEX	.7504507	.0488962	-4.41	0.000	.6604828 .8526737
NonWhite	1.081628	.1840841	0.46	0.645	.7748369 1.50989
householdszie	.9370821	.0393327	-1.55	0.122	.8630773 1.017432
SES	.8167856	.0402786	-4.10	0.000	.7415361 .8996712
LE8_TOTALSCORE	.9990527	.0003549	-2.67	0.008	.9983573 .9997486

-> Model for the mediator

Iteration 0: Log likelihood = -51406.587
 Iteration 1: Log likelihood = -51406.587

Linear regression (Maximum Likelihood)
 Number of obs = 36,264
 Wald chi2(7) = 98.73
 Log likelihood = -51406.587 Prob > chi2 = 0.0000

zmuc16	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0379977	.0153042	2.48	0.013	.008002 .0679934
AGE	-.0029181	.0009993	-2.92	0.003	-.0048768 -.0009595
SEX	-.0524309	.010601	-4.95	0.000	-.0732085 -.0316532
NonWhite	-.153055	.0253666	-6.03	0.000	-.2027727 -.1033373
householdszie	.0017525	.0048212	0.36	0.716	-.0076969 .011202
SES	-.0001931	.0079507	-0.02	0.981	-.0157762 .0153899
LE8_TOTALSCORE	-.0002707	.0000565	-4.79	0.000	-.0003813 -.00016
_cons	.3893979	.072223	5.39	0.000	.2478435 .5309523
sigma2					
_cons	.9972572	.007406	134.66	0.000	.9827417 1.011773

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.255278	.161395	7.78	0.000	.9389496 1.571606
ereri_cde	1.255639	.161419	7.78	0.000	.9392634 1.572014
ereri_intref	-.000817	.0015136	-0.54	0.589	-.0037836 .0021496
ereri_intmed	.0017759	.0054187	0.33	0.743	-.0088446 .0123963
ereri_pie	-.0013198	.0015134	-0.87	0.383	-.004286 .0016464

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): zmvk
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8823.5457
 Iteration 2: Log likelihood = -8815.8329
 Iteration 3: Log likelihood = -8815.8161
 Iteration 4: Log likelihood = -8815.8161
 Refining estimates:
 Iteration 0: Log likelihood = -8815.8161

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) =	195.03
Log likelihood =	-8815.8161	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.224966	.1610845	11.05	0.000	1.930623 2.564184
zmvk	.8916036	.036696	-2.79	0.005	.8225053 .9665069
_infectionburXzmvk_000	1.043369	.0761031	0.58	0.561	.9043808 1.203717
AGE	1.037318	.0131593	2.89	0.004	1.011844 1.063433
SEX	.7304346	.0484066	-4.74	0.000	.6414627 .831747
NonWhite	1.055043	.184193	0.31	0.759	.7493149 1.485511
householdsize	.9343925	.039781	-1.59	0.111	.8595876 1.015707
SES	.8221905	.0409595	-3.93	0.000	.745706 .9065196
LE8_TOTALSCORE	.9988719	.0003644	-3.09	0.002	.9981581 .9995863

-> Model for the mediator

Iteration 0: Log likelihood = -49453.269
 Iteration 1: Log likelihood = -49453.269

Linear regression (Maximum Likelihood)
 Number of obs = 35,761
 Wald chi2(7) = 2672.97
 Log likelihood = -49453.269 Prob > chi2 = 0.0000

zmvk	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0449903	.0149058	3.02	0.003	.0157754 .0742051
AGE	-.0008918	.0009708	-0.92	0.358	-.0027946 .001011
SEX	-.2724223	.0103102	-26.42	0.000	-.29263 -.2522146
NonWhite	.01385	.0246693	0.56	0.575	-.034501 .0622009
householdsize	-.0134098	.0046896	-2.86	0.004	-.0226012 -.0042184
SES	-.0569954	.0077302	-7.37	0.000	-.0721462 -.0418445
LE8_TOTALSCORE	-.0021174	.0000549	-38.55	0.000	-.0022251 -.0020098
_cons	1.548993	.070125	22.09	0.000	1.41155 1.686435
sigma2					
_cons	.930427	.0069581	133.72	0.000	.9167893 .9440647

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.208982	.1600103	7.56	0.000	.8953673 1.522596
ereri_cde	1.216617	.159929	7.61	0.000	.9031619 1.530072
ereri_intref	-.0004404	.0109094	-0.04	0.968	-.0218223 .0209416
ereri_intmed	-.0020464	.006412	-0.32	0.750	-.0146137 .0105209
ereri_pie	-.0051486	.0025076	-2.05	0.040	-.0100635 -.0002337

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): zmyo9b
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8827.9444**
 Iteration 2: Log likelihood = **-8820.2328**
 Iteration 3: Log likelihood = **-8820.2166**
 Iteration 4: Log likelihood = **-8820.2166**
 Refining estimates:
 Iteration 0: Log likelihood = **-8820.2166**

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) =	186.23
Log likelihood =	-8820.2166	Prob > chi2 =	0.0000

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.222218	.1608322	11.03	0.000	1.928329 2.560896
zmyo9b	.977864	.0380663	-0.58	0.565	.9060306 1.055393
_infectionburXzmyo9b_000	1.013406	.075559	0.18	0.858	.8756253 1.172866
AGE	1.037163	.0131609	2.88	0.004	1.011686 1.063281
SEX	.7494193	.0492403	-4.39	0.000	.6588659 .8524183
NonWhite	1.057147	.184619	0.32	0.750	.7507274 1.488635
householdszie	.9350291	.0397796	-1.58	0.114	.8602246 1.016338
SES	.8270802	.0411531	-3.82	0.000	.7502299 .9118027
LE8_TOTALSCORE	.9990564	.0003587	-2.63	0.009	.9983537 .9997597

-> Model for the mediator

Iteration 0: Log likelihood = **-50659.943**
 Iteration 1: Log likelihood = **-50659.943**

Linear regression (Maximum Likelihood)	Number of obs =	35,761
	Wald chi2(7) =	164.82
Log likelihood =	Prob > chi2 =	0.0000

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.004887	.0154173	0.32	0.751	-.0253304 .0351044
AGE	-.0020623	.0010042	-2.05	0.040	-.0040304 -.0000942
SEX	.0192591	.0106641	1.81	0.071	-.0016421 .0401603
NonWhite	.1148133	.0255159	4.50	0.000	.0648031 .1648236
householdszie	-.0039048	.0048505	-0.81	0.421	-.0134117 .005602
SES	-.0151397	.0079955	-1.89	0.058	-.0308105 .0005311
LE8_TOTALSCORE	-.0006019	.0000568	-10.59	0.000	-.0007133 -.0004906
_cons	.3974493	.0725316	5.48	0.000	.25529 .5396087
sigma2					
_cons	.9953845	.0074439	133.72	0.000	.9807947 1.009974

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.221636	.1607454	7.60	0.000	.906581 1.536691
ereri_cde	1.221894	.160767	7.60	0.000	.9067968 1.536992
ereri_intref	-.0001599	.0016361	-0.10	0.922	-.0033667 .0030468
ereri_intmed	.0000109	.0007172	0.02	0.988	-.0013948 .0014167
ereri_pie	-.0001094	.000394	-0.28	0.781	-.0008817 .0006629

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): zmyoc
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -9033.841

Iteration 2: Log likelihood = -9025.7319

Iteration 3: Log likelihood = -9025.7149

Iteration 4: Log likelihood = -9025.7149

Refining estimates:

Iteration 0: Log likelihood = -9025.7149

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 = -9025.7149

LR chi2(9) = 192.20

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.234162	.1601178	11.22	0.000	1.941381
zmyoc		1.002927	.0395156	0.07	0.941	.9283929
_infectionburXzmyoc_000		1.002494	.0710993	0.04	0.972	.8723933
AGE		1.035094	.0130431	2.74	0.006	1.009843
SEX		.7527452	.048904	-4.37	0.000	.6627466
NonWhite		1.086367	.1852188	0.49	0.627	.7777716
householdsize		.9391044	.0393292	-1.50	0.134	.8650993
SES		.8244503	.0405632	-3.92	0.000	.7486609
LE8_TOTALSCORE		.9990187	.0003543	-2.77	0.006	.9983245
						.9997134

-> Model for the mediator

Iteration 0: Log likelihood = -51281.656
Iteration 1: Log likelihood = -51281.656

Linear regression (Maximum Likelihood)
Number of obs = 36,459
Log likelihood = -51281.656 Wald chi2(7) = 913.10
Prob > chi2 = 0.0000

	zmyoc	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0541962	.0150945	-3.59	0.000	-.0837808
AGE		.023916	.0009879	24.21	0.000	.0219797
SEX		-.0175984	.0104597	-1.68	0.092	-.038099
NonWhite		.4081625	.025077	16.28	0.000	.3590125
householdsiz		-.010935	.0049704	-2.20	0.028	-.0206768
SES		-.000065	.0078562	-0.01	0.993	-.0154629
LE8_TOTALSCORE		.0003838	.0000557	6.89	0.000	.0002746
_cons		-1.591784	.0716453	-22.22	0.000	-1.732206
sigma2						
_cons		.9755407	.0072253	135.02	0.000	.9613793
						.9897021

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.233571	.1604761	7.69	0.000	.9190439 1.548099
ereri_cde	1.23413	.1600854	7.71	0.000	.9203683 1.547892
ereri_intref	.0000968	.0017421	0.06	0.956	-.0033176 .0035113
ereri_intmed	-.000497	.0074688	-0.07	0.947	-.0151356 .0141416
ereri_pie	-.0001584	.0021355	-0.07	0.941	-.0043438 .004027

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): zmzb1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 -.07481 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 = -9094.9848
Iteration 1: Log likelihood = -9007.0451
Iteration 2: Log likelihood = -8998.5971
Iteration 3: Log likelihood = -8998.5726
Iteration 4: Log likelihood = -8998.5726
Refining estimates:
Iteration 0: Log likelihood = -8998.5726

```

Cox regression with Breslow method for ties

No. of subjects =	36,538	Number of obs =	36,538
No. of failures =	971		
Time at risk =	443,792.632	LR chi2(9) =	192.82
Log likelihood =	-8998.5726	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.279737	.1642392	11.44	0.000	1.979528 2.625475
zmzb1	1.004377	.0403902	0.11	0.914	.928253 1.086744
_infectionburXzmzb1_000	.9079364	.0620066	-1.41	0.157	.7941884 1.037976
AGE	1.036238	.0130488	2.83	0.005	1.010975 1.062131
SEX	.7512079	.0493399	-4.36	0.000	.6604693 .8544127
NonWhite	1.106046	.1886103	0.59	0.554	.7918092 1.54499
householdsize	.9382638	.0393394	-1.52	0.129	.8642431 1.018624
SES	.8263953	.0410343	-3.84	0.000	.7497592 .9108648
LE8_TOTALSCORE	.9989896	.0003589	-2.81	0.005	.9982865 .9996933

-> Model for the mediator

Iteration 0: Log likelihood = -50120.486	Number of obs = 36,538
Iteration 1: Log likelihood = -50120.486	Wald chi2(7) = 3616.35
Log likelihood = -50120.486	Prob > chi2 = 0.0000

	zmzb1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.167491	.0145642	11.50	0.000	.1389457 .1960364
AGE		.012219	.0009504	12.86	0.000	.0103563 .0140817
SEX		-.2332239	.0100897	-23.12	0.000	-.2529994 -.2134485
NonWhite		.3807895	.0241867	15.74	0.000	.3333844 .4281945
householdsize		.0315136	.004593	6.86	0.000	.0225116 .0405156
SES		-.1740618	.0075733	-22.98	0.000	-.1889052 -.1592185
LE8_TOTALSCORE		-.0017353	.0000537	-32.29	0.000	-.0018406 -.00163
_cons		.3665217	.0686542	5.34	0.000	.231962 .5010815
sigma2						
_cons		.9099139	.006732	135.16	0.000	.8967195 .9231084

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.258549	.1621684	7.76	0.000	.9407045 1.576393
ereri_cde	1.279856	.1643184	7.79	0.000	.9577978 1.601914
ereri_intref	.0138466	.0141062	0.98	0.326	-.0138011 .0414943
ereri_intmed	-.0358857	.0231045	-1.55	0.120	-.0811698 .0093984
ereri_pie	.0007318	.0067408	0.11	0.914	-.0124799 .0139434

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): zmzt1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8794.7176**
 Iteration 2: Log likelihood = **-8786.6476**
 Iteration 3: Log likelihood = **-8786.6298**
 Iteration 4: Log likelihood = **-8786.6298**
 Refining estimates:
 Iteration 0: Log likelihood = **-8786.6298**

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) =	191.13
Log likelihood =	-8786.6298	Prob > chi2 =	0.0000

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.260745	.163796	11.26	0.000	1.961463 2.605691
zmzt1	.9155587	.0385464	-2.10	0.036	.8430422 .9943129
_infectionburXzmzt1_000	1.066564	.0810799	0.85	0.397	.9189221 1.237927
AGE	1.037871	.0131895	2.93	0.003	1.01234 1.064047
SEX	.7511755	.0494689	-4.34	0.000	.6602149 .8546682
NonWhite	1.111467	.189103	0.62	0.535	.7962968 1.551381
householdszie	.9394085	.0395839	-1.48	0.138	.8649427 1.020285
SES	.828577	.0413118	-3.77	0.000	.7514378 .913635
LE8_TOTALSCORE	.9991958	.000359	-2.24	0.025	.9984925 .9998997

-> Model for the mediator

Iteration 0: Log likelihood = **-50402.128**
 Iteration 1: Log likelihood = **-50402.128**

Linear regression (Maximum Likelihood)	Number of obs =	35,573
	Wald chi2(7) =	146.85
Log likelihood =	-50402.128	Prob > chi2 = 0.0000

	zmzt1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0048085	.0154585	-0.31	0.756	-.0351066 .0254896
AGE		-.0029601	.001008	-2.94	0.003	-.0049357 -.0009844
SEX		.0908655	.0106965	8.49	0.000	.0699008 .1118301
NonWhite		.0029421	.0255636	0.12	0.908	-.0471615 .0530458
householdszie		-.0036277	.0048683	-0.75	0.456	-.0131695 .005914
SES		-.0081642	.0080226	-1.02	0.309	-.0238883 .0075598
LE8_TOTALSCORE		-.0004583	.000057	-8.05	0.000	-.00057 -.0003467
_cons		.2764794	.0728508	3.80	0.000	.1336944 .4192645
sigma2						
_cons		.9958609	.0074671	133.37	0.000	.9812256 1.010496

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.252989	.1627793	7.70	0.000	.9339473 1.57203
ereri_cde	1.255942	.1629587	7.71	0.000	.9365488 1.575335
ereri_intref	-.0032108	.0049139	-0.65	0.513	-.0128419 .0064203
ereri_intmed	-.0001667	.0008937	-0.19	0.852	-.0019182 .0015848
ereri_pie	.0004243	.0013793	0.31	0.758	-.0022791 .0031277

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): znaaa
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

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

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

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 .04644 2.215 -.07438 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 = **-8981.0939**

Iteration 1: Log likelihood = **-8892.3755**

Iteration 2: Log likelihood = **-8884.1168**

Iteration 3: Log likelihood = **-8884.0901**

Iteration 4: Log likelihood = **-8884.0901**

Refining estimates:

Iteration 0: Log likelihood = **-8884.0901**

Cox regression with Breslow method for ties

No. of subjects = **35,984** Number of obs = **35,984**

No. of failures = **960**

Time at risk = **437,234.143**

LR chi2(9) = **194.01**

Log likelihood = **-8884.0901** Prob > chi2 = **0.0000**

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.209976	.1593118	11.00	0.000	1.918786
	znaaa	.9864983	.0382639	-0.35	0.726	.9142821
<u>infectionburXznaaa_000</u>		.9654806	.0691394	-0.49	0.624	.83905
	AGE	1.037432	.0131164	2.91	0.004	1.01204
	SEX	.739834	.0484168	-4.60	0.000	.6507726
	NonWhite	1.011025	.17653	0.06	0.950	.7180223
	householdsize	.9436912	.039282	-1.39	0.164	.8697568
	SES	.8083179	.0400585	-4.29	0.000	.7334973
	LE8_TOTALSCORE	.9990376	.0003562	-2.70	0.007	.9983397

-> Model for the mediator

Iteration 0: Log likelihood = -51010.765
Iteration 1: Log likelihood = -51010.765

Linear regression (Maximum Likelihood) Number of obs = 35,984
Log likelihood = -51010.765 Wald chi2(7) = 95.77
Prob > chi2 = 0.0000

	znaaa	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0119392	.0153883	0.78	0.438	-.0182213 .0420997
AGE		.0061418	.0010058	6.11	0.000	.0041704 .0081131
SEX		-.0147347	.0106442	-1.38	0.166	-.035597 .0061276
NonWhite		.0206352	.0255096	0.81	0.419	-.0293626 .070633
householdsize		-.0009776	.0050441	-0.19	0.846	-.0108639 .0089087
SES		-.0099174	.008002	-1.24	0.215	-.0256011 .0057662
LE8_TOTALSCORE		.000411	.0000566	7.26	0.000	.0003 .000522
_cons		-.5540026	.0729082	-7.60	0.000	-.6969 -.4111052
sigma2						
_cons		.997318	.0074352	134.13	0.000	.9827453 1.011891

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.211232	.1594845	7.59	0.000	.8986481 1.523816
ereri_cde	1.209838	.1593042	7.59	0.000	.8976072 1.522068
ereri_intref	.0026809	.0067451	0.40	0.691	-.0105393 .0159011
ereri_intmed	-.0011244	.002205	-0.51	0.610	-.0054461 .0031974
ereri_pie	-.0001623	.0005081	-0.32	0.749	-.0011581 .0008335

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): znadk
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8976.8965
Iteration 2: Log likelihood = -8966.0823
Iteration 3: Log likelihood = -8965.9858
Iteration 4: Log likelihood = -8965.9858
Refining estimates:
Iteration 0: Log likelihood = -8965.9858

```

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) =	197.69
Log likelihood =	-8965.9858	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.263462	.1629213	11.35	0.000	1.965644 2.606404
znadk	.9904244	.0387375	-0.25	0.806	.9173374 1.069334
_infectionburXznadk_000	1.068156	.073128	0.96	0.336	.9340273 1.221545
AGE	1.033256	.0130418	2.59	0.010	1.008009 1.059137
SEX	.7500002	.048872	-4.41	0.000	.6600774 .8521734
NonWhite	1.001914	.1775071	0.01	0.991	.7079857 1.417869
householdsize	.927604	.0398209	-1.75	0.080	.8527497 1.009029
SES	.8263072	.0408547	-3.86	0.000	.7499909 .9103891
LE8_TOTALSCORE	.9990688	.0003585	-2.60	0.009	.9983665 .9997717

-> Model for the mediator

Iteration 0: Log likelihood =	-51034.441	Number of obs =	36,441
Iteration 1: Log likelihood =	-51034.441	Wald chi2(7) =	1370.33
Linear regression (Maximum Likelihood)		Prob > chi2 =	0.0000
Log likelihood =	-51034.441		

	znadk	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0061726	.015003	0.41	0.681	-.0232328 .0355779
AGE		.0133233	.0009799	13.60	0.000	.0114028 .0152439
SEX		-.0489304	.0103965	-4.71	0.000	-.069307 -.0285537
NonWhite		.262617	.0248938	10.55	0.000	.2138261 .3114079
householdsize		-.0032485	.0047313	-0.69	0.492	-.0125216 .0060246
SES		-.0261931	.0078017	-3.36	0.001	-.0414841 -.0109021
LE8_TOTALSCORE		-.0015989	.0000554	-28.85	0.000	-.0017076 -.0014903
_cons		.0654836	.0708195	0.92	0.355	-.07332 .2042872
sigma2						
	_cons	.9637322	.0071396	134.98	0.000	.9497388 .9777257

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.267482	.1625062	7.80	0.000	.9489762 1.585989
ereri_cde	1.263396	.162934	7.75	0.000	.944051 1.58274
ereri_intref	.0032987	.0068877	0.48	0.632	-.010201 .0167983
ereri_intmed	.0008474	.0022181	0.38	0.702	-.0035 .0051948
ereri_pie	-.0000594	.0002813	-0.21	0.833	-.0006107 .0004919

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): znampt
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8798.5724**
 Iteration 2: Log likelihood = **-8788.0012**
 Iteration 3: Log likelihood = **-8787.8186**
 Iteration 4: Log likelihood = **-8787.818**
 Refining estimates:
 Iteration 0: Log likelihood = **-8787.818**

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) =	188.76
Log likelihood =	-8787.818	Prob > chi2 =	0.0000

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.242678	.1623985	11.15	0.000	1.945939 2.584668
znampt	.9622657	.0391389	-0.95	0.344	.8885329 1.042117
_infectionburXznampt_000	1.109863	.0747077	1.55	0.121	.9726863 1.266385
AGE	1.037631	.0131986	2.90	0.004	1.012082 1.063825
SEX	.7454123	.0490389	-4.47	0.000	.6552365 .8479984
NonWhite	1.106542	.1883416	0.59	0.552	.7926605 1.544716
householdszie	.9396143	.0395969	-1.48	0.139	.8651244 1.020518
SES	.8286605	.0413312	-3.77	0.000	.7514864 .91376
LE8_TOTALSCORE	.9992181	.0003598	-2.17	0.030	.9985131 .9999236

-> Model for the mediator

Iteration 0: Log likelihood = **-50303.528**
 Iteration 1: Log likelihood = **-50303.528**

Linear regression (Maximum Likelihood)	Number of obs =	35,573	
	Wald chi2(7) =	345.41	
Log likelihood =	-50303.528	Prob > chi2 =	0.0000

<u>znampt</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0110856	.0154157	0.72	0.472	-.0191287 .0412999
AGE	.000648	.0010052	0.64	0.519	-.0013222 .0026182
SEX	-.0377346	.0106669	-3.54	0.000	-.0586413 -.016828
NonWhite	.1123319	.0254928	4.41	0.000	.0623669 .1622968
householdszie	.0023566	.0048549	0.49	0.627	-.0071587 .011872
SES	-.0151745	.0080004	-1.90	0.058	-.0308551 .0005061
LE8_TOTALSCORE	-.0009123	.0000568	-16.06	0.000	-.0010237 -.000801
_cons	.4623468	.0726492	6.36	0.000	.319957 .6047366
sigma2					
_cons	.9903556	.0074258	133.37	0.000	.9758012 1.00491

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.24712	.1623512	7.68	0.000	.9289172 1.565322
ereri_cde	1.241695	.162256	7.65	0.000	.9236791 1.559711
ereri_intref	.003787	.0079122	0.48	0.632	-.0117206 .0192945
ereri_intmed	.0020641	.0032002	0.65	0.519	-.0042081 .0083364
ereri_pie	-.0004263	.0007446	-0.57	0.567	-.0018857 .0010331

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): znbl1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -9043.6035

Iteration 2: Log likelihood = -9034.5913

Iteration 3: Log likelihood = -9034.5575

Iteration 4: Log likelihood = -9034.5575

Refining estimates:

Iteration 0: Log likelihood = -9034.5575

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) = 195.37

Log likelihood = -9034.5575 Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.285945	.1709394	11.06	0.000	1.974305
znbl1		1.069266	.0422031	1.70	0.090	.9896679
_infectionburXznbl1_000		.9356024	.061174	-1.02	0.309	.8230683
AGE		1.031626	.0130487	2.46	0.014	1.006366
SEX		.775448	.0506272	-3.90	0.000	.6823069
NonWhite		1.066867	.183766	0.38	0.707	.7611884
householdsize		.9322359	.0394541	-1.66	0.097	.8580275
SES		.8256225	.0407515	-3.88	0.000	.7494929
LE8_TOTALSCORE		.9991094	.0003562	-2.50	0.012	.9984116
						.9998078

-> Model for the mediator

Iteration 0: Log likelihood = -50407.043
Iteration 1: Log likelihood = -50407.043

Linear regression (Maximum Likelihood)
Number of obs = 36,540
Log likelihood = -50407.043 Wald chi2(7) = 2997.56
Prob > chi2 = 0.0000

	znbl1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.2323313	.0146888	15.82	0.000	.2035418 .2611208
AGE		.0320652	.0009579	33.47	0.000	.0301878 .0339427
SEX		-.1898817	.0101668	-18.68	0.000	-.2098084 -.169955
NonWhite		-.036301	.0243667	-1.49	0.136	-.0840589 .0114569
householdszie		.0029682	.0046294	0.64	0.521	-.0061051 .0120416
SES		-.0924074	.0076318	-12.11	0.000	-.1073655 -.0774492
LE8_TOTALSCORE		-.0010547	.0000541	-19.48	0.000	-.0011608 -.0009486
_cons		-1.155183	.0692678	-16.68	0.000	-1.290945 -1.01942
sigma2						
_cons		.9241592	.0068372	135.17	0.000	.9107586 .9375599

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]	
tereri	1.286327	.1656141	7.77	0.000	.961729	1.610924
ereri_cde	1.286055	.1707797	7.53	0.000	.9513327	1.620777
ereri_intref	.0000552	.0040922	0.01	0.989	-.0079653	.0080758
ereri_intmed	-.0154649	.0295302	-0.52	0.600	-.073343	.0424133
ereri_pie	.0156815	.0093672	1.67	0.094	-.0026779	.0340408

Warning: this analysis assumes a rare outcome.
Warning: fixed values for the covariates AGE SEX NonWhite householdsize SES LE8_TOTALSCORE were not provided. All

-> Summary

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

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

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 = -8826.1061
 Iteration 2: Log likelihood = -8817.9997
 Iteration 3: Log likelihood = -8817.9731
 Iteration 4: Log likelihood = -8817.9731
 Refining estimates:
 Iteration 0: Log likelihood = -8817.9731

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) = 190.72
Log likelihood = -8817.9731	Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.220729	.1610081	11.00	0.000	1.926555 2.559821
znbn	.9132845	.0394731	-2.10	0.036	.839105 .9940217
_infectionburXznbn_000	1.110052	.0821039	1.41	0.158	.9602518 1.283222
AGE	1.037805	.0131734	2.92	0.003	1.012305 1.063949
SEX	.7427078	.0488999	-4.52	0.000	.652792 .8450087
NonWhite	1.059075	.1849208	0.33	0.742	.7521453 1.491254
householdsize	.9350508	.0397427	-1.58	0.114	.8603127 1.016282
SES	.8276789	.0411629	-3.80	0.000	.7508084 .9124196
LE8_TOTALSCORE	.9990109	.0003606	-2.74	0.006	.9983044 .999718

-> Model for the mediator

Iteration 0: Log likelihood = -50362.118
 Iteration 1: Log likelihood = -50362.118

Linear regression (Maximum Likelihood)

Number of obs = 35,761	
Wald chi2(7) = 768.22	
Log likelihood = -50362.118	Prob > chi2 = 0.0000

	znbn	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0278843	.0152895	1.82	0.068	-.0020825 .0578511
AGE		.0034327	.0009958	3.45	0.001	.0014809 .0053845
SEX		-.1641736	.0105756	-15.52	0.000	-.1849015 -.1434458
NonWhite		.0665699	.0253043	2.63	0.009	.0169744 .1161654
householdsize		-.0009737	.0048103	-0.20	0.840	-.0104017 .0084543
SES		.0028403	.0079291	0.36	0.720	-.0127005 .0183811
LE8_TOTALSCORE		-.0011364	.0000563	-20.17	0.000	-.0012468 -.0010259
_cons		.6089072	.0719301	8.47	0.000	.4679269 .7498875
sigma2						
_cons		.9789423	.0073209	133.72	0.000	.9645935 .9932911

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.211959	.1601904	7.57	0.000	.8979914 1.525926
ereri_cde	1.215396	.1602434	7.58	0.000	.9013249 1.529468
ereri_intref	-.004282	.0042516	-1.01	0.314	-.0126151 .004051
ereri_intmed	.0033709	.0043166	0.78	0.435	-.0050894 .0118312
ereri_pie	-.0025261	.0018327	-1.38	0.168	-.0061182 .0010659

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): zncam1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-9043.9851**
 Iteration 2: Log likelihood = **-9032.7919**
 Iteration 3: Log likelihood = **-9032.6899**
 Iteration 4: Log likelihood = **-9032.6899**
 Refining estimates:
 Iteration 0: Log likelihood = **-9032.6899**

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	LR chi2(9) =	200.19
Log likelihood =	-9032.6899	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.266812	.1624741	11.42	0.000	1.969724 2.608708
zncam1		1.106465	.0420032	2.67	0.008	1.027128 1.19193
_infectionburXzncam1_000		.9985931	.068909	-0.02	0.984	.872269 1.143212
AGE		1.032458	.0129796	2.54	0.011	1.007329 1.058213
SEX		.7913311	.0523965	-3.53	0.000	.6950203 .900988
NonWhite		1.06283	.1810398	0.36	0.721	.7611532 1.484073
householdszie		.9357074	.0394978	-1.57	0.115	.861409 1.016414
SES		.8236842	.0406582	-3.93	0.000	.7477291 .9073549
LE8_TOTALSCORE		.9989488	.0003563	-2.95	0.003	.9982506 .9996474

-> Model for the mediator

Iteration 0: Log likelihood = **-50580.487**
 Iteration 1: Log likelihood = **-50580.487**

Linear regression (Maximum Likelihood)	Number of obs =	36,596
	Wald chi2(7) =	2794.53
Log likelihood =	Prob > chi2 =	0.0000

	zncam1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0838641	.0147153	-5.70	0.000	-.1127056 -.0550226
AGE		.0121031	.0009597	12.61	0.000	.0102222 .013984
SEX		-.4527451	.0101856	-44.45	0.000	-.4727086 -.4327816
NonWhite		.2494994	.0243959	10.23	0.000	.2016842 .2973145
householdszie		.0004095	.0046407	0.09	0.930	-.0086861 .0095051
SES		.031638	.0076463	4.14	0.000	.0166515 .0466245
LE8_TOTALSCORE		.0012713	.0000543	23.40	0.000	.0011648 .0013778
_cons		-.6703245	.0693668	-9.66	0.000	-.8062809 -.5343682
sigma2						
_cons		.9290303	.006868	135.27	0.000	.9155693 .9424913

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.247593	.1605177	7.77	0.000	.9329844 1.562202
ereri_cde	1.259321	.1611868	7.81	0.000	.9434003 1.575241
ereri_intref	.0071561	.0143058	0.50	0.617	-.0208827 .0351949
ereri_intmed	-.0104347	.0116579	-0.90	0.371	-.0332838 .0124145
ereri_pie	-.0084486	.0034848	-2.42	0.015	-.0152788 -.0016185

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): zncam2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-9031.0317**

Iteration 2: Log likelihood = **-9022.9331**

Iteration 3: Log likelihood = **-9022.9158**

Iteration 4: Log likelihood = **-9022.9158**

Refining estimates:

Iteration 0: Log likelihood = **-9022.9158**

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) = 197.80

Log likelihood = -9022.9158

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.240168	.160461	11.26	0.000	1.946748 2.577812
zncam2	1.091612	.042379	2.26	0.024	1.011632 1.177915
_infectionburXzncam2_000	.9589231	.0676222	-0.59	0.552	.8351376 1.101056
AGE	1.035099	.0130064	2.75	0.006	1.009919 1.060908
SEX	.7392935	.0483738	-4.62	0.000	.6503104 .8404522
NonWhite	1.080889	.1837827	0.46	0.647	.7745546 1.508378
householdszie	.9391492	.0393749	-1.50	0.134	.8650616 1.019582
SES	.8241897	.0405702	-3.93	0.000	.7483889 .907668
LE8_TOTALSCORE	.998908	.000357	-3.06	0.002	.9982087 .9996079

-> Model for the mediator

Iteration 0: Log likelihood = -50935.283
 Iteration 1: Log likelihood = -50935.283

Linear regression (Maximum Likelihood)
 Number of obs = 36,459
 Wald chi2(7) = 1629.98
 Log likelihood = -50935.283 Prob > chi2 = 0.0000

	zncam2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0568081	.0149518	-3.80	0.000	-.086113 -.0275032
AGE		-.005117	.0009786	-5.23	0.000	-.007035 -.003199
SEX		.2197201	.0103608	21.21	0.000	.1994134 .2400269
NonWhite		.0323571	.0248399	1.30	0.193	-.0163282 .0810424
householdszie		.0006804	.0049234	0.14	0.890	-.0089694 .0103301
SES		.0069516	.0077819	0.89	0.372	-.0083007 .0222039
LE8_TOTALSCORE		.0016628	.0000552	30.14	0.000	.0015546 .0017709
_cons		-.8553282	.0709679	-12.05	0.000	-.9944227 -.7162338
sigma2						
_cons		.9571798	.0070893	135.02	0.000	.9432849 .9710746

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.227647	.1596683	7.69	0.000	.9147026 1.540591
ereri_cde	1.234761	.1597943	7.73	0.000	.9215702 1.547952
ereri_intref	-.0013224	.0076965	-0.17	0.864	-.0164072 .0137625
ereri_intmed	-.000825	.0078713	-0.10	0.917	-.0162526 .0146025
ereri_pie	-.0049672	.0025527	-1.95	0.052	-.0099704 .0000361

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): zncan
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -9078.3913
Iteration 2: Log likelihood = -9062.4898
Iteration 3: Log likelihood = -9062.1844
Iteration 4: Log likelihood = -9062.1842
Refining estimates:
Iteration 0: Log likelihood = -9062.1842

```

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) =	196.44
Log likelihood =	-9062.1842	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.182958	.159118	10.71	0.000	1.892345 2.5182
zncan	1.01305	.0413757	0.32	0.751	.9351164 1.097479
_infectionburXzncan_000	.8954049	.0609292	-1.62	0.104	.7836067 1.023153
AGE	1.034006	.0129618	2.67	0.008	1.008911 1.059725
SEX	.7645348	.0529926	-3.87	0.000	.6674173 .875784
NonWhite	1.095894	.1868796	0.54	0.591	.7845409 1.530811
householdsize	.9336655	.0394113	-1.63	0.104	.8595298 1.014196
SES	.8175908	.0401808	-4.10	0.000	.7425118 .9002615
LE8_TOTALSCORE	.9990765	.0003592	-2.57	0.010	.9983728 .9997808

-> Model for the mediator

Iteration 0: Log likelihood = -48794.258	Number of obs = 36,751
Iteration 1: Log likelihood = -48794.258	Wald chi2(7) = 7355.97
Log likelihood = -48794.258	Prob > chi2 = 0.0000

	zncan	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0741735	.0138981	-5.34	0.000	-.1014133 -.0469338
AGE		-.0001684	.0009094	-0.19	0.853	-.0019509 .0016141
SEX		.6738965	.0096273	70.00	0.000	.6550274 .6927656
NonWhite		.3944683	.023096	17.08	0.000	.3492011 .4397356
householdsize		.0056421	.004573	1.23	0.217	-.0033208 .0146051
SES		.0509727	.00723	7.05	0.000	.0368022 .0651433
LE8_TOTALSCORE		.0019219	.0000513	37.48	0.000	.0018214 .0020224
_cons		-2.000362	.0659425	-30.33	0.000	-2.129607 -1.871117
sigma2						
_cons		.8332017	.0061465	135.56	0.000	.8211547 .8452487

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.204867	.158252	7.61	0.000	.8946991 1.515035
ereri_cde	1.182717	.1591167	7.43	0.000	.8708539 1.49458
ereri_intref	.0062603	.0090573	0.69	0.489	-.0114917 .0240123
ereri_intmed	.0168513	.0100828	1.67	0.095	-.0029105 .0366132
ereri_pie	-.0009613	.0030319	-0.32	0.751	-.0069037 .0049811

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): zncf2
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 .04648 2.216 -.07496 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 = **-9005.5594**
 Iteration 1: Log likelihood = **-8919.2778**
 Iteration 2: Log likelihood = **-8909.01**
 Iteration 3: Log likelihood = **-8908.9259**
 Iteration 4: Log likelihood = **-8908.9258**
 Refining estimates:
 Iteration 0: Log likelihood = **-8908.9258**

Cox regression with Breslow method for ties

No. of subjects =	36,295	Number of obs =	36,295
No. of failures =	962		
Time at risk =	440,936.914	LR chi2(9) =	193.27
Log likelihood =	-8908.9258	Prob > chi2 =	0.0000

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.246382	.1620125	11.22	0.000	1.950265 2.58746
zncf2	1.019468	.0388066	0.51	0.612	.9461768 1.098437
_infectionburXzncf2_000	1.032845	.0708585	0.47	0.638	.9028972 1.181495
AGE	1.032046	.0130598	2.49	0.013	1.006764 1.057963
SEX	.7589893	.0496904	-4.21	0.000	.6675875 .8629051
NonWhite	1.05703	.1822525	0.32	0.748	.753917 1.482009
householdszie	.9337617	.0397462	-1.61	0.107	.8590217 1.015005
SES	.8210157	.0406044	-3.99	0.000	.7451679 .9045837
LE8_TOTALSCORE	.9990503	.0003585	-2.65	0.008	.9983479 .9997531

-> Model for the mediator

Iteration 0: Log likelihood = **-51050.753**
 Iteration 1: Log likelihood = **-51050.753**

Linear regression (Maximum Likelihood)	Number of obs =	36,295
	Wald chi2(7) =	909.45
Log likelihood =	-51050.753	Prob > chi2 = 0.0000

	zncf2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.009827	.015145	0.65	0.516	-.0198566 .0395106
AGE		.0058026	.0009885	5.87	0.000	.0038652 .0077399
SEX		-.1482515	.0104804	-14.15	0.000	-.1687927 -.1277102
NonWhite		.0296452	.0251111	1.18	0.238	-.0195716 .078862
householdszie		.0043235	.0048498	0.89	0.373	-.0051818 .0138289
SES		-.0104358	.0078609	-1.33	0.184	-.0258428 .0049712
LE8_TOTALSCORE		-.0012986	.0000558	-23.27	0.000	-.001408 -.0011892
_cons		.5148177	.0715168	7.20	0.000	.3746475 .654988
sigma2						
_cons		.9755285	.0072416	134.71	0.000	.9613353 .9897217

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.249935	.1616667	7.73	0.000	.9330739 1.566796
ereri_cde	1.246189	.1619644	7.69	0.000	.9287445 1.563633
ereri_intref	.0026056	.0063607	0.41	0.682	-.0098611 .0150722
ereri_intmed	.0009511	.0019713	0.48	0.629	-.0029127 .0048148
ereri_pie	.0001895	.0004746	0.40	0.690	-.0007408 .0011198

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): znck2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -9035.3394

Iteration 2: Log likelihood = -9026.3261

Iteration 3: Log likelihood = -9026.2889

Iteration 4: Log likelihood = -9026.2889

Refining estimates:

Iteration 0: Log likelihood = -9026.2889

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) = 199.19

Log likelihood = -9026.2889

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.242144	.1607782	11.26	0.000	1.948167
znck2		.9061465	.0348859	-2.56	0.010	.8402873
<u>infectionburXznck2_000</u>		1.017237	.0724123	0.24	0.810	.8847675
AGE		1.035742	.0129909	2.80	0.005	1.010591
SEX		.7588477	.0492717	-4.25	0.000	.6681691
NonWhite		1.097147	.1866652	0.54	0.586	.7860393
householdsize		.9362417	.0393267	-1.57	0.117	.8622503
SES		.8265891	.0407006	-3.87	0.000	.7505457
LE8_TOTALSCORE		.998966	.0003545	-2.92	0.004	.9982715

-> Model for the mediator

Iteration 0: Log likelihood = -51785.723
Iteration 1: Log likelihood = -51785.723

Linear regression (Maximum Likelihood) Number of obs = 36,595
Log likelihood = -51785.723 Wald chi2(7) = 280.74
Prob > chi2 = 0.0000

	znck2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0104033	.0151954	-0.68	0.494	-.0401857 .0193792
AGE		-.0037297	.0009917	-3.76	0.000	-.0056734 -.001786
SEX		-.0085394	.0105287	-0.81	0.417	-.0291753 .0120965
NonWhite		.0366396	.0252426	1.45	0.147	-.0128349 .0861141
householdsiz		-.001863	.0047938	-0.39	0.698	-.0112586 .0075326
SES		-.0203888	.0079027	-2.58	0.010	-.0358779 -.0048997
LE8_TOTALSCORE		-.0008444	.0000561	-15.06	0.000	-.0009543 -.0007345
_cons		.6625264	.0716311	9.25	0.000	.522132 .8029209
sigma2						
_cons		.9923598	.0073362	135.27	0.000	.9779811 1.006739

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.240678	.1599846	7.75	0.000	.9271135 1.554242
ereri_cde	1.236348	.159843	7.73	0.000	.9230619 1.549635
ereri_intref	.002431	.0112591	0.22	0.829	- .0196363 .0244984
ereri_intmed	.0008723	.0019371	0.45	0.652	- .0029243 .004669
ereri_pie	.0010258	.0015518	0.66	0.509	- .0020157 .0040673

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): zncln
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8827.4992
Iteration 2: Log likelihood = -8819.4666
Iteration 3: Log likelihood = -8819.4466
Refining estimates:
Iteration 0: Log likelihood = -8819.4466

```

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) = 187.77
Log likelihood =	-8819.4466	Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.216977	.1605693	10.99	0.000	1.923584 2.55512
zncln	1.046431	.038558	1.23	0.218	.9735229 1.124799
_infectionburXzncln_000	.9128794	.0712267	-1.17	0.243	.7834279 1.063721
AGE	1.037232	.0131653	2.88	0.004	1.011746 1.063359
SEX	.7495974	.0492454	-4.39	0.000	.6590339 .8526061
NonWhite	1.058491	.1848415	0.33	0.745	.7516993 1.490494
householdszie	.9350659	.039836	-1.58	0.115	.8601596 1.016495
SES	.8275644	.0411929	-3.80	0.000	.7506411 .9123706
LE8_TOTALSCORE	.9990596	.0003586	-2.62	0.009	.998357 .9997627

-> Model for the mediator

Iteration 0: Log likelihood = -50710.177	Number of obs = 35,761
Iteration 1: Log likelihood = -50710.177	Wald chi2(7) = 64.03
Log likelihood = -50710.177	Prob > chi2 = 0.0000

	zncln	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0148969	.015439	0.96	0.335	-.015363 .0451568
AGE		-.0050784	.0010056	-5.05	0.000	-.0070492 -.0031075
SEX		.0087282	.0106791	0.82	0.414	-.0122024 .0296588
NonWhite		-.0994825	.0255518	-3.89	0.000	-.149563 -.0494019
householdsize		.0023125	.0048573	0.48	0.634	-.0072077 .0118327
SES		-.0011541	.0080067	-0.14	0.885	-.016847 .0145387
LE8_TOTALSCORE		.0002415	.0000569	4.24	0.000	.00013 .000353
_cons		.1687183	.0726336	2.32	0.020	.0263591 .3110775
sigma2						
_cons		.9981849	.0074649	133.72	0.000	.9835541 1.012816

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.215922	.1603645	7.58	0.000	.901613 1.53023
ereri_cde	1.215841	.1604177	7.58	0.000	.9014278 1.530254
ereri_intref	.0015921	.007496	0.21	0.832	-.0130997 .0162839
ereri_intmed	-.0021876	.0032568	-0.67	0.502	-.0085708 .0041956
ereri_pie	.0006763	.0008907	0.76	0.448	-.0010694 .0024221

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): zncln
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 -.07507 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 = **-8998.5008**
 Iteration 1: Log likelihood = **-8906.8213**
 Iteration 2: Log likelihood = **-8898.1502**
 Iteration 3: Log likelihood = **-8898.1202**
 Iteration 4: Log likelihood = **-8898.1202**
 Refining estimates:
 Iteration 0: Log likelihood = **-8898.1202**

Cox regression with Breslow method for ties

No. of subjects =	36,298	Number of obs =	36,298
No. of failures =	961		
Time at risk =	441,003.603	LR chi2(9) =	200.76
Log likelihood =	-8898.1202	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.267612	.165459	11.22	0.000	1.965441	2.616241
zncr1	1.116344	.0432316	2.84	0.004	1.034747	1.204375
_infectionburXzncr1_000	.9294014	.0615875	-1.10	0.269	.8162023	1.0583
AGE	1.03124	.0130407	2.43	0.015	1.005995	1.057119
SEX	.7538302	.0492789	-4.32	0.000	.6631768	.8568756
NonWhite	1.117577	.1937185	0.64	0.521	.7956681	1.569723
householdszie	.9354984	.0397718	-1.57	0.117	.8607064	1.01679
SES	.8201734	.0405924	-4.01	0.000	.7443508	.9037196
LE8_TOTALSCORE	.9990173	.0003561	-2.76	0.006	.9983197	.9997154

-> Model for the mediator

Iteration 0: Log likelihood = **-50887.013**
 Iteration 1: Log likelihood = **-50887.013**

Linear regression (Maximum Likelihood)	Number of obs =	36,298	
	Wald chi2(7) =	1255.46	
Log likelihood =	-50887.013	Prob > chi2 =	0.0000

	zncr1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr	.0897502	.0150765	5.95	0.000	.0602008	.1192995
AGE	.0169887	.000984	17.27	0.000	.0150602	.0189172
SEX	.0657389	.0104313	6.30	0.000	.045294	.0861838
NonWhite	-.6197752	.0249805	-24.81	0.000	-.668736	-.5708144
householdszie	-.0118838	.0048263	-2.46	0.014	-.0213431	-.0024244
SES	-.0417554	.0078256	-5.34	0.000	-.0570934	-.0264175
LE8_TOTALSCORE	-.0002886	.0000555	-5.20	0.000	-.0003974	-.0001797
_cons	-.9390798	.0711628	-13.20	0.000	-1.078556	-.7996033
sigma2						
_cons	.9665421	.0071745	134.72	0.000	.9524803	.980604

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.265389	.1632158	7.75	0.000	.9454923 1.585287
ereri_cde	1.261939	.1643252	7.68	0.000	.9398677 1.584011
ereri_intref	-.0040285	.0045762	-0.88	0.379	-.0129978 .0049407
ereri_intmed	-.002448	.0114637	-0.21	0.831	-.0249164 .0200204
ereri_pie	.0099267	.0038897	2.55	0.011	.0023031 .0175503

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): zncs1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -9114.4106

Iteration 2: Log likelihood = -9101.5722

Iteration 3: Log likelihood = -9101.4256

Iteration 4: Log likelihood = -9101.4256

Refining estimates:

Iteration 0: Log likelihood = -9101.4256

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) = 199.37

Log likelihood = -9101.4256

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.232862	.1667046	10.76	0.000	1.928908
zncts1		1.069618	.0426429	1.69	0.091	.9892216
_infectionburXzncts1_000		1.008114	.0675124	0.12	0.904	.884108
AGE		1.03151	.0129767	2.47	0.014	1.006387
SEX		.777983	.0512359	-3.81	0.000	.6837734
NonWhite		1.084035	.1843056	0.47	0.635	.776826
householdsize		.9342552	.0392823	-1.62	0.106	.8603503
SES		.8238128	.0404072	-3.95	0.000	.7483038
LE8_TOTALSCORE		.9991321	.0003535	-2.45	0.014	.9984396
						.9998252

-> Model for the mediator

Iteration 0: Log likelihood = -50362.386
Iteration 1: Log likelihood = -50362.386

Linear regression (Maximum Likelihood) Number of obs = 36,726
Log likelihood = -50362.386 Wald chi2(7) = 3670.11
Prob > chi2 = 0.0000

	zncs1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0971011	.0145343	6.68	0.000	.0686144 .1255877
AGE		.0344942	.0009479	36.39	0.000	.0326363 .0363521
SEX		-.3935577	.010058	-39.13	0.000	-.413271 -.3738444
NonWhite		-.1604996	.0240647	-6.67	0.000	-.2076655 -.1133337
householdsiz		-.0196616	.0045795	-4.29	0.000	-.0286373 -.0106859
SES		-.0245267	.0075438	-3.25	0.001	-.0393122 -.0097411
LE8_TOTALSCORE		-.0004114	.0000536	-7.68	0.000	-.0005164 -.0003064
_cons		-1.231797	.0685509	-17.97	0.000	-1.366154 -1.097439
sigma2						
_cons		.9091221	.0067089	135.51	0.000	.8959729 .9222713

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.2502	.1633255	7.65	0.000	.9300878 1.570312
ereri_cde	1.231441	.1662391	7.41	0.000	.9056182 1.557264
ereri_intref	.0023483	.0069164	0.34	0.734	-.0112075 .0159042
ereri_intmed	.0098543	.0123433	0.80	0.425	-.0143382 .0340467
ereri_pie	.0065565	.004019	1.63	0.103	-.0013207 .0144336

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): zndrg1
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8733.888
 Iteration 2: Log likelihood = -8725.3855
 Iteration 3: Log likelihood = -8725.3263
 Iteration 4: Log likelihood = -8725.3263
 Refining estimates:
 Iteration 0: Log likelihood = -8725.3263

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) =	188.48
Log likelihood =	-8725.3263	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.212737	.1614758	10.88	0.000	1.917842 2.552976
zndrg1	.92456	.0407358	-1.78	0.075	.8480695 1.007949
_infectionburXzndrg1_000	1.137544	.0820455	1.79	0.074	.9875861 1.310271
AGE	1.037464	.0132119	2.89	0.004	1.011889 1.063684
SEX	.7480682	.0494115	-4.39	0.000	.6572302 .8514613
NonWhite	1.091065	.188015	0.51	0.613	.7783407 1.529438
householdsize	.9304763	.040153	-1.67	0.095	.8550142 1.012599
SES	.8153994	.0407134	-4.09	0.000	.7393829 .8992312
LE8_TOTALSCORE	.9991851	.000361	-2.26	0.024	.9984777 .9998929

-> Model for the mediator

Iteration 0: Log likelihood = -50488.598	Number of obs = 35,601
Iteration 1: Log likelihood = -50488.598	Wald chi2(7) = 53.11
Log likelihood = -50488.598	Prob > chi2 = 0.0000

	zndrg1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0158293	.0154542	1.02	0.306	-.0144604 .046119
AGE		.000218	.0010118	0.02	0.983	-.0019614 .0020049
SEX		-.0029106	.0107061	-0.27	0.786	-.0238941 .0180729
NonWhite		-.0702916	.0255457	-2.75	0.006	-.1203603 -.0202229
householdsize		-.0058908	.005079	-1.16	0.246	-.0158454 .0040639
SES		-.0125983	.0080426	-1.57	0.117	-.0283615 .0031648
LE8_TOTALSCORE		-.0003256	.0000571	-5.71	0.000	-.0004374 -.0002137
_cons		.1793064	.0733551	2.44	0.015	.035533 .3230799
sigma2						
_cons		.9984825	.0074838	133.42	0.000	.9838144 1.013151

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.209892	.1609239	7.52	0.000	.8944866 1.525297
ereri_cde	1.208809	.1608574	7.51	0.000	.8935343 1.524084
ereri_intref	-.000681	.0071121	-0.10	0.924	-.0146205 .0132585
ereri_intmed	.0030044	.003617	0.83	0.406	-.0040849 .0100936
ereri_pie	-.0012408	.0013968	-0.89	0.374	-.0039785 .0014968

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): zndufss6
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8796.1721**
 Iteration 2: Log likelihood = **-8788.1339**
 Iteration 3: Log likelihood = **-8788.117**
 Iteration 4: Log likelihood = **-8788.117**
 Refining estimates:
 Iteration 0: Log likelihood = **-8788.117**

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) =	188.16
Log likelihood =	-8788.117	Prob > chi2 =	0.0000

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.254582	.1630768	11.24	0.000	1.95658 2.597972
zndufsf6	.9507746	.0401381	-1.20	0.232	.8752721 1.03279
_infectionburXzndufsf6_000	1.020762	.0751479	0.28	0.780	.8836075 1.179205
AGE	1.037894	.0132009	2.92	0.003	1.01234 1.064093
SEX	.7435448	.0489415	-4.50	0.000	.653551 .8459308
NonWhite	1.10885	.1886546	0.61	0.544	.7944252 1.547719
householdszie	.9391558	.0396775	-1.49	0.137	.8645219 1.020233
SES	.8283143	.0413165	-3.78	0.000	.751168 .9133836
LE8_TOTALSCORE	.9991929	.0003597	-2.24	0.025	.9984882 .9998982

-> Model for the mediator

Iteration 0: Log likelihood = **-50278.314**
 Iteration 1: Log likelihood = **-50278.314**

Linear regression (Maximum Likelihood)	Number of obs =	35,573	
	Wald chi2(7) =	396.36	
Log likelihood =	-50278.314	Prob > chi2 =	0.0000

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0662068	.0154048	4.30	0.000	.0360139 .0963996
AGE	.0067043	.0010045	6.67	0.000	.0047355 .0086731
SEX	-.0779151	.0106593	-7.31	0.000	-.0988069 -.0570232
NonWhite	-.0216768	.0254747	-0.85	0.395	-.0716064 .0282528
householdszie	.001561	.0048514	0.32	0.748	-.0079476 .0110696
SES	-.0299633	.0079948	-3.75	0.000	-.0456328 -.0142939
LE8_TOTALSCORE	-.0007493	.0000568	-13.20	0.000	-.0008605 -.000638
_cons	.0769683	.0725977	1.06	0.289	-.0653206 .2192572
sigma2					
_cons	.9889527	.0074153	133.37	0.000	.9744189 1.003486

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.247857	.1624851	7.68	0.000	.9293924 1.566322
ereri_cde	1.252422	.1628118	7.69	0.000	.9333167 1.571527
ereri_intref	-.000106	.0058404	-0.02	0.986	-.0115529 .0113409
ereri_intmed	-.0011221	.0094501	-0.12	0.905	-.0196441 .0173998
ereri_pie	-.0033364	.0028915	-1.15	0.249	-.0090036 .0023308

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): znectin2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -8954.0911

Iteration 2: Log likelihood = -8941.6173

Iteration 3: Log likelihood = -8941.4452

Iteration 4: Log likelihood = -8941.445

Refining estimates:

Iteration 0: Log likelihood = -8941.445

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 = -8941.445

LR chi2(9) = 203.33

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.261359	.1688213	10.93	0.000	1.953544 2.617675
znectin2		1.087437	.0422283	2.16	0.031	1.007742 1.173434
_infectionburXznectin2_000		.9725461	.0620428	-0.44	0.663	.8582394 1.102077
AGE		1.031997	.0130716	2.49	0.013	1.006692 1.057937
SEX		.7501858	.0489756	-4.40	0.000	.6600829 .852588
NonWhite		1.024961	.1814981	0.14	0.889	.7243992 1.450228
householdsize		.9286091	.0398865	-1.72	0.085	.8536332 1.01017
SES		.8314521	.0412721	-3.72	0.000	.7543708 .9164097
LE8_TOTALSCORE		.9991516	.0003588	-2.36	0.018	.9984486 .9998551

-> Model for the mediator

Iteration 0: Log likelihood = -50399.932
 Iteration 1: Log likelihood = -50399.932

Linear regression (Maximum Likelihood) Number of obs = 36,384
 Wald chi2(7) = 2537.00
 Prob > chi2 = 0.0000

Log likelihood = -50399.932

	znectin2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.2348049	.0147888	15.88	0.000	.2058193 .2637905
AGE		.0219528	.0009658	22.73	0.000	.0200598 .0238457
SEX		-.0480396	.0102474	-4.69	0.000	-.0681242 -.0279551
NonWhite		-.248012	.0245256	-10.11	0.000	-.2960812 -.1999428
householdsize		-.0068306	.004662	-1.47	0.143	-.015968 .0023068
SES		-.1167423	.0076894	-15.18	0.000	-.1318132 -.1016714
LE8_TOTALSCORE		-.0014559	.0000546	-26.66	0.000	-.0015629 -.0013488
_cons		-.5337483	.0697978	-7.65	0.000	-.6705494 -.3969471
sigma2						
_cons		.934791	.0069307	134.88	0.000	.9212072 .9483749

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.289196	.1649705	7.81	0.000	.9658595 1.612532
ereri_cde	1.260666	.1685191	7.48	0.000	.9303744 1.590957
ereri_intref	-.0013661	.0028945	-0.47	0.637	-.0070392 .0043071
ereri_intmed	.010019	.0284569	0.35	0.725	-.0457555 .0657935
ereri_pie	.0198771	.009385	2.12	0.034	.0014829 .0382713

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): znectin4
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -9042.385
 Iteration 2: Log likelihood = -9033.4451
 Iteration 3: Log likelihood = -9033.4075
 Iteration 4: Log likelihood = -9033.4075
 Refining estimates:
 Iteration 0: Log likelihood = -9033.4075

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) =	197.67
Log likelihood =	-9033.4075	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.277804	.1662144	11.28	0.000	1.974254 2.628026
znectin4	1.09134	.0413691	2.31	0.021	1.013197 1.17551
_infectionburXznectin4_000	.9181899	.0572803	-1.37	0.171	.8125146 1.037609
AGE	1.032125	.0129964	2.51	0.012	1.006965 1.057915
SEX	.7837014	.0515877	-3.70	0.000	.688842 .8916237
NonWhite	1.051395	.1812467	0.29	0.771	.7499461 1.474015
householdsize	.9319397	.0394888	-1.66	0.096	.8576697 1.012641
SES	.8275912	.040869	-3.83	0.000	.7512438 .9116977
LE8_TOTALSCORE	.9990861	.0003543	-2.58	0.010	.9983919 .9997807

-> Model for the mediator

Iteration 0: Log likelihood = -50870.255
 Iteration 1: Log likelihood = -50870.255

Linear regression (Maximum Likelihood)
 Number of obs = 36,540
 Wald chi2(7) = 2007.74
 Log likelihood = -50870.255 Prob > chi2 = 0.0000

	znectin4	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.2124573	.0148762	14.28	0.000	.1833004 .2416141
AGE		.0154402	.0009701	15.92	0.000	.0135388 .0173417
SEX		-.2946664	.0102966	-28.62	0.000	-.3148473 -.2744855
NonWhite		.1616058	.0246776	6.55	0.000	.1132387 .209973
householdsize		.0053882	.0046884	1.15	0.250	-.003801 .0145773
SES		-.1180702	.0077292	-15.28	0.000	-.1332191 -.1029212
LE8_TOTALSCORE		-.000424	.0000548	-7.73	0.000	-.0005315 -.0003166
_cons		-.3235545	.0701515	-4.61	0.000	-.461049 -.18606
sigma2						
_cons		.9478896	.0070128	135.17	0.000	.9341449 .9616344

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.276284	.1629433	7.83	0.000	.9569209 1.595647
ereri_cde	1.276469	.1658468	7.70	0.000	.9514147 1.601522
ereri_intref	-.0011784	.0038137	-0.31	0.757	-.0086531 .0062962
ereri_intmed	-.0177499	.0255655	-0.69	0.487	-.0678573 .0323575
ereri_pie	.0187436	.0083108	2.26	0.024	.0024548 .0350324

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): znefl
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 .04696 2.215 -.07401 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 = **-8777.8976**
 Iteration 1: Log likelihood = **-8602.7198**
 Iteration 2: Log likelihood = **-8570.8823**
 Iteration 3: Log likelihood = **-8569.9774**
 Iteration 4: Log likelihood = **-8569.974**
 Iteration 5: Log likelihood = **-8569.974**
 Refining estimates:
 Iteration 0: Log likelihood = **-8569.974**

Cox regression with Breslow method for ties

No. of subjects =	35,496	Number of obs =	35,496
No. of failures =	939		
Time at risk =	431,168.616	LR chi2(9) =	415.85
Log likelihood =	-8569.974	Prob > chi2 =	0.0000

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.310636	.1973956	9.80	0.000	1.954403 2.7318
znefl	1.625056	.0482095	16.37	0.000	1.533262 1.722346
_infectionburXznefl_000	.8516823	.0445215	-3.07	0.002	.7687431 .9435697
AGE	1.005197	.0129029	0.40	0.686	.9802236 1.030808
SEX	.7626832	.050488	-4.09	0.000	.6698792 .8683443
NonWhite	1.089301	.1880779	0.50	0.620	.776569 1.527973
householdsize	.9418971	.0399687	-1.41	0.158	.866729 1.023584
SES	.8262824	.0414001	-3.81	0.000	.7489966 .9115429
LE8_TOTALSCORE	.9990816	.0003577	-2.57	0.010	.9983808 .999783

-> Model for the mediator

Iteration 0: Log likelihood = **-47412.063**
 Iteration 1: Log likelihood = **-47412.063**

Linear regression (Maximum Likelihood)	Number of obs =	35,496	
	Wald chi2(7) =	6428.31	
Log likelihood =	-47412.063	Prob > chi2 =	0.0000

<u>znefl</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.1804601	.0142492	12.66	0.000	.1525321 .208388
AGE	.0676931	.0009331	72.55	0.000	.0658643 .0695219
SEX	-.0283816	.0098731	-2.87	0.004	-.0477325 -.0090308
NonWhite	-.0234046	.023537	-0.99	0.320	-.0695363 .0227272
householdsize	-.0141586	.004682	-3.02	0.002	-.0233351 -.0049821
SES	-.0225845	.0074183	-3.04	0.002	-.0371241 -.0080448
LE8_TOTALSCORE	.000533	.0000526	10.13	0.000	.0004299 .0006362
_cons	-4.291555	.0676371	-63.45	0.000	-4.424121 -4.158989
sigma2					
_cons	.8466449	.0063552	133.22	0.000	.834189 .8591008

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.32824	.1781948	7.45	0.000	.978985 1.677496
ereri_cde	1.20068	.1775975	6.76	0.000	.8525956 1.548765
ereri_intref	-.0050633	.0235653	-0.21	0.830	-.0512504 .0411238
ereri_intmed	.041049	.018319	2.24	0.025	.0051444 .0769535
ereri_pie	.0915744	.0095491	9.59	0.000	.0728584 .1102903

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): znell1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

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

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

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 = **-9043.1083**

Iteration 2: Log likelihood = **-9034.1676**

Iteration 3: Log likelihood = **-9034.1385**

Iteration 4: Log likelihood = **-9034.1385**

Refining estimates:

Iteration 0: Log likelihood = **-9034.1385**

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) = 196.21
Log likelihood =	-9034.1385	Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.256103	.1636542	11.22	0.000	1.957105 2.600781
znell1	.9313301	.0357451	-1.85	0.064	.8638412 1.004092
_infectionburXznell1_000	1.043391	.0692878	0.64	0.522	.9160553 1.188426
AGE	1.032752	.0129883	2.56	0.010	1.007606 1.058525
SEX	.7642886	.0496201	-4.14	0.000	.6729683 .8680008
NonWhite	1.054793	.1817316	0.31	0.757	.7525105 1.478502
householdsize	.931341	.0394451	-1.68	0.093	.8571518 1.011952
SES	.8265122	.040746	-3.87	0.000	.7503883 .9103585
LE8_TOTALSCORE	.9990967	.0003547	-2.55	0.011	.9984017 .9997921

-> Model for the mediator

Iteration 0: Log likelihood = -51536.582
 Iteration 1: Log likelihood = -51536.582

Linear regression (Maximum Likelihood)
 Number of obs = 36,540
 Wald chi2(7) = 627.19
 Log likelihood = -51536.582 Prob > chi2 = 0.0000

znell1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	-.1420337	.01515	-9.38	0.000	-.171727 -.1123403
AGE	-.011026	.000988	-11.16	0.000	-.0129624 -.0090896
SEX	-.0619885	.010486	-5.91	0.000	-.0825408 -.0414363
NonWhite	-.1456691	.0251317	-5.80	0.000	-.1949263 -.0964118
householdsize	-.0119651	.0047747	-2.51	0.012	-.0213234 -.0026069
SES	.0717824	.0078714	9.12	0.000	.0563547 .0872102
LE8_TOTALSCORE	.0006057	.0000558	10.85	0.000	.0004963 .0007151
_cons	.5136646	.0714425	7.19	0.000	.3736398 .6536894
sigma2					
_cons	.9830983	.0072732	135.17	0.000	.9688431 .9973536

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.262484	.1617439	7.81	0.000	.9454716 1.579496
ereri_cde	1.254739	.1633274	7.68	0.000	.9346232 1.574855
ereri_intref	-.0014481	.0021867	-0.66	0.508	-.005734 .0028378
ereri_intmed	-.0009627	.0182112	-0.05	0.958	-.036656 .0347306
ereri_pie	.0101557	.0056133	1.81	0.070	-.0008462 .0211576

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): znell2
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -9038.3006
 Iteration 2: Log likelihood = -9025.5365
 Iteration 3: Log likelihood = -9025.4054
 Iteration 4: Log likelihood = -9025.4054
 Refining estimates:
 Iteration 0: Log likelihood = -9025.4054

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 = -9025.4054	LR chi2(9) = 200.96
	Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.21841	.1596282	11.07	0.000	1.926605 2.554412
znell2	.9057957	.036296	-2.47	0.014	.8373787 .9798026
_infectionburXznell2_000	.9817676	.0679163	-0.27	0.790	.8572838 1.124327
AGE	1.036931	.0130288	2.89	0.004	1.011707 1.062784
SEX	.7924877	.0527021	-3.50	0.000	.6956421 .902816
NonWhite	1.146372	.1956828	0.80	0.424	.8204034 1.601856
householdsize	.9371155	.0392255	-1.55	0.121	.863304 1.017238
SES	.8247813	.0405867	-3.91	0.000	.7489485 .9082923
LE8_TOTALSCORE	.9990902	.0003538	-2.57	0.010	.998397 .9997839

-> Model for the mediator

Iteration 0: Log likelihood = -50788.856
 Iteration 1: Log likelihood = -50788.856

Linear regression (Maximum Likelihood)
 Number of obs = 36,595
 Wald chi2(7) = 2345.50
 Prob > chi2 = 0.0000
 Log likelihood = -50788.856

	znell2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0536963	.0147871	-3.63	0.000	-.0826784
AGE		.0087089	.0009651	9.02	0.000	.0068174
SEX		.4449384	.0102458	43.43	0.000	.4248571
NonWhite		.3777217	.0245642	15.38	0.000	.3295767
householdsize		.001654	.0046649	0.35	0.723	-.0074891
SES		-.0262962	.0076904	-3.42	0.001	-.041369
LE8_TOTALSCORE		.000469	.0000546	8.60	0.000	.000362
_cons		-1.455958	.0697062	-20.89	0.000	-1.59258
sigma2						
_cons		.9397414	.0069472	135.27	0.000	.9261251
						.9533578

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.236303	.1597284	7.74	0.000	.9232413
ereri_cde	1.213714	.1589501	7.64	0.000	.9021777
ereri_intref	.0085428	.0134294	0.64	0.525	-.0177783
ereri_intmed	.0087194	.0076028	1.15	0.251	-.0061818
ereri_pie	.0053269	.0026158	2.04	0.042	.0002
					.0104538

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): znfasc
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -9073.8189
 Iteration 2: Log likelihood = -9064.8116
 Iteration 3: Log likelihood = -9064.7909
 Iteration 4: Log likelihood = -9064.7909
 Refining estimates:
 Iteration 0: Log likelihood = -9064.7909

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) =	203.17
Log likelihood =	-9064.7909	Prob > chi2 =	0.0000

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.27508	.1647827	11.35	0.000	1.973989 2.622097
znfasc	.9307381	.0372562	-1.79	0.073	.8605082 1.0067
_infectionburXznfasc_000	1.039204	.0715356	0.56	0.576	.908044 1.18931
AGE	1.037494	.0130566	2.92	0.003	1.012216 1.063403
SEX	.7472358	.0485695	-4.48	0.000	.6578554 .8487599
NonWhite	1.065333	.1836163	0.37	0.713	.7599336 1.493464
householdszie	.9358211	.0392448	-1.58	0.114	.8619788 1.015989
SES	.8169966	.0401119	-4.12	0.000	.7420429 .8995214
LE8_TOTALSCORE	.9989825	.000358	-2.84	0.004	.998281 .9996844

-> Model for the mediator

Iteration 0: Log likelihood = -50861.816
 Iteration 1: Log likelihood = -50861.816

Linear regression (Maximum Likelihood)	Number of obs = 36,824
	Wald chi2(7) = 2884.77
Log likelihood = -50861.816	Prob > chi2 = 0.0000

<u>z</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
znfasc					
mu					
infectionburdenhospbr	.1102728	.0146522	7.53	0.000	.0815549 .1389906
AGE	.0308478	.0009557	32.28	0.000	.0289747 .0327209
SEX	-.1337957	.0101455	-13.19	0.000	-.1536804 -.113911
NonWhite	.3270658	.0242694	13.48	0.000	.2794988 .3746329
householdszie	-.0143556	.0046253	-3.10	0.002	-.0234211 -.0052902
SES	-.0334014	.0076078	-4.39	0.000	-.0483123 -.0184904
LE8_TOTALSCORE	-.001565	.000054	-28.98	0.000	-.0016709 -.0014592
_cons	-.8694748	.0690812	-12.59	0.000	-1.004871 -.7340782
sigma2					
_cons	.9273265	.0068341	135.69	0.000	.9139319 .9407212

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.261161	.1630483	7.73	0.000	.9415922 1.58073
ereri_cde	1.270642	.1644918	7.72	0.000	.9482436 1.59304
ereri_intref	-.0011567	.0067738	-0.17	0.864	-.0144331 .0121198
ereri_intmed	-.0004401	.0149065	-0.03	0.976	-.0296563 .0287761
ereri_pie	-.0078838	.0045019	-1.75	0.080	-.0167073 .0009396

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): znfatc1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8946.2436**

Iteration 2: Log likelihood = **-8935.7457**

Iteration 3: Log likelihood = **-8935.6825**

Iteration 4: Log likelihood = **-8935.6825**

Refining estimates:

Iteration 0: Log likelihood = **-8935.6825**

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) = 201.51

Log likelihood = -8935.6825

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.247472	.1620852	11.23	0.000	1.951221 2.588701
znfatc1		.9194678	.0359849	-2.15	0.032	.8515757 .9927725
_infectionburXznfatc1_000		.9640005	.0695334	-0.51	0.611	.8369125 1.110387
AGE		1.032674	.0129997	2.55	0.011	1.007506 1.058469
SEX		.7500009	.0489925	-4.40	0.000	.6598703 .8524424
NonWhite		1.055867	.1819612	0.32	0.752	.7532149 1.48013
householdszie		.9337913	.0396514	-1.61	0.107	.859222 1.014832
SES		.8188514	.0404451	-4.05	0.000	.7432965 .9020863
LE8_TOTALSCORE		.9989278	.0003565	-3.01	0.003	.9982294 .9996267

-> Model for the mediator

Iteration 0: Log likelihood = -51308.251
 Iteration 1: Log likelihood = -51308.251

Linear regression (Maximum Likelihood)
 Number of obs = 36,352
 Wald chi2(7) = 549.11
 Prob > chi2 = 0.0000
 Log likelihood = -51308.251

	znfatc1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0113584	.0152046	-0.75	0.455	-.0411588 .0184419
AGE		-.0041032	.0009925	-4.13	0.000	-.0060485 -.0021579
SEX		-.1482651	.0105234	-14.09	0.000	-.1688906 -.1276395
NonWhite		.0065204	.0252177	0.26	0.796	-.0429053 .0559462
householdszie		-.0063457	.0048706	-1.30	0.193	-.0158918 .0032004
SES		-.0081205	.0078931	-1.03	0.304	-.0235906 .0073497
LE8_TOTALSCORE		-.0009396	.000056	-16.77	0.000	-.0010495 -.0008298
_cons		.9591173	.0717996	13.36	0.000	.8183925 1.099842
sigma2						
_cons		.9850923	.0073068	134.82	0.000	.9707712 .9994134

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.258753	.1617398	7.78	0.000	.9417487 1.575757
ereri_cde	1.243312	.1613969	7.70	0.000	.9269803 1.559644
ereri_intref	.0123479	.0163299	0.76	0.450	-.0196581 .0443539
ereri_intmed	.0021385	.0032972	0.65	0.517	-.0043238 .0086008
ereri_pie	.0009541	.0013531	0.71	0.481	-.0016978 .003606

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): znfatc3
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8828.0956
 Iteration 2: Log likelihood = -8818.8052
 Iteration 3: Log likelihood = -8818.7632
 Iteration 4: Log likelihood = -8818.7632
 Refining estimates:
 Iteration 0: Log likelihood = -8818.7632

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) =	189.14
Log likelihood =	-8818.7632	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.22023	.1607764	11.01	0.000	1.926455 2.558805
znfatc3	.9761639	.0390081	-0.60	0.546	.9026268 1.055692
_infectionburXznfatc3_000	.9217458	.0686601	-1.09	0.274	.7965368 1.066637
AGE	1.036907	.0131583	2.86	0.004	1.011436 1.063021
SEX	.7454599	.0490397	-4.47	0.000	.6552822 .8480475
NonWhite	1.044687	.1826098	0.25	0.803	.7416468 1.471549
householdsize	.9348137	.0398502	-1.58	0.114	.8598827 1.016274
SES	.8276969	.0411808	-3.80	0.000	.7507946 .9124762
LE8_TOTALSCORE	.99902	.0003596	-2.72	0.006	.9983155 .999725

-> Model for the mediator

Iteration 0: Log likelihood = -50388.511
 Iteration 1: Log likelihood = -50388.511

Linear regression (Maximum Likelihood) Number of obs = 35,761
 Log likelihood = -50388.511 Wald chi2(7) = 714.34
 Prob > chi2 = 0.0000

znfatc3	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0459044	.0153008	3.00	0.003	.0159155 .0758933
AGE	-.0046501	.0009966	-4.67	0.000	-.0066033 -.0026969
SEX	-.1199023	.0105834	-11.33	0.000	-.1406454 -.0991591
NonWhite	-.2980075	.025323	-11.77	0.000	-.3476396 -.2483754
householdsize	-.0060844	.0048138	-1.26	0.206	-.0155194 .0033505
SES	.003644	.007935	0.46	0.646	-.0119083 .0191963
LE8_TOTALSCORE	-.0011063	.0000564	-19.62	0.000	-.0012168 -.0009958
_cons	1.038407	.0719832	14.43	0.000	.8973221 1.179491
sigma2					
_cons	.9803884	.0073318	133.72	0.000	.9660184 .9947584

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.222123	.1607859	7.60	0.000	.9069888 1.537258
ereri_cde	1.219695	.160702	7.59	0.000	.904725 1.534665
ereri_intref	.0132273	.0155516	0.85	0.395	-.0172532 .0437079
ereri_intmed	-.0096922	.0074939	-1.29	0.196	-.02438 .0049957
ereri_pie	-.0011068	.0018691	-0.59	0.554	-.0047701 .0025565

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): znfkbie
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8793.5895**
 Iteration 2: Log likelihood = **-8784.9306**
 Iteration 3: Log likelihood = **-8784.8974**
 Iteration 4: Log likelihood = **-8784.8974**
 Refining estimates:
 Iteration 0: Log likelihood = **-8784.8974**

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) =	194.60
Log likelihood =	-8784.8974	Prob > chi2 =	0.0000

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.25747	.1636117	11.23	0.000	1.958531 2.602036
znfkbie	.8927356	.0366112	-2.77	0.006	.823787 .9674549
_infectionburXznfkbie_000	1.156478	.083436	2.02	0.044	1.003982 1.332136
AGE	1.038344	.0132023	2.96	0.003	1.012787 1.064545
SEX	.7469344	.0491326	-4.44	0.000	.6565855 .8497157
NonWhite	1.112614	.1892728	0.63	0.530	.7971534 1.552912
householdsize	.9389916	.0396252	-1.49	0.136	.8644527 1.019958
SES	.8276091	.0412546	-3.80	0.000	.7505759 .9125484
LE8_TOTALSCORE	.999146	.0003614	-2.36	0.018	.9984379 .9998546

-> Model for the mediator

Iteration 0: Log likelihood = **-50149.589**
 Iteration 1: Log likelihood = **-50149.589**

Linear regression (Maximum Likelihood)	Number of obs =	35,573	
	Wald chi2(7) =	657.63	
Log likelihood =	-50149.589	Prob > chi2 =	0.0000

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0331071	.0153492	2.16	0.031	.0030233 .0631909
AGE	.0013003	.0010009	1.30	0.194	-.0006614 .003262
SEX	-.0227282	.0106208	-2.14	0.032	-.0435445 -.0019118
NonWhite	.0743682	.0253827	2.93	0.003	.024619 .1241175
householdsize	-.0062515	.0048339	-1.29	0.196	-.0157258 .0032228
SES	-.0244022	.0079659	-3.06	0.002	-.0400151 -.0087894
LE8_TOTALSCORE	-.0013006	.0000566	-23.00	0.000	-.0014115 -.0011898
_cons	.6116084	.0723355	8.46	0.000	.4698335 .7533834
sigma2					
_cons	.9818212	.0073619	133.37	0.000	.9673923 .9962502

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.245243	.1622728	7.67	0.000	.927194 1.563292
ereri_cde	1.248897	.1622922	7.70	0.000	.9308099 1.566984
ereri_intref	-.0060249	.006044	-1.00	0.319	-.017871 .0058212
ereri_intmed	.0061205	.0054254	1.13	0.259	-.0045131 .0167541
ereri_pie	-.0037494	.0022	-1.70	0.088	-.0080614 .0005625

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): zngf
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -8897.9456

Iteration 2: Log likelihood = -8887.035

Iteration 3: Log likelihood = -8886.9185

Iteration 4: Log likelihood = -8886.9185

Refining estimates:

Iteration 0: Log likelihood = -8886.9185

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) = 197.06

Log likelihood = -8886.9185

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.200123	.1588981	10.92	0.000	1.909726 2.534677
zngf		.9677075	.0376324	-0.84	0.399	.8966902 1.044349
_infectionburXzngf_000		.9122633	.0675419	-1.24	0.215	.7890402 1.05473
AGE		1.037623	.013117	2.92	0.003	1.01223 1.063653
SEX		.7407798	.0484731	-4.59	0.000	.6516143 .8421466
NonWhite		1.014762	.1771573	0.08	0.933	.7207115 1.428786
householdszie		.9426493	.0392418	-1.42	0.156	.8687909 1.022787
SES		.81096	.0401524	-4.23	0.000	.7359607 .8936023
LE8_TOTALSCORE		.9990146	.0003564	-2.76	0.006	.9983164 .9997133

-> Model for the mediator

Iteration 0: Log likelihood = **-51298.634**
 Iteration 1: Log likelihood = **-51298.634**

Linear regression (Maximum Likelihood)
 Number of obs = 36,164
 Wald chi2(7) = 30.73
 Prob > chi2 = 0.0001
 Log likelihood = **-51298.634**

	zngf	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0378999	.0153525	2.47	0.014	.0078095 .0679902
AGE		.0017324	.0010045	1.72	0.085	-.0002364 .0037012
SEX		.0054654	.0106271	0.51	0.607	-.0153633 .026294
NonWhite		-.0851113	.0254821	-3.34	0.001	-.1350553 -.0351673
householdszie		-.0076106	.0050398	-1.51	0.131	-.0174884 .0022673
SES		-.0010733	.0079885	-0.13	0.893	-.0167305 .0145839
LE8_TOTALSCORE		-.0000673	.0000566	-1.19	0.234	-.0001781 .0000436
_cons		-.0634583	.0728017	-0.87	0.383	-.2061471 .0792304
sigma2						
_cons		.9991233	.0074301	134.47	0.000	.9845606 1.013686

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.206694	.1591224	7.58	0.000	.8948196 1.518568
ereri_cde	1.19927	.1587768	7.55	0.000	.888073 1.510467
ereri_intref	.0178737	.0182129	0.98	0.326	-.0178229 .0535702
ereri_intmed	-.0092064	.0066914	-1.38	0.169	-.0223214 .0039085
ereri_pie	-.0012433	.0015557	-0.80	0.424	-.0042924 .0018058

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): znid1
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 .04656 2.216 -.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 = -9080.3817
 Iteration 1: Log likelihood = -8991.959
 Iteration 2: Log likelihood = -8982.6372
 Iteration 3: Log likelihood = -8982.5953
 Iteration 4: Log likelihood = -8982.5953
 Refining estimates:
 Iteration 0: Log likelihood = -8982.5953

Cox regression with Breslow method for ties

No. of subjects =	36,468	Number of obs =	36,468
No. of failures =	970		
Time at risk =	443,055.507	LR chi2(9) =	195.57
Log likelihood =	-8982.5953	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.246972	.1607423	11.32	0.000	1.953012 2.585177
znid1	.9460278	.0377114	-1.39	0.164	.8749286 1.022905
_infectionburXznid1_000	.9442016	.0659122	-0.82	0.411	.823464 1.082642
AGE	1.034208	.0130423	2.67	0.008	1.008959 1.060089
SEX	.7368824	.0489371	-4.60	0.000	.6469474 .8393196
NonWhite	1.103876	.1876909	0.58	0.561	.7910267 1.540455
householdsize	.9327208	.0395498	-1.64	0.100	.8583382 1.013549
SES	.8215776	.0405805	-3.98	0.000	.7457699 .9050912
LE8_TOTALSCORE	.9989993	.0003578	-2.80	0.005	.9982983 .9997009

-> Model for the mediator

Iteration 0: Log likelihood = -50584.713
 Iteration 1: Log likelihood = -50584.713

Linear regression (Maximum Likelihood)

Number of obs =	36,468
Wald chi2(7) =	2396.74
Prob > chi2 =	0.0000

Log likelihood = -50584.713

	znid1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0372124	.0148129	2.51	0.012	.0081797 .0662452
AGE		.0069688	.0009662	7.21	0.000	.0050751 .0088624
SEX		-.3805414	.0102552	-37.11	0.000	-.4006412 -.3604416
NonWhite		.0576991	.0245325	2.35	0.019	.0096163 .1057819
householdsize		-.0125996	.0046691	-2.70	0.007	-.0217509 -.0034484
SES		-.0429856	.0076986	-5.58	0.000	-.0580747 -.0278966
LE8_TOTALSCORE		-.0012998	.0000547	-23.77	0.000	-.0014069 -.0011926
_cons		.8305463	.0698369	11.89	0.000	.6936685 .9674242
sigma2						
_cons		.9383054	.0069487	135.03	0.000	.9246862 .9519246

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.248389	.1613063	7.74	0.000	.932235 1.564544
ereri_cde	1.244816	.1605615	7.75	0.000	.9301211 1.55951
ereri_intref	.0130396	.0148315	0.88	0.379	-.0160296 .0421087
ereri_intmed	-.0074034	.0059511	-1.24	0.213	-.0190673 .0042606
ereri_pie	-.0020625	.0016924	-1.22	0.223	-.0053795 .0012544

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): znid2
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-9034.8147**
 Iteration 2: Log likelihood = **-9021.3063**
 Iteration 3: Log likelihood = **-9021.1696**
 Iteration 4: Log likelihood = **-9021.1695**
 Refining estimates:
 Iteration 0: Log likelihood = **-9021.1695**

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) =	201.29
Log likelihood =	-9021.1695	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.222819	.1593082	11.15	0.000	1.931519	2.558051
znid2	.9559859	.0367546	-1.17	0.242	.8865955	1.030807
_infectionburXznid2_000	.8849802	.0632207	-1.71	0.087	.7693535	1.017985
AGE	1.035125	.0130108	2.75	0.006	1.009936	1.060942
SEX	.7627207	.049727	-4.15	0.000	.6712276	.8666848
NonWhite	1.084709	.1844352	0.48	0.632	.7772874	1.513717
householdsize	.9376919	.0393164	-1.53	0.125	.8637145	1.018006
SES	.8226484	.0404348	-3.97	0.000	.7470954	.9058422
LE8_TOTALSCORE	.9989272	.000356	-3.01	0.003	.9982297	.9996252

-> Model for the mediator

Iteration 0: Log likelihood = **-51463.421**
 Iteration 1: Log likelihood = **-51463.421**

Linear regression (Maximum Likelihood)	Number of obs =	36,459
	Wald chi2(7) =	542.31
Log likelihood =	-51463.421	Prob > chi2 = 0.0000

	znid2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0334043	.0151699	2.20	0.028	.0036718
AGE		.0024304	.0009929	2.45	0.014	.0004844
SEX		.1246903	.010512	11.86	0.000	.1040873
NonWhite		-.1563651	.0252023	-6.20	0.000	-.2057608
householdsize		-.0065034	.0049953	-1.30	0.193	-.016294
SES		-.0230323	.0078955	-2.92	0.004	-.0385072
LE8_TOTALSCORE		-.0010001	.000056	-17.87	0.000	-.0011098
_cons		.1787068	.0720034	2.48	0.013	.0375828
sigma2						
_cons		.9853164	.0072977	135.02	0.000	.9710131
						.9996197

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.240128	.1599527	7.75	0.000	.9266259 1.553629
ereri_cde	1.221344	.1591095	7.68	0.000	.9094949 1.533193
ereri_intref	.0313304	.0231288	1.35	0.176	-.0140011 .076662
ereri_intmed	-.0110442	.0069514	-1.59	0.112	-.0246687 .0025802
ereri_pie	-.0015025	.0014523	-1.03	0.301	-.004349 .0013441

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): zninj1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

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

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

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 = **-8798.7806**

Iteration 2: Log likelihood = **-8788.1805**

Iteration 3: Log likelihood = **-8788.0036**

Iteration 4: Log likelihood = **-8788.0031**

Refining estimates:

Iteration 0: Log likelihood = **-8788.0031**

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) = **188.39**

Log likelihood = **-8788.0031**

Prob > chi2 = **0.0000**

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.238568	.162195	11.12	0.000	1.942212 2.580144
zninj1	.9915358	.0395542	-0.21	0.831	.9169643 1.072172
_infectionburXzninj1_000	1.096521	.0772856	1.31	0.191	.9550407 1.258959
AGE	1.03746	.0131948	2.89	0.004	1.011918 1.063646
SEX	.745471	.0490366	-4.47	0.000	.6552987 .8480514
NonWhite	1.109335	.1888066	0.61	0.542	.7946758 1.548587
householdsize	.939627	.0396206	-1.48	0.140	.8650944 1.020581
SES	.8283778	.0412921	-3.78	0.000	.7512745 .9133943
LE8_TOTALSCORE	.9992299	.0003589	-2.15	0.032	.9985268 .9999335

-> Model for the mediator

Iteration 0: Log likelihood = -50399.723

Iteration 1: Log likelihood = -50399.723 (backed up)

Linear regression (Maximum Likelihood)

Number of obs = 35,573

Wald chi2(7) = 151.68

Log likelihood = -50399.723

Prob > chi2 = 0.0000

	zninj1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr	.0223934	.0154575	1.45	0.147	-.0079027	.0526894
AGE	.0056643	.0010079	5.62	0.000	.0036888	.0076398
SEX	-.024234	.0106957	-2.27	0.023	-.0451972	-.0032707
NonWhite	-.2078518	.0255618	-8.13	0.000	-.257952	-.1577515
householdsize	-.0054615	.004868	-1.12	0.262	-.0150027	.0040796
SES	.0077541	.0080221	0.97	0.334	-.0079689	.0234771
LE8_TOTALSCORE	-.0002638	.000057	-4.63	0.000	-.0003755	-.001522
_cons	-.1524626	.0728459	-2.09	0.036	-.2952379	-.0096872
sigma2						
_cons	.9957263	.0074661	133.37	0.000	.981093	1.01036

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.249865	.1625222	7.69	0.000	.9313276 1.568403
ereri_cde	1.238491	.1621957	7.64	0.000	.920593 1.556388
ereri_intref	.0071645	.010508	0.68	0.495	-.0134308 .0277598
ereri_intmed	.0044004	.0043197	1.02	0.308	-.0040659 .0128668
ereri_pie	-.0001903	.0009028	-0.21	0.833	-.0019597 .001579

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): znme3
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 .04635 2.216 -.07454 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 = -9083.3359
Iteration 1: Log likelihood = -8997.3062
Iteration 2: Log likelihood = -8986.8643
Iteration 3: Log likelihood = -8986.7887
Iteration 4: Log likelihood = -8986.7887
Refining estimates:
Iteration 0: Log likelihood = -8986.7887

```

Cox regression with Breslow method for ties

No. of subjects =	36,480	Number of obs =	36,480
No. of failures =	970		
Time at risk =	443,094.176	LR chi2(9) =	193.09
Log likelihood =	-8986.7887	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.20733	.1595926	10.95	0.000	1.915686 2.543374
znme3	.9738613	.0382843	-0.67	0.500	.9016433 1.051864
_infectionburXznme3_000	.9169518	.0673109	-1.18	0.238	.7940761 1.058841
AGE	1.035934	.0130471	2.80	0.005	1.010675 1.061824
SEX	.759931	.0495327	-4.21	0.000	.668794 .8634873
NonWhite	1.101379	.187497	0.57	0.571	.7889134 1.537602
householdsize	.9380284	.0392238	-1.53	0.126	.8642171 1.018144
SES	.8269039	.040803	-3.85	0.000	.750677 .9108711
LE8_TOTALSCORE	.9990162	.0003546	-2.77	0.006	.9983214 .9997115

-> Model for the mediator

Iteration 0: Log likelihood =	-51642.217	Number of obs =	36,480
Iteration 1: Log likelihood =	-51642.217	Wald chi2(7) =	241.11
Linear regression (Maximum Likelihood)		Prob > chi2 =	0.0000
Log likelihood =	-51642.217		

znme3	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0166631	.0152298	1.09	0.274	-.0131867 .046513
AGE	-.0070212	.0009938	-7.07	0.000	-.008969 -.0050734
SEX	.1178547	.0105507	11.17	0.000	.0971757 .1385338
NonWhite	-.0768771	.0252933	-3.04	0.002	-.1264509 -.0273032
householdsize	-.0060721	.0048017	-1.26	0.206	-.0154832 .0033391
SES	-.0555791	.0079199	-7.02	0.000	-.0711017 -.0400565
LE8_TOTALSCORE	-.0000161	.0000562	-0.29	0.775	-.0001262 .0000941
_cons	.2606858	.0718069	3.63	0.000	.1199468 .4014248
sigma2					
_cons	.9934067	.0073555	135.06	0.000	.9789901 1.007823

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.216908	.1589764	7.65	0.000	.9053198 1.528496
ereri_cde	1.206836	.1594858	7.57	0.000	.8942492 1.519422
ereri_intref	.0142573	.0158063	0.90	0.367	-.0167224 .045237
ereri_intmed	-.0037439	.0041717	-0.90	0.369	-.0119203 .0044325
ereri_pie	-.0004412	.000769	-0.57	0.566	-.0019484 .0010659

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): znmnmat1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8899.608**
 Iteration 2: Log likelihood = **-8888.4362**
 Iteration 3: Log likelihood = **-8888.2256**
 Iteration 4: Log likelihood = **-8888.2252**
 Refining estimates:
 Iteration 0: Log likelihood = **-8888.2252**

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) =	194.44
Log likelihood =	-8888.2252	Prob > chi2 =	0.0000

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.180344	.1586794	10.71	0.000	1.890501 2.514624
znmnat1	.9841324	.0381424	-0.41	0.680	.9121436 1.061803
_infectionburXznmnat1_000	1.096304	.0734843	1.37	0.170	.9613374 1.25022
AGE	1.037177	.0131265	2.88	0.004	1.011766 1.063226
SEX	.7399048	.0485366	-4.59	0.000	.6506364 .8414209
NonWhite	1.017799	.1776833	0.10	0.920	.7228744 1.433051
householdszie	.9436121	.0393824	-1.39	0.164	.8694966 1.024045
SES	.8102624	.0401199	-4.25	0.000	.7353238 .892838
LE8_TOTALSCORE	.9990431	.0003584	-2.67	0.008	.9983409 .9997457

-> Model for the mediator

Iteration 0: Log likelihood = **-50769.137**
 Iteration 1: Log likelihood = **-50769.137**

Linear regression (Maximum Likelihood)	Number of obs =	36,164
	Wald chi2(7) =	1106.30
Log likelihood =	Prob > chi2 =	0.0000

<u>znmnat1</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0159711	.0151294	1.06	0.291	-.0136819 .0456241
AGE	.0110119	.0009899	11.12	0.000	.0090717 .0129521
SEX	-.1761363	.0104726	-16.82	0.000	-.1966622 -.1556104
NonWhite	-.0050247	.0251117	-0.20	0.841	-.0542428 .0441934
householdszie	.0058649	.0049666	1.18	0.238	-.0038694 .0155992
SES	-.00826	.0078724	-0.10	0.916	-.0162556 .0146036
LE8_TOTALSCORE	-.0012957	.0000557	-23.25	0.000	-.0014049 -.0011865
_cons	.2407823	.0717436	3.36	0.001	.1001675 .3813971
sigma2					
_cons	.9702901	.0072157	134.47	0.000	.9561476 .9844326

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.18839	.1583117	7.51	0.000	.8781051 1.498676
ereri_cde	1.180155	.1586812	7.44	0.000	.869146 1.491165
ereri_intref	.0055821	.0086482	0.65	0.519	-.0113682 .0225323
ereri_intmed	.0029083	.0034099	0.85	0.394	-.003775 .0095917
ereri_pie	-.0002554	.0006644	-0.38	0.701	-.0015577 .0010469

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): znomo1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

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

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

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 = **-9029.3812**

Iteration 2: Log likelihood = **-9015.7865**

Iteration 3: Log likelihood = **-9015.6153**

Iteration 4: Log likelihood = **-9015.6153**

Refining estimates:

Iteration 0: Log likelihood = **-9015.6153**

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 = **-9015.6153**

LR chi2(9) = **212.40**

Prob > chi2 = **0.0000**

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.246234	.1604632	11.33	0.000	1.952756 2.583818
znomo1	.8864619	.0357286	-2.99	0.003	.8191297 .9593289
_infectionburXznomo1_000	.9170094	.0651663	-1.22	0.223	.7977816 1.054056
AGE	1.034904	.0129972	2.73	0.006	1.009741 1.060694
SEX	.7404375	.0481954	-4.62	0.000	.6517534 .8411889
NonWhite	1.094448	.1859714	0.53	0.595	.7844651 1.52701
householdsize	.9390379	.0392015	-1.51	0.132	.8652636 1.019102
SES	.8190593	.0402489	-4.06	0.000	.7438528 .9018695
LE8_TOTALSCORE	.9986339	.0003646	-3.74	0.000	.9979196 .9993488

-> Model for the mediator

Iteration 0: Log likelihood = -50061.156
 Iteration 1: Log likelihood = -50061.156

Linear regression (Maximum Likelihood)
 Number of obs = 36,459
 Wald chi2(7) = 3500.89
 Prob > chi2 = 0.0000
 Log likelihood = -50061.156

	znomo1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0904159	.0145975	6.19	0.000	.0618052 .1190265
AGE		.0036856	.0009554	3.86	0.000	.001813 .0055582
SEX		-.1460588	.0101153	-14.44	0.000	-.1658845 -.1262331
NonWhite		.0465539	.0242514	1.92	0.055	-.000978 .0940858
householdsize		-.0008801	.0048068	-0.18	0.855	-.0103012 .0085411
SES		-.0595602	.0075976	-7.84	0.000	-.0744512 -.0446693
LE8_TOTALSCORE		-.0027476	.0000539	-51.02	0.000	-.0028532 -.0026421
_cons		1.359923	.0692866	19.63	0.000	1.224124 1.495723
sigma2						
_cons		.9123648	.0067574	135.02	0.000	.8991205 .9256092

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.23572	.1599705	7.72	0.000	.922184 1.549257
ereri_cde	1.236131	.1591854	7.77	0.000	.9241335 1.548129
ereri_intref	.0418591	.027918	1.50	0.134	-.0128592 .0965775
ereri_intmed	-.0314323	.0141704	-2.22	0.027	-.0592058 -.0036588
ereri_pie	-.0108375	.0040028	-2.71	0.007	-.0186828 -.0029922

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): znos1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8736.8473
Iteration 2: Log likelihood = -8725.3567
Iteration 3: Log likelihood = -8725.179
Iteration 4: Log likelihood = -8725.1788
Iteration 5: Log likelihood = -8725.1788
Refining estimates:
Iteration 0: Log likelihood = -8725.1788

```

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) =	188.77
Log likelihood =	-8725.1788	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.188775	.1661882	10.32	0.000	1.886129 2.539982
znos1	1.07173	.0427437	1.74	0.082	.9911444 1.158867
_infectionburXznos1_000	1.003078	.0673752	0.05	0.964	.8793478 1.144217
AGE	1.035207	.0132198	2.71	0.007	1.009618 1.061444
SEX	.7780033	.0533672	-3.66	0.000	.680132 .8899583
NonWhite	1.076991	.1857309	0.43	0.667	.768103 1.510097
householdsize	.9316848	.0400914	-1.64	0.100	.8563295 1.013671
SES	.81538	.0407242	-4.09	0.000	.7393443 .8992353
LE8_TOTALSCORE	.9992405	.000361	-2.10	0.035	.9985332 .9999483

-> Model for the mediator

Iteration 0: Log likelihood = -48511.093	Number of obs = 35,601
Iteration 1: Log likelihood = -48511.093	Wald chi2(7) = 4242.41
Log likelihood = -48511.093	Prob > chi2 = 0.0000

	znos1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.164496	.0146192	11.25	0.000	.1358429 .1931491
AGE		.0237761	.0009572	24.84	0.000	.0219001 .0256521
SEX		-.5429081	.0101276	-53.61	0.000	-.5627579 -.5230584
NonWhite		.1445639	.0241655	5.98	0.000	.0972004 .1919273
householdsize		-.0121309	.0048046	-2.52	0.012	-.0215477 -.0027141
SES		-.021235	.007608	-2.79	0.005	-.0361464 -.0063235
LE8_TOTALSCORE		-.0004925	.000054	-9.12	0.000	-.0005983 -.0003867
_cons		-.3577136	.0693916	-5.15	0.000	-.4937187 -.2217085
sigma2						
_cons		.8934979	.006697	133.42	0.000	.8803721 .9066237

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.215254	.1630496	7.45	0.000	.8956822 1.534825
ereri_cde	1.188107	.1659231	7.16	0.000	.862904 1.513311
ereri_intref	.0009391	.0052592	0.18	0.858	-.0093687 .0112469
ereri_intmed	.0147466	.0207294	0.71	0.477	-.0258822 .0553754
ereri_pie	.0114605	.0067144	1.71	0.088	-.0016994 .0246204

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): znos3
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8734.6249**
 Iteration 2: Log likelihood = **-8726.95**
 Iteration 3: Log likelihood = **-8726.9299**
 Iteration 4: Log likelihood = **-8726.9299**
 Refining estimates:
 Iteration 0: Log likelihood = **-8726.9299**

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) =	185.27
Log likelihood =	-8726.9299	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.219539	.1639853	10.79	0.000	1.920321	2.56538
znos3	.9660676	.039844	-0.84	0.403	.8910479	1.047404
_infectionburXznos3_000	1.007647	.0678135	0.11	0.910	.8831277	1.149723
AGE	1.037957	.0132257	2.92	0.003	1.012356	1.064205
SEX	.741566	.0495329	-4.48	0.000	.6505698	.8452901
NonWhite	1.096169	.1889062	0.53	0.594	.7819649	1.536624
householdszie	.9306419	.0401462	-1.67	0.096	.8551914	1.012749
SES	.8127578	.0407188	-4.14	0.000	.7367435	.896615
LE8_TOTALSCORE	.999128	.0003669	-2.38	0.018	.9984091	.9998473

-> Model for the mediator

Iteration 0: Log likelihood = **-48736.875**
 Iteration 1: Log likelihood = **-48736.875**

Linear regression (Maximum Likelihood)	Number of obs =	35,601
	Wald chi2(7) =	3740.22
Log likelihood =	Prob > chi2 =	0.0000

	znos3	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.1397694	.0147122	9.50	0.000	.110934
AGE		.0119167	.0009633	12.37	0.000	.0100288
SEX		-.2946412	.010192	-28.91	0.000	-.3146173
NonWhite		.1422427	.0243192	5.85	0.000	.094578
householdszie		.0076096	.0048351	1.57	0.116	-.0018671
SES		-.1163689	.0076564	-15.20	0.000	-.1313752
LE8_TOTALSCORE		-.002133	.0000543	-39.26	0.000	-.0022395
_cons		.7497784	.0698331	10.74	0.000	.612908
sigma2						
_cons		.9049032	.0067824	133.42	0.000	.8916099
						.9181965

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.210414	.1621042	7.47	0.000	.8926952 1.528132
ereri_cde	1.218065	.1639213	7.43	0.000	.8967854 1.539345
ereri_intref	.0006759	.0056582	0.12	0.905	-.010414 .0117658
ereri_intmed	-.003514	.0177742	-0.20	0.843	-.0383509 .0313228
ereri_pie	-.0048134	.005759	-0.84	0.403	-.0161009 .0064741

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): znotch1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -9135.3991

Iteration 2: Log likelihood = -9126.3602

Iteration 3: Log likelihood = -9126.3235

Iteration 4: Log likelihood = -9126.3235

Refining estimates:

Iteration 0: Log likelihood = -9126.3235

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 = -9126.3235

LR chi2(9) = 197.71

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.244228	.1596332	11.36	0.000	1.952183 2.579962
znotch1		.9244089	.036147	-2.01	0.044	.8562088 .9980413
_infectionburXznotch1_000		1.037519	.0705011	0.54	0.588	.9081459 1.185323
AGE		1.034824	.0129437	2.74	0.006	1.009764 1.060507
SEX		.777588	.0516011	-3.79	0.000	.6827526 .8855961
NonWhite		1.075142	.1827533	0.43	0.670	.7705094 1.500215
householdsize		.936419	.0391063	-1.57	0.116	.862825 1.01629
SES		.8221115	.0402568	-4.00	0.000	.7468776 .9049239
LE8_TOTALSCORE		.9990537	.0003527	-2.68	0.007	.9983626 .9997452

-> Model for the mediator

Iteration 0: Log likelihood = -51495.904
 Iteration 1: Log likelihood = -51495.904

Linear regression (Maximum Likelihood) Number of obs = 36,896
 Wald chi2(7) = 1753.92
 Prob > chi2 = 0.0000
 Log likelihood = -51495.904

	znotch1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0155954	.0148394	1.05	0.293	-.0134893 .04468
AGE		.0067139	.0009688	6.93	0.000	.0048151 .0086126
SEX		.415708	.010283	40.43	0.000	.3955536 .4358623
NonWhite		.0487834	.0246247	1.98	0.048	.0005199 .0970469
householdsize		-.0088849	.0046882	-1.90	0.058	-.0180736 .0003038
SES		-.0337424	.0077169	-4.37	0.000	-.0488673 -.0186175
LE8_TOTALSCORE		-.0001872	.0000548	-3.42	0.001	-.0002945 -.0000798
_cons		-.9340205	.0700418	-13.34	0.000	-.1.0713 -.7967412
sigma2						
_cons		.9545946	.0070282	135.82	0.000	.9408195 .9683696

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.237847	.1590033	7.79	0.000	.9262062 1.549488
ereri_cde	1.240353	.1590216	7.80	0.000	.9286764 1.55203
ereri_intref	-.0010479	.0060497	-0.17	0.862	-.0129051 .0108094
ereri_intmed	-.0002331	.0020668	-0.11	0.910	-.0042841 .0038178
ereri_pie	-.0012251	.0013146	-0.93	0.351	-.0038016 .0013515

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): znotch3
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -9135.3353
Iteration 2: Log likelihood = -9127.0598
Iteration 3: Log likelihood = -9127.0414
Iteration 4: Log likelihood = -9127.0414
Refining estimates:
Iteration 0: Log likelihood = -9127.0414

```

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) =	196.27
Log likelihood =	-9127.0414	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.260075	.1628117	11.32	0.000	1.962474 2.602806
znotch3	1.073265	.0431415	1.76	0.079	.9919544 1.161241
_infectionburXznotch3_000	.9407078	.0664818	-0.86	0.387	.8190276 1.080466
AGE	1.031942	.0130148	2.49	0.013	1.006746 1.057769
SEX	.7398187	.0485812	-4.59	0.000	.6504742 .841435
NonWhite	1.045529	.1784504	0.26	0.794	.7482617 1.460894
householdsize	.9377051	.0391954	-1.54	0.124	.8639462 1.017761
SES	.8241917	.0403944	-3.95	0.000	.7487039 .9072906
LE8_TOTALSCORE	.9990068	.0003544	-2.80	0.005	.9983125 .9997017

-> Model for the mediator

Iteration 0: Log likelihood =	-50415.904	Number of obs =	36,896
Iteration 1: Log likelihood =	-50415.904	Wald chi2(7) =	4084.14
Log likelihood =	-50415.904	Prob > chi2 =	0.0000

	znotch3	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0293527	.0144113	2.04	0.042	.0011071 .0575983
AGE		.0387077	.0009408	41.14	0.000	.0368637 .0405517
SEX		.3721198	.0099864	37.26	0.000	.3525468 .3916927
NonWhite		.4296862	.0239143	17.97	0.000	.382815 .4765574
householdsize		-.0057416	.004553	-1.26	0.207	-.0146653 .003182
SES		-.010101	.0074943	-1.35	0.178	-.0247896 .0045876
LE8_TOTALSCORE		.001372	.0000532	25.79	0.000	.0012677 .0014762
_cons		-3.597893	.0680213	-52.89	0.000	-3.731212 -3.464574
sigma2						
_cons		.9003142	.0066286	135.82	0.000	.8873224 .9133059

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.256285	.1615559	7.78	0.000	.939641 1.572929
ereri_cde	1.257605	.1622102	7.75	0.000	.9396791 1.575531
ereri_intref	-.001955	.0024596	-0.79	0.427	-.0067758 .0028658
ereri_intmed	-.001443	.0041337	-0.35	0.727	-.009545 .006659
ereri_pie	.0020776	.0015622	1.33	0.184	-.0009843 .0051394

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): znpdc1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8973.4098**
 Iteration 2: Log likelihood = **-8962.001**
 Iteration 3: Log likelihood = **-8961.8561**
 Iteration 4: Log likelihood = **-8961.856**
 Refining estimates:
 Iteration 0: Log likelihood = **-8961.856**

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) =	205.94
Log likelihood =	-8961.856	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.300526	.1728047	11.09	0.000	1.985587 2.665418
znpdc1		1.121608	.0431968	2.98	0.003	1.040061 1.20955
_infectionburXznpdc1_000		.9339414	.0568963	-1.12	0.262	.8288269 1.052387
AGE		1.029135	.0130376	2.27	0.023	1.003896 1.055008
SEX		.748901	.0487993	-4.44	0.000	.6591119 .8509219
NonWhite		1.035688	.1834472	0.20	0.843	.7319119 1.465543
householdszie		.9289819	.0397727	-1.72	0.085	.8542098 1.010299
SES		.8363553	.0415077	-3.60	0.000	.7588331 .9217971
LE8_TOTALSCORE		.9992112	.00036	-2.19	0.029	.9985058 .9999171

-> Model for the mediator

Iteration 0: Log likelihood = **-49948.917**
 Iteration 1: Log likelihood = **-49948.917**

Linear regression (Maximum Likelihood)	Number of obs =	36,441
	Wald chi2(7) =	3691.48
Log likelihood =	Prob > chi2 =	0.0000

	znpdc1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.2261296	.0145627	15.53	0.000	.1975873 .2546719
AGE		.0330333	.0009511	34.73	0.000	.0311692 .0348975
SEX		.0037144	.0100913	0.37	0.713	-.0160642 .0234931
NonWhite		-.293385	.0241632	-12.14	0.000	-.3407439 -.2460261
householdszie		-.0093809	.0045924	-2.04	0.041	-.0183819 -.0003799
SES		-.1210418	.0075727	-15.98	0.000	-.135884 -.1061996
LE8_TOTALSCORE		-.0015872	.0000538	-29.50	0.000	-.0016926 -.0014817
_cons		-1.205514	.068741	-17.54	0.000	-1.340244 -1.070785
sigma2						
_cons		.9079927	.0067267	134.98	0.000	.8948087 .9211768

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.318178	.1678713	7.85	0.000	.9891564 1.6472
ereri_cde	1.297443	.1719192	7.55	0.000	.9604879 1.634399
ereri_intref	-.0034726	.0030269	-1.15	0.251	-.0094051 .0024599
ereri_intmed	-.0020836	.0261255	-0.08	0.936	-.0532886 .0491214
ereri_pie	.0262911	.0091011	2.89	0.004	.0084534 .0441289

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): znpmp1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.23 1.522 .04768 2.208 -.077 501.4

-> 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 = -2026.6493

Iteration 1: Log likelihood = -2007.8874

Iteration 2: Log likelihood = -2000.9109

Iteration 3: Log likelihood = -2000.4341

Iteration 4: Log likelihood = -2000.4261

Iteration 5: Log likelihood = -2000.4261

Refining estimates:

Iteration 0: Log likelihood = -2000.4261

Cox regression with Breslow method for ties

No. of subjects = 9,858	Number of obs = 9,858
No. of failures = 248	
Time at risk = 119,436.784	LR chi2(9) = 52.45
Log likelihood = -2000.4261	Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.339208	.3318511	5.99	0.000	1.771386
znpm1		1.030146	.0771529	0.40	0.692	.8895038
_infectionburXznpm1_000		1.105507	.1334361	0.83	0.406	.8726107
AGE		1.026553	.0241841	1.11	0.266	.9802312
SEX		.9075646	.1161885	-0.76	0.449	.7061627
NonWhite		.9289473	.3188381	-0.21	0.830	.4740643
householdsize		1.001068	.0621027	0.02	0.986	.8864574
SES		.8082995	.0772111	-2.23	0.026	.6702906
LE8_TOTALSCORE		.9990418	.0007009	-1.37	0.172	.9976691
						1.000416

-> Model for the mediator

Iteration 0: Log likelihood = -13864.893
Iteration 1: Log likelihood = -13864.893

Linear regression (Maximum Likelihood) Number of obs = 9,858
Log likelihood = -13864.893 Wald chi2(7) = 248.08
Prob > chi2 = 0.0000

	znpm1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.059574	.0291119	2.05	0.041	.0025158 .1166322
AGE		.0051402	.0019059	2.70	0.007	.0014046 .0088757
SEX		-.1942076	.0200468	-9.69	0.000	-.2334986 -.1549166
NonWhite		.14123	.0474936	2.97	0.003	.0481443 .2343158
householdsiz		-.0005882	.0092961	-0.06	0.950	-.0188083 .0176319
SES		.0219434	.0150367	1.46	0.144	-.0075281 .0514148
LE8_TOTALSCORE		-.0011189	.000107	-10.46	0.000	-.0013286 -.0009092
_cons		.5350699	.1373998	3.89	0.000	.2657711 .8043686
sigma2						
_cons		.9753539	.0138926	70.21	0.000	.9481249 1.002583

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.373931	.3326906	4.13	0.000	.7218699
ereri_cde	1.338958	.3317419	4.04	0.000	.6887554
ereri_intref	.0166589	.0265011	0.63	0.530	-.0352823
ereri_intmed	.0165439	.0163265	1.01	0.311	-.0154555
ereri_pie	.0017709	.0045529	0.39	0.697	-.0071525

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): znppb
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8815.3909
 Iteration 2: Log likelihood = -8803.5896
 Iteration 3: Log likelihood = -8803.4434
 Iteration 4: Log likelihood = -8803.4433
 Refining estimates:
 Iteration 0: Log likelihood = -8803.4433

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) =	203.94
Log likelihood =	-8803.4433	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.189328	.1673268	10.25	0.000	1.884755 2.54312
znppb	1.174498	.0457907	4.13	0.000	1.088094 1.267765
_infectionburXznppb_000	.9666352	.0663298	-0.49	0.621	.8449944 1.105787
AGE	1.03028	.0131731	2.33	0.020	1.004782 1.056425
SEX	.7417499	.048772	-4.54	0.000	.6520618 .8437741
NonWhite	1.146844	.1952205	0.80	0.421	.821503 1.601029
householdsize	.9383208	.0397312	-1.50	0.133	.8635928 1.019515
SES	.8438579	.0420225	-3.41	0.001	.7653872 .9303739
LE8_TOTALSCORE	.9989168	.0003575	-3.03	0.002	.9982164 .9996177

-> Model for the mediator

Iteration 0: Log likelihood = -49833.944
 Iteration 1: Log likelihood = -49833.944

Linear regression (Maximum Likelihood)

Number of obs =	35,755
Wald chi2(7) =	1845.45
Prob > chi2 =	0.0000

Log likelihood = -49833.944

	znppb	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.1311179	.0150556	8.71	0.000	.1016095 .1606263
AGE		.0342171	.0009827	34.82	0.000	.0322911 .0361431
SEX		.1418602	.0104256	13.61	0.000	.1214264 .162294
NonWhite		-.1300506	.0249643	-5.21	0.000	-.1789797 -.0811215
householdsize		.0011304	.0047543	0.24	0.812	-.0081877 .0104486
SES		-.0593646	.0078286	-7.58	0.000	-.0747084 -.0440208
LE8_TOTALSCORE		.0004949	.0000555	8.91	0.000	.000386 .0006038
_cons		-2.543028	.0710479	-35.79	0.000	-2.68228 -2.403777
sigma2						
_cons		.9508928	.0071118	133.71	0.000	.936954 .9648316

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.217121	.1624271	7.49	0.000	.8987701 1.535473
ereri_cde	1.178234	.1649708	7.14	0.000	.854897 1.501571
ereri_intref	.0023003	.0134775	0.17	0.864	-.024115 .0287157
ereri_intmed	.0152741	.0169992	0.90	0.369	-.0180437 .0485918
ereri_pie	.0213131	.0057771	3.69	0.000	.0099903 .0326359

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): znppc
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8950.0414**
 Iteration 2: Log likelihood = **-8938.8143**
 Iteration 3: Log likelihood = **-8938.6923**
 Iteration 4: Log likelihood = **-8938.6922**
 Refining estimates:
 Iteration 0: Log likelihood = **-8938.6922**

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) =	195.49
Log likelihood =	-8938.6922	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.260393	.1649058	11.18	0.000	1.959228	2.607852
znppc	1.065318	.0431463	1.56	0.118	.9840216	1.15333
_infectionburXznppc_000	.9669683	.0631951	-0.51	0.607	.8507127	1.099111
AGE	1.031975	.0130064	2.50	0.013	1.006795	1.057785
SEX	.7968547	.0579094	-3.12	0.002	.6910671	.918836
NonWhite	1.061739	.1830185	0.35	0.728	.7573403	1.488486
householdsize	.9329589	.0397436	-1.63	0.103	.8582262	1.014199
SES	.8216991	.0406217	-3.97	0.000	.7458176	.9053011
LE8_TOTALSCORE	.9990931	.0003591	-2.52	0.012	.9983895	.9997973

-> Model for the mediator

Iteration 0: Log likelihood = **-46597.644**
 Iteration 1: Log likelihood = **-46597.644**

Linear regression (Maximum Likelihood)	Number of obs =	36,352	
	Wald chi2(7) =	11466.28	
Log likelihood =	-46597.644	Prob > chi2 =	0.0000

	znppc	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.1136557	.0133566	8.51	0.000	.0874772
AGE		.0020515	.0008719	2.35	0.019	.0003426
SEX		-.9148553	.0092444	-98.96	0.000	-.9329741
NonWhite		-.0934435	.0221528	-4.22	0.000	-.1368621
householdsize		.0051142	.0042786	1.20	0.232	-.0032717
SES		-.0449294	.0069338	-6.48	0.000	-.0585194
LE8_TOTALSCORE		-.0013346	.0000492	-27.11	0.000	-.0014311
_cons		1.919371	.0630732	30.43	0.000	1.795749
sigma2						
_cons		.7601905	.0056386	134.82	0.000	.749139
						.771242

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.266541	.1632066	7.76	0.000	.946662 1.58642
ereri_cde	1.259732	.1647205	7.65	0.000	.9368856 1.582578
ereri_intref	-.0008246	.0014908	-0.55	0.580	-.0037465 .0020973
ereri_intmed	.0004164	.0145279	0.03	0.977	-.0280577 .0288905
ereri_pie	.0072172	.0047139	1.53	0.126	-.0020218 .0164563

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): znptn
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -8795.9858

Iteration 2: Log likelihood = -8787.1304

Iteration 3: Log likelihood = -8787.0796

Iteration 4: Log likelihood = -8787.0796

Refining estimates:

Iteration 0: Log likelihood = -8787.0796

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) = 190.23

Log likelihood = -8787.0796

Prob > chi2 = 0.0000

-> Model for the mediator

Iteration 0: Log likelihood = -50318.385
Iteration 1: Log likelihood = -50318.385

Linear regression (Maximum Likelihood)
Number of obs = 35,573
Log likelihood = -50318.385 Wald chi2(7) = 315.42
Prob > chi2 = 0.0000

	znptn	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0161568	.0154222	-1.05	0.295	-.0463837
AGE		-.0010505	.0010056	-1.04	0.296	-.0030215
SEX		.1677731	.0106713	15.72	0.000	.1468578
NonWhite		-.0320863	.0255035	-1.26	0.208	-.0820722
householdszie		-.0011657	.0048569	-0.24	0.810	-.010685
SES		-.0122988	.0080038	-1.54	0.124	-.027986
LE8_TOTALSCORE		.0003532	.0000568	6.22	0.000	.0002419
_cons		-.3650468	.0726795	-5.02	0.000	-.507496
sigma2						
	_cons	.9911832	.0074321	133.37	0.000	.9766167
						1.00575

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.255628	.1628681	7.71	0.000	.9364126 1.574844
ereri_cde	1.255658	.1627905	7.71	0.000	.9365948 1.574722
ereri_intref	.0021769	.0086558	0.25	0.801	-.0147881 .0191419
ereri_intmed	-.0033281	.0038735	-0.86	0.390	-.01092 .0042637
ereri_pie	.001121	.0012785	0.88	0.381	-.0013849 .0036268

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): znptx1
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -9034.0393
 Iteration 2: Log likelihood = -9025.7064
 Iteration 3: Log likelihood = -9025.6851
 Iteration 4: Log likelihood = -9025.6851
 Refining estimates:
 Iteration 0: Log likelihood = -9025.6851

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) =	192.26
Log likelihood =	-9025.6851	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.234104	.1595659	11.25	0.000	1.942264 2.569795
znptx1	1.009838	.0401171	0.25	0.805	.9341927 1.091608
_infectionburXznptx1_000	.9841351	.0691998	-0.23	0.820	.8574369 1.129555
AGE	1.035148	.0130128	2.75	0.006	1.009955 1.06097
SEX	.7507957	.0504507	-4.27	0.000	.6581489 .8564843
NonWhite	1.087784	.184946	0.49	0.621	.7795082 1.517975
householdsize	.9390415	.0393086	-1.50	0.133	.865074 1.019334
SES	.8245287	.0405691	-3.92	0.000	.7487283 .9080029
LE8_TOTALSCORE	.9990206	.0003543	-2.76	0.006	.9983264 .9997152

-> Model for the mediator

Iteration 0: Log likelihood = -50478.956
 Iteration 1: Log likelihood = -50478.956

Linear regression (Maximum Likelihood)

Number of obs =	36,459
Wald chi2(7) =	2595.47
Prob > chi2 =	0.0000

Log likelihood = -50478.956

	znptx1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.001042	.0147658	-0.07	0.944	-.0299824 .0278984
AGE		.0090307	.0009664	9.34	0.000	.0071366 .0109249
SEX		.506979	.0102319	49.55	0.000	.4869248 .5270332
NonWhite		-.0028623	.0245309	-0.12	0.907	-.0509421 .0452174
householdsize		-.0122865	.0048622	-2.53	0.012	-.0218162 -.0027568
SES		-.0212581	.0076851	-2.77	0.006	-.0363207 -.0061956
LE8_TOTALSCORE		-.0001495	.0000545	-2.74	0.006	-.0002563 -.0000427
_cons		-1.219043	.0700852	-17.39	0.000	-1.356408 -1.081679
sigma2						
_cons		.9335167	.0069141	135.02	0.000	.9199654 .9470681

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.234053	.1595361	7.74	0.000	.9213682 1.546738
ereri_cde	1.234047	.1595562	7.73	0.000	.9213224 1.546771
ereri_intref	-8.04e-06	.0008537	-0.01	0.992	-.0016812 .0016652
ereri_intmed	.0000246	.0003772	0.07	0.948	-.0007146 .0007639
ereri_pie	-.0000102	.0001504	-0.07	0.946	-.0003049 .0002845

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): znptxr
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8966.7489**
 Iteration 2: Log likelihood = **-8954.4199**
 Iteration 3: Log likelihood = **-8954.3311**
 Iteration 4: Log likelihood = **-8954.3311**
 Refining estimates:
 Iteration 0: Log likelihood = **-8954.3311**

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) =	220.99
Log likelihood =	-8954.3311	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.306964	.1668208	11.56	0.000	2.002114 2.658231
znptxr		.8253953	.0346366	-4.57	0.000	.7602256 .8961516
_infectionburXznptxr_000		1.096088	.079512	1.26	0.206	.9508194 1.263552
AGE		1.033618	.0130379	2.62	0.009	1.008377 1.05949
SEX		.7869318	.0518727	-3.64	0.000	.6915568 .8954603
NonWhite		1.009357	.178588	0.05	0.958	.7135748 1.427743
householdszie		.9261862	.039999	-1.78	0.076	.8510158 1.007996
SES		.8280595	.040945	-3.82	0.000	.751575 .9123277
LE8_TOTALSCORE		.9992442	.000357	-2.12	0.034	.9985448 .9999442

-> Model for the mediator

Iteration 0: Log likelihood = **-51058.258**
 Iteration 1: Log likelihood = **-51058.258**

Linear regression (Maximum Likelihood)	Number of obs =	36,441
	Wald chi2(7) =	1320.94
Log likelihood =	Prob > chi2 =	0.0000

	<u>znptxr</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0175791	.0150128	-1.17	0.242	-.0470037 .0118454
AGE		.0006439	.0009805	0.66	0.511	-.0012778 .0025657
SEX		.2684284	.0104033	25.80	0.000	.2480384 .2888184
NonWhite		.0479081	.02491	1.92	0.054	-.0009147 .0967309
householdszie		-.0025741	.0047344	-0.54	0.587	-.0118533 .0067051
SES		.02242	.0078068	2.87	0.004	.0071191 .037721
LE8_TOTALSCORE		.0012226	.0000555	22.04	0.000	.0011139 .0013313
_cons		-1.05403	.0708658	-14.87	0.000	-1.192925 -.915136
sigma2						
_cons		.9649928	.007149	134.98	0.000	.9509811 .9790045

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.281856	.1628559	7.87	0.000	.962664 1.601048
ereri_cde	1.28455	.1631774	7.87	0.000	.9647286 1.604372
ereri_intref	-.0067082	.014724	-0.46	0.649	-.0355668 .0221503
ereri_intmed	.0006346	.0025627	0.25	0.804	-.0043882 .0056573
ereri_pie	.003379	.0029838	1.13	0.257	-.0024692 .0092272

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): znpv
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -9108.2246

Iteration 2: Log likelihood = -9099.707

Iteration 3: Log likelihood = -9099.689

Refining estimates:

Iteration 0: Log likelihood = -9099.689

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) = 202.85

Log likelihood = -9099.689

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.253678	.160447	11.41	0.000	1.960162
znpyp		.8975869	.034579	-2.80	0.005	.8323088
_infectionburXznpyp_000		1.076281	.0744203	1.06	0.288	.9398722
AGE		1.03428	.0129551	2.69	0.007	1.009198
SEX		.7569009	.0489558	-4.31	0.000	.6667821
NonWhite		1.077141	.1830915	0.44	0.662	.7719443
householdsize		.9337625	.0392588	-1.63	0.103	.8599017
SES		.8219456	.0402645	-4.00	0.000	.7466988
LE8_TOTALSCORE		.998923	.0003593	-3.00	0.003	.9982191
						.9996274

-> Model for the mediator

Iteration 0: Log likelihood = -51264.819
Iteration 1: Log likelihood = -51264.819

Linear regression (Maximum Likelihood)
Number of obs = 36,726
Log likelihood = -51264.819 Wald chi2(7) = 1732.88
Prob > chi2 = 0.0000

	znpv	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0084624	.0148958	0.57	0.570	-.0207329 .0376577
AGE		.0093719	.0009715	9.65	0.000	.0074678 .011276
SEX		-.0901777	.0103082	-8.75	0.000	-.1103814 -.069974
NonWhite		-.0015668	.0246633	-0.06	0.949	-.049906 .0467725
householdsiz		.0054499	.0046934	1.16	0.246	-.0037491 .0146489
SES		-.0051807	.0077314	-0.67	0.503	-.0203341 .0099726
LE8_TOTALSCORE		-.0020353	.0000549	-37.07	0.000	-.0021429 -.0019277
_cons		.5792271	.0702562	8.24	0.000	.4415274 .7169267
sigma2						
	_cons	.9549161	.0070468	135.51	0.000	.9411046 .9687276

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.241579	.1599998	7.76	0.000	.9279856 1.555173
ereri_cde	1.246552	.1595856	7.81	0.000	.9337697 1.559334
ereri_intref	-.0043171	.0059386	-0.73	0.467	-.0159567 .0073224
ereri_intmed	.0002587	.0012356	0.21	0.834	-.002163 .0026805
ereri_pie	-.0009139	.0016406	-0.56	0.577	-.0041294 .0023016

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): znrcam
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8976.2928
 Iteration 2: Log likelihood = -8966.0583
 Iteration 3: Log likelihood = -8966.0004
 Iteration 4: Log likelihood = -8966.0004
 Refining estimates:
 Iteration 0: Log likelihood = -8966.0004

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) =	197.66
Log likelihood =	-8966.0004	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.272081	.1633236	11.42	0.000	1.973499 2.615836
znrcam	1.025229	.0394586	0.65	0.517	.9507368 1.105558
_infectionburXznrcam_000	1.01818	.0690161	0.27	0.790	.8915109 1.162846
AGE	1.033022	.013021	2.58	0.010	1.007814 1.058861
SEX	.7504771	.0489052	-4.40	0.000	.6604934 .8527199
NonWhite	1.001786	.1774145	0.01	0.992	.7079923 1.417494
householdsize	.9273884	.0398877	-1.75	0.080	.8524145 1.008957
SES	.8271679	.0409074	-3.84	0.000	.7507541 .9113594
LE8_TOTALSCORE	.9990826	.0003566	-2.57	0.010	.9983839 .9997818

-> Model for the mediator

Iteration 0: Log likelihood =	-51516.869	Number of obs =	36,441
Iteration 1: Log likelihood =	-51516.869	Wald chi2(7) =	382.33
Log likelihood =	-51516.869	Prob > chi2 =	0.0000

	znrcam	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0735582	.0152029	4.84	0.000	.0437609 .1033554
AGE		.0083558	.0009929	8.42	0.000	.0064097 .010302
SEX		.0026524	.010535	0.25	0.801	-.0179959 .0233006
NonWhite		.2031155	.0252255	8.05	0.000	.1536744 .2525566
householdsize		-.0006284	.0047943	-0.13	0.896	-.0100251 .0087683
SES		-.0210448	.0079056	-2.66	0.008	-.0365396 -.00555
LE8_TOTALSCORE		-.0006786	.0000562	-12.08	0.000	-.0007886 -.0005685
_cons		-.1871907	.0717632	-2.61	0.009	-.327844 -.0465373
sigma2						
_cons		.9895899	.0073312	134.98	0.000	.9752211 1.003959

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.280226	.162865	7.86	0.000	.961017 1.599436
ereri_cde	1.272014	.1632923	7.79	0.000	.9519671 1.592061
ereri_intref	.0010228	.0041526	0.25	0.805	-.0071161 .0091616
ereri_intmed	.0053552	.009824	0.55	0.586	-.0138994 .0246098
ereri_pie	.0018345	.0028615	0.64	0.521	-.003774 .007443

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): znrp1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

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

```
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 -.07506 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 = **-9134.0033**
 Iteration 1: Log likelihood = **-9049.6026**
 Iteration 2: Log likelihood = **-9034.8384**
 Iteration 3: Log likelihood = **-9034.62**
 Iteration 4: Log likelihood = **-9034.6199**
 Refining estimates:
 Iteration 0: Log likelihood = **-9034.6199**

Cox regression with Breslow method for ties

No. of subjects =	36,648	Number of obs =	36,648
No. of failures =	975		
Time at risk =	445,198.116	LR chi2(9) =	198.77
Log likelihood =	-9034.6199	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.206338	.1619331	10.78	0.000	1.910727 2.547684
znrp1		1.074206	.0416465	1.85	0.065	.9956043 1.159013
_infectionburXznrp1_000		1.056877	.0727181	0.80	0.421	.9235447 1.209459
AGE		1.031229	.0129839	2.44	0.015	1.006092 1.056993
SEX		.780748	.0511738	-3.78	0.000	.6866244 .8877742
NonWhite		1.106333	.1881261	0.59	0.552	.7927633 1.543932
householdszie		.9359803	.0393796	-1.57	0.116	.8618942 1.016435
SES		.8283408	.0408188	-3.82	0.000	.7520794 .9123352
LE8_TOTALSCORE		.9990608	.0003536	-2.65	0.008	.9983681 .9997541

-> Model for the mediator

Iteration 0: Log likelihood = **-51468.012**
 Iteration 1: Log likelihood = **-51468.012**

Linear regression (Maximum Likelihood)	Number of obs =	36,648
	Wald chi2(7) =	1081.14
Log likelihood =	Prob > chi2 =	0.0000

	znrp1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.1001418	.0150347	6.66	0.000	.0706744 .1296092
AGE		.0182641	.0009804	18.63	0.000	.0163426 .0201857
SEX		-.228426	.0104075	-21.95	0.000	-.2488243 -.2080276
NonWhite		-.0950802	.0249374	-3.81	0.000	-.1439566 -.0462038
householdszie		-.0139539	.0047422	-2.94	0.003	-.0232484 -.0046594
SES		-.0278715	.0078129	-3.57	0.000	-.0431846 -.0125585
LE8_TOTALSCORE		.0002322	.0000555	4.18	0.000	.0001234 .000341
_cons		-.8464871	.0708731	-11.94	0.000	-.9853959 -.7075783
sigma2						
_cons		.9713183	.0071755	135.37	0.000	.9572546 .985382

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.244778	.1606776	7.75	0.000	.9298556 1.5597
ereri_cde	1.204537	.161507	7.46	0.000	.887989 1.521085
ereri_intref	.0118947	.0138961	0.86	0.392	-.0153412 .0391305
ereri_intmed	.0211521	.0136524	1.55	0.121	-.0056061 .0479103
ereri_pie	.0071941	.0040578	1.77	0.076	-.0007592 .0151473

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): znrp2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -9033.879

Iteration 2: Log likelihood = -9025.7093

Iteration 3: Log likelihood = -9025.6911

Iteration 4: Log likelihood = -9025.6911

Refining estimates:

Iteration 0: Log likelihood = -9025.6911

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 = -9025.6911

LR chi2(9) = 192.25

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.237607	.1604711	11.23	0.000	1.944193 2.575302
znrp2	.9974689	.0397335	-0.06	0.949	.9225551 1.078466
_infectionburXznrp2_000	.9887043	.0687326	-0.16	0.870	.8627654 1.133027
AGE	1.035317	.0130387	2.76	0.006	1.010074 1.06119
SEX	.7543769	.049837	-4.27	0.000	.6627577 .8586614
NonWhite	1.090157	.1857321	0.51	0.612	.7806711 1.522334
householdsize	.9388835	.0393132	-1.51	0.132	.864908 1.019186
SES	.8239912	.0406228	-3.93	0.000	.7480978 .9075839
LE8_TOTALSCORE	.9990198	.0003542	-2.77	0.006	.9983258 .9997142

-> Model for the mediator

Iteration 0: Log likelihood = **-50520.859**
 Iteration 1: Log likelihood = **-50520.859**

Linear regression (Maximum Likelihood) Number of obs = **36,459**
 Wald chi2(7) = **2505.80**
 Log likelihood = **-50520.859** Prob > chi2 = **0.0000**

	znrp2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr	.0984437	.0147828	6.66	0.000	.06947	.1274173
AGE	.0215324	.0009675	22.25	0.000	.019636	.0234287
SEX	.3797509	.0102437	37.07	0.000	.3596737	.3998282
NonWhite	.3858258	.0245591	15.71	0.000	.3376908	.4339609
householdsize	-.0118159	.0048678	-2.43	0.015	-.0213565	-.0022752
SES	-.0916271	.007694	-11.91	0.000	-.106707	-.0765472
LE8_TOTALSCORE	-.0000276	.0000545	-0.51	0.613	-.0001345	.0000793
_cons	-1.875839	.0701658	-26.73	0.000	-2.013361	-1.738317
sigma2						
_cons	.935665	.00693	135.02	0.000	.9220825	.9492476

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.235091	.1598156	7.73	0.000	.9218579 1.548323
ereri_cde	1.23756	.1604964	7.71	0.000	.9229931 1.552127
ereri_intref	.0005897	.0035059	0.17	0.866	-.0062819 .0074612
ereri_intmed	-.0028098	.0132685	-0.21	0.832	-.0288155 .0231959
ereri_pie	-.0002495	.0039206	-0.06	0.949	-.0079338 .0074349

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): znrtn
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8827.973
 Iteration 2: Log likelihood = -8820.2613
 Iteration 3: Log likelihood = -8820.2451
 Iteration 4: Log likelihood = -8820.2451
 Refining estimates:
 Iteration 0: Log likelihood = -8820.2451

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) =	186.17
Log likelihood =	-8820.2451	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.2211	.1607519	11.03	0.000	1.927358 2.559609
znrtn	1.020868	.0390472	0.54	0.589	.9471353 1.100341
_infectionburXznrtn_000	.9851341	.0701962	-0.21	0.834	.8567272 1.132787
AGE	1.036981	.0131579	2.86	0.004	1.01151 1.063094
SEX	.748899	.0491996	-4.40	0.000	.6584197 .8518119
NonWhite	1.054225	.1840787	0.30	0.762	.7486942 1.484437
householdsize	.9349268	.0397961	-1.58	0.114	.8600929 1.016272
SES	.827346	.0411667	-3.81	0.000	.7504702 .9120967
LE8_TOTALSCORE	.9990709	.0003586	-2.59	0.010	.9983682 .9997741

-> Model for the mediator

Iteration 0: Log likelihood = -50707.148
 Iteration 1: Log likelihood = -50707.148

Linear regression (Maximum Likelihood)

Number of obs =	35,761
Wald chi2(7) =	70.09
Prob > chi2 =	0.0000

Log likelihood = -50707.148

	znrtn	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0246474	.0154377	1.60	0.110	-.0056099 .0549047
AGE		.0006376	.0010055	0.63	0.526	-.0013331 .0026083
SEX		.0037469	.0106782	0.35	0.726	-.0171819 .0246757
NonWhite		.0062043	.0255496	0.24	0.808	-.0438721 .0562806
householdsize		.0040602	.0048569	0.84	0.403	-.0054592 .0135796
SES		-.0141457	.008006	-1.77	0.077	-.0298372 .0015458
LE8_TOTALSCORE		-.0004105	.0000569	-7.22	0.000	-.000522 -.000299
_cons		.1476338	.0726274	2.03	0.042	.0052867 .289981
sigma2						
_cons		.9980158	.0074636	133.72	0.000	.9833875 1.012644

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.221087	.1606781	7.60	0.000	.9061637 1.53601
ereri_cde	1.220926	.1607205	7.60	0.000	.9059195 1.535932
ereri_intref	-.0001497	.0007244	-0.21	0.836	-.0015695 .0012702
ereri_intmed	-.0001985	.003426	-0.06	0.954	-.0069134 .0065164
ereri_pie	.0005092	.0009957	0.51	0.609	-.0014424 .0024607

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): znsfl1c
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-9070.6841**
 Iteration 2: Log likelihood = **-9062.1127**
 Iteration 3: Log likelihood = **-9062.0847**
 Iteration 4: Log likelihood = **-9062.0847**
 Refining estimates:
 Iteration 0: Log likelihood = **-9062.0847**

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) =	196.64
Log likelihood =	-9062.0847	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.232215	.1594052	11.24	0.000	1.940665 2.567564
znsf11c		.9336049	.0362138	-1.77	0.077	.8652581 1.00735
_infectionburXznsf11c_000		1.088234	.0774566	1.19	0.235	.946535 1.251145
AGE		1.034498	.012966	2.71	0.007	1.009394 1.060225
SEX		.7483323	.0487432	-4.45	0.000	.6586442 .8502334
NonWhite		1.090737	.1855614	0.51	0.610	.781465 1.522406
householdszie		.9335441	.0394153	-1.63	0.103	.8594017 1.014083
SES		.8173762	.0401326	-4.11	0.000	.742384 .8999437
LE8_TOTALSCORE		.9989809	.0003557	-2.86	0.004	.9982841 .9996783

-> Model for the mediator

Iteration 0: Log likelihood = **-51596.231**
 Iteration 1: Log likelihood = **-51596.231**

Linear regression (Maximum Likelihood)	Number of obs =	36,751
	Wald chi2(7) =	1118.03
Log likelihood =	Prob > chi2 =	0.0000

	<u>znsf11c</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0090084	.0149991	-0.60	0.548	-.0384061 .0203894
AGE		-.0010778	.0009815	-1.10	0.272	-.0030015 .0008459
SEX		-.2144208	.01039	-20.64	0.000	-.2347848 -.1940568
NonWhite		.1927216	.0249257	7.73	0.000	.1438681 .2415751
householdszie		.0011071	.0049353	0.22	0.823	-.0085659 .0107801
SES		-.0000535	.0078028	-0.01	0.995	-.0153467 .0152397
LE8_TOTALSCORE		-.0012436	.0000553	-22.47	0.000	-.001352 -.0011351
_cons		1.005514	.0711667	14.13	0.000	.8660302 1.144999
sigma2						
_cons		.9704501	.007159	135.56	0.000	.9564187 .9844815

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.227297	.1589763	7.72	0.000	.9157094 1.538885
ereri_cde	1.229501	.158989	7.73	0.000	.9178888 1.541114
ereri_intref	-.0018861	.0034434	-0.55	0.584	-.008635 .0048628
ereri_intmed	-.0009372	.0020015	-0.47	0.640	-.00486 .0029856
ereri_pie	.0006191	.0010888	0.57	0.570	-.0015149 .002753

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): znt5c3a
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 -.07493 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 = -9016.8989

Iteration 1: Log likelihood = -8926.7878

Iteration 2: Log likelihood = -8918.1224

Iteration 3: Log likelihood = -8918.0951

Iteration 4: Log likelihood = -8918.0951

Refining estimates:

Iteration 0: Log likelihood = -8918.0951

Cox regression with Breslow method for ties

No. of subjects = 36,292 Number of obs = 36,292

No. of failures = 963

Time at risk = 440,919.345

LR chi2(9) = 197.61

Log likelihood = -8918.0951

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.25478	.1622745	11.30	0.000	1.958141 2.596357
znt5c3a		.9111627	.0349296	-2.43	0.015	.8452107 .982261
_infectionburXznt5c3a_000		1.053288	.0745912	0.73	0.463	.9167844 1.210116
AGE		1.032979	.0130274	2.57	0.010	1.007759 1.05883
SEX		.7637058	.0498597	-4.13	0.000	.6719764 .8679568
NonWhite		1.058763	.182493	0.33	0.740	.7552351 1.48428
householdsize		.9340988	.039694	-1.60	0.109	.8594518 1.015229
SES		.8210037	.0405824	-3.99	0.000	.7451951 .9045244
LE8_TOTALSCORE		.9989967	.0003557	-2.82	0.005	.9982997 .9996941

-> Model for the mediator

Iteration 0: Log likelihood = -51471.516
 Iteration 1: Log likelihood = -51471.516

Linear regression (Maximum Likelihood)
 Number of obs = 36,292
 Wald chi2(7) = 48.23
 Log likelihood = -51471.516 Prob > chi2 = 0.0000

	znt5c3a	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0551183	.0153195	-3.60	0.000	-.085144 -.0250926
AGE		.0022064	.0010003	2.21	0.027	.0002458 .004167
SEX		.0155504	.0106044	1.47	0.143	-.0052338 .0363346
NonWhite		.0392663	.0253987	1.55	0.122	-.0105143 .0890469
householdsize		-.0053394	.0049061	-1.09	0.276	-.0149552 .0042764
SES		.0197383	.0079529	2.48	0.013	.0041509 .0353257
LE8_TOTALSCORE		-.0002935	.0000565	-5.20	0.000	-.0004041 -.0001828
_cons		.0094432	.0723753	0.13	0.896	-.1324098 .1512962
sigma2						
_cons		.9986452	.0074135	134.71	0.000	.9841151 1.013175

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.252944	.1615512	7.76	0.000	.9363098 1.569579
ereri_cde	1.250258	.1615568	7.74	0.000	.9336122 1.566903
ereri_intref	-.0024134	.0055285	-0.44	0.662	-.0132491 .0084223
ereri_intmed	-.000041	.0076871	-0.01	0.996	-.0151074 .0150255
ereri_pie	.005141	.0025618	2.01	0.045	.00012 .0101621

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): znt5e
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -9042.4714
 Iteration 2: Log likelihood = -9032.2301
 Iteration 3: Log likelihood = -9032.1815
 Iteration 4: Log likelihood = -9032.1815
 Refining estimates:
 Iteration 0: Log likelihood = -9032.1815

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) =	200.12
Log likelihood =	-9032.1815	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.259231	.1615152	11.40	0.000	1.963845 2.599046
znt5e	.9106325	.0373988	-2.28	0.023	.8402046 .9869637
_infectionburXznt5e_000	.9992421	.0736588	-0.01	0.992	.8648179 1.154561
AGE	1.033243	.0129838	2.60	0.009	1.008106 1.059007
SEX	.7834704	.0511527	-3.74	0.000	.6893626 .8904253
NonWhite	1.031364	.1780157	0.18	0.858	.7353478 1.446543
householdsize	.9322147	.0393075	-1.66	0.096	.858271 1.012529
SES	.8199831	.0404018	-4.03	0.000	.7445005 .9031187
LE8_TOTALSCORE	.9989251	.0003568	-3.01	0.003	.998226 .9996248

-> Model for the mediator

Iteration 0: Log likelihood = -51203.168
 Iteration 1: Log likelihood = -51203.168

Linear regression (Maximum Likelihood)
 Number of obs = 36,540
 Wald chi2(7) = 1311.69
 Log likelihood = -51203.168 Prob > chi2 = 0.0000

	znt5e	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0394982	.0150124	2.63	0.009	.0100745 .0689219
AGE		-.0023609	.000979	-2.41	0.016	-.0042797 -.000442
SEX		.1770482	.0103908	17.04	0.000	.1566827 .1974138
NonWhite		-.2997059	.0249034	-12.03	0.000	-.3485158 -.2508961
householdsize		-.0050888	.0047313	-1.08	0.282	-.0143621 .0041844
SES		-.0243323	.0077999	-3.12	0.002	-.0396199 -.0090447
LE8_TOTALSCORE		-.0016226	.0000553	-29.33	0.000	-.001731 -.0015141
_cons		.701205	.0707936	9.90	0.000	.5624521 .8399579
sigma2						
_cons		.9653203	.0071417	135.17	0.000	.9513228 .9793177

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.250989	.1605692	7.79	0.000	.9362791 1.565699
ereri_cde	1.253273	.1605988	7.80	0.000	.9385047 1.568041
ereri_intref	.0061229	.0140016	0.44	0.662	-.0213198 .0335656
ereri_intmed	-.0047156	.0060324	-0.78	0.434	-.0165389 .0071076
ereri_pie	-.0036908	.0021384	-1.73	0.084	-.0078819 .0005003

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): zntf3
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8948.6943**
 Iteration 2: Log likelihood = **-8939.1393**
 Iteration 3: Log likelihood = **-8939.0922**
 Iteration 4: Log likelihood = **-8939.0922**
 Refining estimates:
 Iteration 0: Log likelihood = **-8939.0922**

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) =	194.69
Log likelihood =	-8939.0922	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.25963	.1618246	11.38	0.000	1.963713	2.600139
zntf3	1.020031	.0395498	0.51	0.609	.9453871	1.100569
_infectionburXzntf3_000	1.051155	.072546	0.72	0.470	.9181649	1.203408
AGE	1.0327	.0130175	2.55	0.011	1.007499	1.058532
SEX	.7536903	.0493814	-4.32	0.000	.6628612	.8569653
NonWhite	1.055123	.1819077	0.31	0.756	.7525798	1.479292
householdszie	.9334708	.0396271	-1.62	0.105	.8589465	1.014461
SES	.8208298	.0405356	-4.00	0.000	.7451053	.9042502
LE8_TOTALSCORE	.999005	.0003555	-2.80	0.005	.9983086	.9997019

-> Model for the mediator

Iteration 0: Log likelihood = **-51371.139**
 Iteration 1: Log likelihood = **-51371.139**

Linear regression (Maximum Likelihood)	Number of obs =	36,352
	Wald chi2(7) =	421.66
Log likelihood =	Prob > chi2 =	0.0000

	zntf3	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0229046	.0152309	-1.50	0.133	-.0527566
AGE		-.0049686	.0009942	-5.00	0.000	-.0069173
SEX		.1733845	.0105417	16.45	0.000	.1527232
NonWhite		.1157674	.0252613	4.58	0.000	.0662561
householdszie		-.004791	.004879	-0.98	0.326	-.0143536
SES		-.0229972	.0079068	-2.91	0.004	-.0384942
LE8_TOTALSCORE		.0004161	.0000561	7.41	0.000	.0003061
_cons		-.1680539	.071924	-2.34	0.019	-.3090223
sigma2						
_cons		.9885066	.0073321	134.82	0.000	.9741358
						1.002877

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.26137	.1620832	7.78	0.000	.9436927 1.579047
ereri_cde	1.259306	.161807	7.78	0.000	.94217 1.576442
ereri_intref	.0056783	.0094322	0.60	0.547	-.0128085 .0241651
ereri_intmed	-.0031601	.0037594	-0.84	0.401	-.0105284 .0042083
ereri_pie	-.0004542	.0009376	-0.48	0.628	-.0022919 .0013835

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): zntf4
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -8795.6292

Iteration 2: Log likelihood = -8787.524

Iteration 3: Log likelihood = -8787.507

Iteration 4: Log likelihood = -8787.507

Refining estimates:

Iteration 0: Log likelihood = -8787.507

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

Log likelihood = -8787.507

LR chi2(9) = 189.38

Prob > chi2 = 0.0000

-> Model for the mediator

Iteration 0: Log likelihood = -50446.112
Iteration 1: Log likelihood = -50446.112

Linear regression (Maximum Likelihood) Number of obs = 35,573
Log likelihood = -50446.112 Wald chi2(7) = 58.63
Prob > chi2 = 0.0000

	zntf4	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0134447	.0154776	0.87	0.385	-.0168909 .0437803
AGE		-.0044825	.0010093	-4.44	0.000	-.0064606 -.0025044
SEX		-.0131707	.0107097	-1.23	0.219	-.0341613 .0078199
NonWhite		.0390209	.0255952	1.52	0.127	-.0111447 .0891866
householdszie		.0169938	.0048744	3.49	0.000	.0074403 .0265474
SES		-.025902	.0080326	-3.22	0.001	-.0416455 -.0101585
LE8_TOTALSCORE		-.0000873	.000057	-1.53	0.126	-.0001991 .0000244
_cons		.2903644	.072941	3.98	0.000	.1474028 .4333261
sigma2						
_cons		.9983266	.0074856	133.37	0.000	.9836551 1.012998

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.250965	.1625309	7.70	0.000	.9324103 1.56952
ereri_cde	1.253803	.1625743	7.71	0.000	.935163 1.572442
ereri_intref	-.0022631	.0044115	-0.51	0.608	-.0109095 .0063833
ereri_intmed	.0003983	.0020374	0.20	0.845	-.003595 .0043915
ereri_pie	-.000973	.0012695	-0.77	0.443	-.0034611 .0015151

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): zntprobnp
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8965.6888
Iteration 2: Log likelihood = -8949.2974
Iteration 3: Log likelihood = -8948.8883
Iteration 4: Log likelihood = -8948.8877
Refining estimates:
Iteration 0: Log likelihood = -8948.8877

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 = -8948.8877
                                         LR chi2(9)      = 231.88
                                         Prob > chi2 = 0.0000

```

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.292109	.1765766	10.77	0.000	1.970886 2.665687
zntprobnp		1.222126	.044014	5.57	0.000	1.138835 1.31151
_infectionburXzntprobnp_000		.9306818	.0565463	-1.18	0.237	.8261977 1.048379
AGE		1.020789	.0130351	1.61	0.107	.9955581 1.04666
SEX		.7245223	.0473444	-4.93	0.000	.6374256 .8235199
NonWhite		1.06137	.1880456	0.34	0.737	.7499933 1.502022
householdsize		.926961	.0399134	-1.76	0.078	.8519423 1.008586
SES		.8418959	.0417193	-3.47	0.001	.7639729 .9277669
LE8_TOTALSCORE		.9989344	.0003544	-3.00	0.003	.9982399 .9996293

-> Model for the mediator

```

Iteration 0: Log likelihood = -49479.628
Iteration 1: Log likelihood = -49479.628

Linear regression (Maximum Likelihood)
Number of obs = 36,441
Wald chi2(7) = 4738.56
Prob > chi2 = 0.0000
Log likelihood = -49479.628

```

	zntprobnp	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.2045209	.0143763	14.23	0.000	.1763437 .232698
AGE		.0499213	.0009389	53.17	0.000	.048081 .0517616
SEX		.2740529	.0099622	27.51	0.000	.2545273 .2935784
NonWhite		-.2116262	.023854	-8.87	0.000	-.2583791 -.1648733
householdsize		-.0036577	.0045337	-0.81	0.420	-.0125435 .0052281
SES		-.0859305	.0074758	-11.49	0.000	-.1005828 -.0712783
LE8_TOTALSCORE		.0007605	.0000531	14.32	0.000	.0006564 .0008646
_cons		-3.821636	.0678614	-56.32	0.000	-3.954642 -3.68863
sigma2						
_cons		.884905	.0065557	134.98	0.000	.8720561 .8977538

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.333523	.1698048	7.85	0.000	1.000712 1.666334
ereri_cde	1.276567	.173348	7.36	0.000	.9368108 1.616322
ereri_intref	-.0036905	.0107366	-0.34	0.731	-.0247337 .0173528
ereri_intmed	.0187681	.0238748	0.79	0.432	-.0280256 .0655618
ereri_pie	.0418785	.0082413	5.08	0.000	.0257258 .0580312

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): zntrk2
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8975.8439**
 Iteration 2: Log likelihood = **-8964.7255**
 Iteration 3: Log likelihood = **-8964.6509**
 Iteration 4: Log likelihood = **-8964.6509**
 Refining estimates:
 Iteration 0: Log likelihood = **-8964.6509**

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) =	200.36
Log likelihood =	-8964.6509	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.276035	.1624848	11.52	0.000	1.978847 2.617856
zntrk2		.9497552	.0374963	-1.31	0.192	.8790352 1.026165
_infectionburXzntrk2_000		.9683031	.0675297	-0.46	0.644	.8445947 1.110131
AGE		1.0341	.0130354	2.66	0.008	1.008865 1.059968
SEX		.7678145	.0509737	-3.98	0.000	.6741347 .8745123
NonWhite		1.014807	.1795511	0.08	0.934	.7174292 1.435448
householdszie		.9283396	.0398925	-1.73	0.084	.853354 1.009914
SES		.8268037	.0408681	-3.85	0.000	.7504615 .9109121
LE8_TOTALSCORE		.9989891	.000357	-2.83	0.005	.9982896 .9996891

-> Model for the mediator

Iteration 0: Log likelihood = **-51007.581**
 Iteration 1: Log likelihood = **-51007.581**

Linear regression (Maximum Likelihood)	Number of obs =	36,441
	Wald chi2(7) =	1426.11
Log likelihood =	Prob > chi2 =	0.0000

	zntrk2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0478497	.014992	-3.19	0.001	-.0772334 -.018466
AGE		.0147269	.0009792	15.04	0.000	.0128078 .016646
SEX		.3216713	.0103888	30.96	0.000	.3013096 .342033
NonWhite		.1491551	.0248754	6.00	0.000	.1004002 .1979101
householdszie		.0081994	.0047278	1.73	0.083	-.0010669 .0174657
SES		.0097396	.0077959	1.25	0.212	-.0055401 .0250194
LE8_TOTALSCORE		-.0009936	.0000554	-17.94	0.000	-.0011022 -.0008851
_cons		-.8992834	.0707673	-12.71	0.000	-1.037985 -.760582
sigma2						
_cons		.9623126	.0071291	134.98	0.000	.9483397 .9762854

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.289483	.1636224	7.88	0.000	.9687887 1.610177
ereri_cde	1.274842	.1623537	7.85	0.000	.9566343 1.593049
ereri_intref	.0054833	.0099686	0.55	0.582	-.0140547 .0250213
ereri_intmed	.006688	.0069958	0.96	0.339	-.0070235 .0203996
ereri_pie	.0024697	.0020461	1.21	0.227	-.0015406 .0064801

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): zntrk3
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -9071.9278

Iteration 2: Log likelihood = -9060.9369

Iteration 3: Log likelihood = -9060.8404

Iteration 4: Log likelihood = -9060.8404

Refining estimates:

Iteration 0: Log likelihood = -9060.8404

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 = -9060.8404

LR chi2(9) = 199.13

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.225179	.1602606	11.11	0.000	1.932236 2.562535
zntrk3	1.085617	.0427229	2.09	0.037	1.00503 1.172667
_infectionburXzntrk3_000	.8619294	.0607997	-2.11	0.035	.7506348 .9897252
AGE	1.033488	.0129684	2.63	0.009	1.00838 1.05922
SEX	.7514949	.0487803	-4.40	0.000	.6617192 .8534506
NonWhite	1.073551	.182982	0.42	0.677	.7686688 1.499361
householdsize	.933571	.0393787	-1.63	0.103	.8594944 1.014032
SES	.8146271	.0401785	-4.16	0.000	.7395651 .8973075
LE8_TOTALSCORE	.9989619	.0003587	-2.89	0.004	.9982591 .9996652

-> Model for the mediator

Iteration 0: Log likelihood = -50990.059
 Iteration 1: Log likelihood = -50990.059

Linear regression (Maximum Likelihood)
 Number of obs = 36,751
 Wald chi2(7) = 2388.09
 Log likelihood = -50990.059 Prob > chi2 = 0.0000

zntrk3	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	-.1255139	.0147538	-8.51	0.000	-.1544308 -.0965971
AGE	.0191175	.0009654	19.80	0.000	.0172253 .0210097
SEX	.0194954	.01022	1.91	0.056	-.0005355 .0395263
NonWhite	.2801887	.024518	11.43	0.000	.2321344 .3282431
householdsize	-.0135145	.0048546	-2.78	0.005	-.0230293 -.0039998
SES	.1278531	.0076752	16.66	0.000	.1128101 .1428961
LE8_TOTALSCORE	.001969	.0000544	36.17	0.000	.0018623 .0020757
_cons	-2.122081	.0700025	-30.31	0.000	-2.259284 -1.984879
sigma2					
_cons	.9389591	.0069267	135.56	0.000	.925383 .9525352

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.235557	.1598057	7.73	0.000	.922344 1.548771
ereri_cde	1.219557	.1593278	7.65	0.000	.9072801 1.531834
ereri_intref	-.0025628	.0071689	-0.36	0.721	-.0166135 .0114879
ereri_intmed	.0288211	.0175721	1.64	0.101	-.0056195 .0632617
ereri_pie	-.0102578	.0050338	-2.04	0.042	-.0201238 -.0003918

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): znub1
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8946.8568
 Iteration 2: Log likelihood = -8937.9864
 Iteration 3: Log likelihood = -8937.9599
 Iteration 4: Log likelihood = -8937.9599
 Refining estimates:
 Iteration 0: Log likelihood = -8937.9599

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) =	196.96
Log likelihood =	-8937.9599	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.257721	.1619963	11.35	0.000	1.961529 2.598638
znub1	.9354638	.0370744	-1.68	0.092	.8655499 1.011025
_infectionburXznub1_000	1.001991	.0730118	0.03	0.978	.8686399 1.155815
AGE	1.032787	.013011	2.56	0.010	1.007598 1.058606
SEX	.7578197	.0494309	-4.25	0.000	.6668742 .8611679
NonWhite	1.062279	.1830937	0.35	0.726	.7577504 1.489194
householdsize	.9329976	.0397211	-1.63	0.103	.8583054 1.01419
SES	.8186538	.0404373	-4.05	0.000	.7431137 .9018728
LE8_TOTALSCORE	.9989717	.0003561	-2.89	0.004	.9982741 .9996698

-> Model for the mediator

Iteration 0: Log likelihood = -51463.958	Number of obs = 36,352
Iteration 1: Log likelihood = -51463.958	Wald chi2(7) = 234.34
Log likelihood = -51463.958	Prob > chi2 = 0.0000

	znub1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0031246	.0152698	-0.20	0.838	-.0330529
AGE		-.0014609	.0009968	-1.47	0.143	-.0034146
SEX		-.0235717	.0105686	-2.23	0.026	-.0442858
NonWhite		.0967117	.0253259	3.82	0.000	.0470738
householdsize		-.0028176	.0048915	-0.58	0.565	-.0124047
SES		-.0171415	.007927	-2.16	0.031	-.0326781
LE8_TOTALSCORE		-.0007434	.0000563	-13.21	0.000	-.0008537
_cons		.4970946	.0721078	6.89	0.000	.3557659
sigma2						
_cons		.9935675	.0073697	134.82	0.000	.9791232
						1.008012

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.257886	.1616589	7.78	0.000	.9410406
ereri_cde	1.25498	.1615561	7.77	0.000	.9383354
ereri_intref	.0024502	.0092017	0.27	0.790	-.0155848
ereri_intmed	.0002481	.0012936	0.19	0.848	-.0022872
ereri_pie	.0002085	.0010264	0.20	0.839	-.0018033

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): znucb2
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 .0465 2.216 -.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 = **-9189.6363**
 Iteration 1: Log likelihood = **-9099.2858**
 Iteration 2: Log likelihood = **-9090.774**
 Iteration 3: Log likelihood = **-9090.7559**
 Refining estimates:
 Iteration 0: Log likelihood = **-9090.7559**

Cox regression with Breslow method for ties

No. of subjects = **36,666** Number of obs = **36,666**
 No. of failures = **981**
 Time at risk = **445,350.683**
Log likelihood = -9090.7559 LR chi2(9) = **197.76**
 Prob > chi2 = **0.0000**

<u>_t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.260047	.1618662	11.38	0.000	1.964056 2.600646
znucb2	.9300999	.0374536	-1.80	0.072	.8595144 1.006482
_infectionburXznucb2_000	1.032318	.073461	0.45	0.655	.897927 1.186823
AGE	1.035136	.0129828	2.75	0.006	1.01 1.060897
SEX	.7532237	.04877	-4.38	0.000	.6634528 .8551413
NonWhite	1.073635	.1825043	0.42	0.676	.7694197 1.498132
householdszie	.9337484	.0393108	-1.63	0.103	.8597937 1.014064
SES	.8175004	.0401097	-4.11	0.000	.7425484 .9000179
LE8_TOTALSCORE	.9990068	.0003569	-2.78	0.005	.9983076 .9997065

-> Model for the mediator

Iteration 0: Log likelihood = **-51222.491**
 Iteration 1: Log likelihood = **-51222.491**

Linear regression (Maximum Likelihood) Number of obs = **36,666**
 Log likelihood = **-51222.491** Wald chi2(7) = **1643.38**
 Prob > chi2 = **0.0000**

<u>znucb2</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.1161007	.0149302	7.78	0.000	.0868381 .1453633
AGE	.0118531	.0009757	12.15	0.000	.0099407 .0137656
SEX	-.0898366	.0103295	-8.70	0.000	-.110082 -.0695912
NonWhite	-.0931606	.0247462	-3.76	0.000	-.1416623 -.0446589
householdszie	-.0026869	.0049029	-0.55	0.584	-.0122964 .0069227
SES	-.0758217	.0077575	-9.77	0.000	-.0910262 -.0606173
LE8_TOTALSCORE	-.0016094	.000055	-29.26	0.000	-.0017172 -.0015016
_cons	.2183196	.0707954	3.08	0.002	.0795632 .357076
sigma2					
_cons	.9570763	.0070685	135.40	0.000	.9432222 .9709303

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.244387	.1603093	7.76	0.000	.9301864 1.558587
ereri_cde	1.255422	.1613717	7.78	0.000	.9391388 1.571704
ereri_intref	-.0004157	.0080977	-0.05	0.959	-.0162869 .0154556
ereri_intmed	-.0022414	.0162095	-0.14	0.890	-.0340114 .0295287
ereri_pie	-.0083777	.0047585	-1.76	0.078	-.0177043 .0009488

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): znu dc
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -9073.7258

Iteration 2: Log likelihood = -9064.2064

Iteration 3: Log likelihood = -9064.1734

Iteration 4: Log likelihood = -9064.1734

Refining estimates:

Iteration 0: Log likelihood = -9064.1734

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) = 204.40

Log likelihood = -9064.1734

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.280369	.1622756	11.58	0.000	1.983498 2.621671
znudc	.9301048	.0356232	-1.89	0.059	.8628408 1.002612
_infectionburXznudc_000	1.00453	.072024	0.06	0.950	.8728351 1.156094
AGE	1.035869	.0129837	2.81	0.005	1.010732 1.061632
SEX	.7561938	.0490339	-4.31	0.000	.6659453 .8586727
NonWhite	1.047739	.1804554	0.27	0.787	.7475635 1.468447
householdsize	.9359282	.0392795	-1.58	0.115	.8620231 1.016169
SES	.8166558	.040082	-4.13	0.000	.7417569 .8991177
LE8_TOTALSCORE	.9990091	.0003547	-2.79	0.005	.9983142 .9997045

-> Model for the mediator

Iteration 0: Log likelihood = **-52056.875**
 Iteration 1: Log likelihood = **-52056.875**

Linear regression (Maximum Likelihood) Number of obs = 36,824
 Wald chi2(7) = 389.28
 Log likelihood = **-52056.875** Prob > chi2 = 0.0000

	znudc	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.013997	.0151355	0.92	0.355	-.0156681 .0436621
AGE		-.0010733	.0009872	-1.09	0.277	-.0030082 .0008616
SEX		.0333737	.0104801	3.18	0.001	.012833 .0539143
NonWhite		.00216	.0250699	0.09	0.931	-.0469761 .0512961
householdsize		-.0065288	.0047779	-1.37	0.172	-.0158933 .0028356
SES		-.0271419	.0078587	-3.45	0.001	-.0425448 -.0117391
LE8_TOTALSCORE		-.0009964	.0000558	-17.86	0.000	-.0011058 -.0008871
_cons		.5226097	.0713599	7.32	0.000	.3827469 .6624724
sigma2						
_cons		.9895124	.0072924	135.69	0.000	.9752195 1.003805

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.277466	.1617939	7.90	0.000	.9603559 1.594576
ereri_cde	1.276867	.1617416	7.89	0.000	.9598598 1.593875
ereri_intref	.0027654	.0099799	0.28	0.782	-.0167947 .0223256
ereri_intmed	-.0011531	.0023704	-0.49	0.627	-.0057989 .0034927
ereri_pie	-.0010137	.0012195	-0.83	0.406	-.0034038 .0013764

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): znuadt2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8967.8508
Iteration 2: Log likelihood = -8958.0454
Iteration 3: Log likelihood = -8957.9984
Iteration 4: Log likelihood = -8957.9984
Refining estimates:
Iteration 0: Log likelihood = -8957.9984

```

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) =	199.24
Log likelihood =	-8957.9984	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.248615	.1619684	11.25	0.000	1.952553 2.589569
znuadt2	.9227605	.0366978	-2.02	0.043	.853566 .9975643
_infectionburXznuadt2_000	.9989754	.0741961	-0.01	0.989	.8636427 1.155515
AGE	1.031909	.0129871	2.50	0.013	1.006766 1.05768
SEX	.7514119	.048927	-4.39	0.000	.6613836 .8536949
NonWhite	1.082917	.1842295	0.47	0.640	.7758645 1.511487
householdszie	.936443	.0392866	-1.57	0.118	.8625233 1.016698
SES	.82033	.0404498	-4.02	0.000	.7447603 .9035677
LE8_TOTALSCORE	.9990537	.0003547	-2.67	0.008	.9983586 .9997492

-> Model for the mediator

Iteration 0: Log likelihood = -51432.607	Number of obs = 36,264
Iteration 1: Log likelihood = -51432.607	Wald chi2(7) = 46.59
Log likelihood = -51432.607	Prob > chi2 = 0.0000

	znudt2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0507211	.0153152	-3.31	0.001	-.0807383 -.0207039
AGE		6.26e-06	.0010001	0.01	0.995	-.0019538 .0019663
SEX		-.0196815	.0106086	-1.86	0.064	-.0404741 .001111
NonWhite		-.0499796	.0253848	-1.97	0.049	-.099733 -.0002263
householdsize		.0001391	.0048247	0.03	0.977	-.0093171 .0095954
SES		.0360907	.0079564	4.54	0.000	.0204965 .0516849
LE8_TOTALSCORE		-.0000622	.0000565	-1.10	0.271	-.0001729 .0000485
_cons		.0726826	.0722748	1.01	0.315	-.0689734 .2143386
sigma2						
_cons		.9986894	.0074166	134.66	0.000	.984153 1.013226

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.25809	.1615945	7.79	0.000	.9413707 1.57481
ereri_cde	1.245298	.1614037	7.72	0.000	.9289524 1.561643
ereri_intref	.0034874	.0108501	0.32	0.748	-.0177784 .0247531
ereri_intmed	.0052194	.0076326	0.68	0.494	-.0097402 .020179
ereri_pie	.0040856	.0023728	1.72	0.085	-.0005651 .0087362

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): znudt5
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-9029.8435**
 Iteration 2: Log likelihood = **-9021.7495**
 Iteration 3: Log likelihood = **-9021.7323**
 Iteration 4: Log likelihood = **-9021.7323**
 Refining estimates:
 Iteration 0: Log likelihood = **-9021.7323**

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) =	200.16
Log likelihood =	-9021.7323	Prob > chi2 =	0.0000

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.24386	.1604832	11.30	0.000	1.95037 2.581515
znudt5	.8935713	.036144	-2.78	0.005	.8254657 .967296
_infectionburXznudt5_000	1.094873	.0783457	1.27	0.205	.9516005 1.259718
AGE	1.03603	.0130191	2.82	0.005	1.010825 1.061864
SEX	.7472897	.0485964	-4.48	0.000	.6578626 .8488732
NonWhite	1.087823	.1849212	0.50	0.620	.77958 1.517943
householdszie	.9386256	.0393161	-1.51	0.131	.8646457 1.018935
SES	.8228839	.0404795	-3.96	0.000	.7472503 .9061729
LE8_TOTALSCORE	.9989075	.000357	-3.06	0.002	.998208 .9996074

-> Model for the mediator

Iteration 0: Log likelihood = **-51254.402**
 Iteration 1: Log likelihood = **-51254.402**

Linear regression (Maximum Likelihood)	Number of obs =	36,459	
	Wald chi2(7) =	969.01	
Log likelihood =	-51254.402	Prob > chi2 =	0.0000

<u>znudt5</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.029227	.0150832	1.94	0.053	-.0003356 .0587895
AGE	.0007512	.0009872	0.76	0.447	-.0011837 .0026861
SEX	-.1103777	.0104519	-10.56	0.000	-.130863 -.0898924
NonWhite	.04344	.0250583	1.73	0.083	-.0056733 .0925533
householdszie	-.0016134	.0049667	-0.32	0.745	-.0113479 .0081212
SES	-.0349357	.0078503	-4.45	0.000	-.050322 -.0195493
LE8_TOTALSCORE	-.001442	.0000556	-25.91	0.000	-.001551 -.0013329
_cons	.8404639	.0715918	11.74	0.000	.7001466 .9807812
sigma2					
_cons	.9740833	.0072145	135.02	0.000	.9599431 .9882236

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.228338	.1592335	7.71	0.000	.9162459 1.54043
ereri_cde	1.235648	.1592676	7.76	0.000	.923489 1.547807
ereri_intref	-.0058839	.0056572	-1.04	0.298	-.0169718 .0052041
ereri_intmed	.0018574	.0041533	0.45	0.655	-.0062829 .0099976
ereri_pie	-.0032835	.0020616	-1.59	0.111	-.0073242 .0007573

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): znxph1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -8733.7772

Iteration 2: Log likelihood = -8726.0749

Iteration 3: Log likelihood = -8726.0546

Iteration 4: Log likelihood = -8726.0546

Refining estimates:

Iteration 0: Log likelihood = -8726.0546

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) = 187.02

Log likelihood = -8726.0546

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.213631	.1611285	10.92	0.000	1.919318 2.553075
znxph1	.9380042	.0378402	-1.59	0.113	.866695 1.015181
_infectionburXznxph1_000	1.043138	.0753894	0.58	0.559	.9053655 1.201876
AGE	1.037643	.0132166	2.90	0.004	1.01206 1.063873
SEX	.7539884	.0499036	-4.27	0.000	.6622574 .8584252
NonWhite	1.0859	.1871458	0.48	0.633	.7746265 1.522255
householdsize	.9299539	.0401979	-1.68	0.093	.8544127 1.012174
SES	.8170308	.0408151	-4.05	0.000	.7408262 .9010743
LE8_TOTALSCORE	.9992064	.0003604	-2.20	0.028	.9985002 .9999131

-> Model for the mediator

Iteration 0: Log likelihood = **-50376.421**
 Iteration 1: Log likelihood = **-50376.421**

Linear regression (Maximum Likelihood) Number of obs = 35,601
 Wald chi2(7) = 278.50
 Log likelihood = **-50376.421** Prob > chi2 = 0.0000

znxph1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	-.0172624	.0154056	-1.12	0.262	-.0474568 .012932
AGE	.007003	.0010087	6.94	0.000	.005026 .0089799
SEX	.1256074	.0106724	11.77	0.000	.1046899 .1465249
NonWhite	-.0465773	.0254654	-1.83	0.067	-.0964885 .003334
householdsize	-.0028253	.005063	-0.56	0.577	-.0127487 .007098
SES	.0176527	.0080173	2.20	0.028	.0019391 .0333662
LE8_TOTALSCORE	.0004424	.0000569	7.78	0.000	.0003309 .0005539
_cons	-.8229828	.0731244	-11.25	0.000	-.9663039 -.6796617
sigma2					
_cons	.9922099	.0074368	133.42	0.000	.977634 1.006786

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.210711	.1610054	7.52	0.000	.8951465 1.526276
ereri_cde	1.211354	.1608084	7.53	0.000	.896175 1.526532
ereri_intref	-.0014728	.0035393	-0.42	0.677	-.0084097 .0054641
ereri_intmed	-.0002749	.0024095	-0.11	0.909	-.0049974 .0044476
ereri_pie	.0011054	.0012084	0.91	0.360	-.0012631 .0034739

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): zobp2b
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 .04643 2.216 -.07389 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 = -8964.576
Iteration 1: Log likelihood = -8878.444
Iteration 2: Log likelihood = -8868.5265
Iteration 3: Log likelihood = -8868.4636
Iteration 4: Log likelihood = -8868.4636
Refining estimates:
Iteration 0: Log likelihood = -8868.4636

```

Cox regression with Breslow method for ties

No. of subjects =	36,053	Number of obs =	36,053
No. of failures =	958		
Time at risk =	438,100.301	LR chi2(9) =	192.22
Log likelihood =	-8868.4636	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.210652	.1595294	10.99	0.000	1.919085 2.546516
zobp2b	1.012589	.0469633	0.27	0.787	.9246026 1.108949
_infectionburXzobp2b_000	1.014794	.0728521	0.20	0.838	.8815975 1.168116
AGE	1.036853	.0131156	2.86	0.004	1.011463 1.062881
SEX	.7575217	.0627817	-3.35	0.001	.643946 .8911292
NonWhite	1.018653	.1778686	0.11	0.916	.7234306 1.434353
householdsize	.9445015	.0393263	-1.37	0.170	.8704846 1.024812
SES	.8109164	.0402124	-4.23	0.000	.7358106 .8936885
LE8_TOTALSCORE	.9990084	.0003569	-2.78	0.005	.9983091 .9997082

-> Model for the mediator

Iteration 0: Log likelihood = -42937.875	Number of obs = 36,053
Iteration 1: Log likelihood = -42937.875	Wald chi2(7) = 20825.00
Linear regression (Maximum Likelihood)	Prob > chi2 = 0.0000
Log likelihood = -42937.875	

	zobp2b	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr	-.0355056	.0122481	-2.90	0.004	-.0595114	-.0114997
AGE	-.010515	.0008015	-13.12	0.000	-.0120858	-.0089441
SEX	-1.21377	.0084776	-143.17	0.000	-1.230386	-1.197154
NonWhite	.0492005	.020322	2.42	0.015	.0093701	.0890308
householdsize	.0031651	.0040188	0.79	0.431	-.0047116	.0110417
SES	.0102352	.006375	1.61	0.108	-.0022596	.0227299
LE8_TOTALSCORE	.0007438	.0000451	16.49	0.000	.0006554	.0008322
_cons	2.115809	.058093	36.42	0.000	2.001949	2.229669
sigma2						
_cons	.6338479	.0047209	134.26	0.000	.624595	.6431008

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.209086	.1594306	7.58	0.000	.8966078
ereri_cde	1.210517	.1594898	7.59	0.000	.8979228
ereri_intref	.0007031	.003135	0.22	0.823	-.0054414
ereri_intmed	-.0016901	.0050749	-0.33	0.739	-.0116367
ereri_pie	-.0004441	.0016531	-0.27	0.788	-.0036841

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): zodam
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 .04684 2.215 -.07399 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 = **-8796.3455**
 Iteration 1: Log likelihood = **-8709.7488**
 Iteration 2: Log likelihood = **-8701.7419**
 Iteration 3: Log likelihood = **-8701.7196**
 Iteration 4: Log likelihood = **-8701.7196**
 Refining estimates:
 Iteration 0: Log likelihood = **-8701.7196**

Cox regression with Breslow method for ties

No. of subjects =	35,544	Number of obs =	35,544
No. of failures =	940		
Time at risk =	431,741.054	LR chi2(9) =	189.25
Log likelihood =	-8701.7196	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.24221	.1654367	10.94	0.000	1.940315 2.591077
zodam		.9438049	.0379062	-1.44	0.150	.8723589 1.021102
_infectionburXzodam_000		1.054598	.075143	0.75	0.456	.9171422 1.212656
AGE		1.036995	.013231	2.85	0.004	1.011385 1.063254
SEX		.7534181	.0501281	-4.26	0.000	.6613052 .8583613
NonWhite		1.102602	.1901081	0.57	0.571	.786424 1.545899
householdszie		.9302787	.0401523	-1.67	0.094	.8548185 1.0124
SES		.815943	.0409205	-4.06	0.000	.739556 .9002197
LE8_TOTALSCORE		.9992479	.000362	-2.08	0.038	.9985385 .9999577

-> Model for the mediator

Iteration 0: Log likelihood = **-49850.155**
 Iteration 1: Log likelihood = **-49850.155**

Linear regression (Maximum Likelihood)	Number of obs =	35,544
	Wald chi2(7) =	1187.60
Log likelihood =	Prob > chi2 =	0.0000

	zodam	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0668184	.0152268	-4.39	0.000	-.0966623 -.0369744
AGE		-.0082321	.0009971	-8.26	0.000	-.0101863 -.0062779
SEX		.2174707	.0105483	20.62	0.000	.1967963 .238145
NonWhite		.1909705	.025178	7.58	0.000	.1416226 .2403184
householdszie		-.0010859	.0050019	-0.22	0.828	-.0108895 .0087177
SES		.1008593	.0079247	12.73	0.000	.0853272 .1163914
LE8_TOTALSCORE		.00082	.0000562	14.58	0.000	.0007098 .0009302
_cons		-.2376333	.0722774	-3.29	0.001	-.3792943 -.0959723
sigma2						
_cons		.9676409	.0072585	133.31	0.000	.9534145 .9818673

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.240412	.1640657	7.56	0.000	.918849 1.561975
ereri_cde	1.240867	.1650713	7.52	0.000	.9173328 1.564401
ereri_intref	-.0011547	.0020032	-0.58	0.564	-.0050809 .0027715
ereri_intmed	-.0031721	.0092783	-0.34	0.732	-.0213573 .0150131
ereri_pie	.003872	.0028354	1.37	0.172	-.0016853 .0094292

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): zogfr
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8966.9753**

Iteration 2: Log likelihood = **-8956.5893**

Iteration 3: Log likelihood = **-8956.5276**

Iteration 4: Log likelihood = **-8956.5276**

Refining estimates:

Iteration 0: Log likelihood = **-8956.5276**

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) = 202.18

Log likelihood = -8956.5276

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.265764	.1621132	11.43	0.000	1.969301
zogfr		.9173699	.0365774	-2.16	0.031	.8484092
_infectionburXzogfr_000		.9640293	.0694895	-0.51	0.611	.8370158
AGE		1.033418	.0130155	2.61	0.009	1.008221
SEX		.7362121	.0482255	-4.68	0.000	.647508
NonWhite		1.073496	.182695	0.42	0.677	.7690193
householdsize		.9357269	.0393223	-1.58	0.114	.8617451
SES		.8175808	.0403061	-4.09	0.000	.7422789
LE8_TOTALSCORE		.9989724	.0003558	-2.89	0.004	.9982753

-> Model for the mediator

Iteration 0: Log likelihood = -50846.071
Iteration 1: Log likelihood = -50846.071

Linear regression (Maximum Likelihood) Number of obs = 36,264
Log likelihood = -50846.071 Wald chi2(7) = 1240.37
Prob > chi2 = 0.0000

	zogfr	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0574404	.0150695	3.81	0.000	.0279048 .086976
AGE		.0095412	.000984	9.70	0.000	.0076126 .0114698
SEX		-.2536751	.0104384	-24.30	0.000	-.2741341 -.2332162
NonWhite		-.0938812	.0249776	-3.76	0.000	-.1428363 -.0449261
householdsiz		-.0085826	.0047473	-1.81	0.071	-.0178871 .0007219
SES		-.021349	.0078287	-2.73	0.006	-.036693 -.006005
LE8_TOTALSCORE		-.0009776	.0000556	-17.59	0.000	-.0010865 -.0008686
_cons		.3176477	.0711152	4.47	0.000	.1782644 .457031
sigma2						
	_cons	.9669006	.0071806	134.66	0.000	.9528269 .9809742

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.258836	.1619792	7.77	0.000	.9413631 1.57631
ereri_cde	1.260353	.1614276	7.81	0.000	.9439608 1.576745
ereri_intref	.014483	.0178562	0.81	0.417	-.0205144 .0494804
ereri_intmed	-.011058	.0088326	-1.25	0.211	-.0283696 .0062537
ereri_pie	-.0049417	.0026203	-1.89	0.059	-.0100774 .0001941

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): zogn
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -9030.1857
Iteration 2: Log likelihood = -9019.5512
Iteration 3: Log likelihood = -9019.4428
Iteration 4: Log likelihood = -9019.4427
Refining estimates:
Iteration 0: Log likelihood = -9019.4427

```

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) =	204.74
Log likelihood =	-9019.4427	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.242922	.1723373	10.51	0.000	1.92935 2.607456
zogn	1.139633	.0446543	3.34	0.001	1.055388 1.230602
_infectionburXzogn_000	.9443334	.0597391	-0.91	0.365	.8342147 1.068988
AGE	1.028206	.0130694	2.19	0.029	1.002907 1.054143
SEX	.7298728	.0478169	-4.81	0.000	.641921 .8298752
NonWhite	1.061697	.1807111	0.35	0.725	.7605324 1.482119
householdsize	.940107	.0392314	-1.48	0.139	.8662754 1.020231
SES	.8356065	.0412295	-3.64	0.000	.7585825 .9204512
LE8_TOTALSCORE	.9991961	.0003578	-2.25	0.025	.9984951 .9998975

-> Model for the mediator

Iteration 0: Log likelihood = -49151.835	Number of obs = 36,459
Iteration 1: Log likelihood = -49151.835	Wald chi2(7) = 5544.71
Log likelihood = -49151.835	Prob > chi2 = 0.0000

	zogn	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.2092599	.014238	14.70	0.000	.181354 .2371658
AGE		.0452501	.0009319	48.56	0.000	.0434236 .0470765
SEX		.3303379	.0098662	33.48	0.000	.3110006 .3496752
NonWhite		.2438497	.0236541	10.31	0.000	.1974886 .2902108
householdsize		.002972	.0046884	0.63	0.526	-.006217 .0121611
SES		-.1065163	.0074104	-14.37	0.000	-.1210405 -.0919921
LE8_TOTALSCORE		-.0014996	.0000525	-28.55	0.000	-.0016025 -.0013966
_cons		-2.533581	.0675799	-37.49	0.000	-2.666035 -2.401126
sigma2						
_cons		.8679709	.0064286	135.02	0.000	.855371 .8805707

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.269901	.1661577	7.64	0.000	.9442377 1.595564
ereri_cde	1.238437	.1710994	7.24	0.000	.9030884 1.573786
ereri_intref	-.003149	.0050492	-0.62	0.533	-.0130452 .0067472
ereri_intmed	.0068836	.0246801	0.28	0.780	-.0414884 .0552557
ereri_pie	.027729	.0086411	3.21	0.001	.0107927 .0446653

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): zolr1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 .04646 2.216 -.07617 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 = **-8939.7229**
 Iteration 1: Log likelihood = **-8851.9848**
 Iteration 2: Log likelihood = **-8837.4094**
 Iteration 3: Log likelihood = **-8837.0838**
 Iteration 4: Log likelihood = **-8837.0832**
 Iteration 5: Log likelihood = **-8837.0832**
 Refining estimates:
 Iteration 0: Log likelihood = **-8837.0832**

Cox regression with Breslow method for ties

No. of subjects =	36,098	Number of obs =	36,098
No. of failures =	956		
Time at risk =	438,607.211	LR chi2(9) =	205.28
Log likelihood =	-8837.0832	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.282677	.1665706	11.31	0.000	1.978477 2.63365
zolr1	1.089007	.0404465	2.30	0.022	1.01255 1.171238
_infectionburXzolr1_000	1.015907	.0694287	0.23	0.817	.8885488 1.161519
AGE	1.030372	.0130997	2.35	0.019	1.005014 1.05637
SEX	.7605769	.049898	-4.17	0.000	.6688053 .8649412
NonWhite	.9995853	.1794581	-0.00	0.998	.7030748 1.421144
householdsize	.9239177	.0404837	-1.81	0.071	.8478828 1.006771
SES	.8268973	.0411645	-3.82	0.000	.7500274 .9116456
LE8_TOTALSCORE	.9991341	.0003594	-2.41	0.016	.9984298 .9998388

-> Model for the mediator

Iteration 0: Log likelihood = **-50704.771**
 Iteration 1: Log likelihood = **-50704.771**

Linear regression (Maximum Likelihood)	Number of obs =	36,098
	Wald chi2(7) =	1046.01
Log likelihood =	Prob > chi2 =	0.0000

zolr1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.04332	.0151403	2.86	0.004	.0136455 .0729944
AGE	.0105173	.0009894	10.63	0.000	.0085782 .0124564
SEX	-.0909231	.0104893	-8.67	0.000	-.1114818 -.0703644
NonWhite	-.1243508	.0251243	-4.95	0.000	-.1735935 -.0751081
householdsize	-.0011492	.0048185	-0.24	0.811	-.0105933 .0082949
SES	-.0594493	.0078736	-7.55	0.000	-.0748813 -.0440173
LE8_TOTALSCORE	-.0012967	.0000559	-23.20	0.000	-.0014063 -.0011872
_cons	.1529821	.0715476	2.14	0.033	.0127515 .2932128
sigma2					
_cons	.9718121	.0072336	134.35	0.000	.9576344 .9859897

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.295751	.1650992	7.85	0.000	.9721626 1.61934
ereri_cde	1.27881	.1658164	7.71	0.000	.9538156 1.603804
ereri_intref	.006914	.0123817	0.56	0.577	-.0173537 .0311816
ereri_intmed	.0063269	.0063169	1.00	0.317	-.006054 .0187077
ereri_pie	.0037006	.0020705	1.79	0.074	-.0003575 .0077586

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): zomd
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -9039.3419

Iteration 2: Log likelihood = -9030.1233

Iteration 3: Log likelihood = -9030.0801

Iteration 4: Log likelihood = -9030.0801

Refining estimates:

Iteration 0: Log likelihood = -9030.0801

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) = 191.61

Log likelihood = -9030.0801

Prob > chi2 = 0.0000

-> Model for the mediator

Iteration 0: Log likelihood = -50091.037
Iteration 1: Log likelihood = -50091.037

Linear regression (Maximum Likelihood) Number of obs = 36,595
Log likelihood = -50091.037 Wald chi2(7) = 3859.27
Prob > chi2 = 0.0000

	zomd	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0298283	.0145078	-2.06	0.040	-.0582631
AGE		.0181901	.0009468	19.21	0.000	.0163344
SEX		.4590127	.0100522	45.66	0.000	.4393107
NonWhite		.3066582	.0241002	12.72	0.000	.2594226
householdsiz		.0035839	.0045768	0.78	0.434	-.0053865
SES		.0175446	.0075451	2.33	0.020	.0027565
LE8_TOTALSCORE		.0017521	.0000535	32.73	0.000	.0016472
_cons		-2.691343	.0683896	-39.35	0.000	-2.825384
sigma2						
	_cons	.9045769	.0066873	135.27	0.000	.8914701
						.9176837

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]	
tereri	1.240687	.1600146	7.75	0.000	.927064	1.55431
ereri_cde	1.24017	.1599726	7.75	0.000	.9266292	1.55371
ereri_intref	-.0005617	.0020946	-0.27	0.789	-.004667	.0035436
ereri_intmed	.002103	.0042702	0.49	0.622	-.0062665	.0104725
ereri_pie	-.0010241	.0013234	-0.77	0.439	-.003618	.0015698

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): zomg
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8970.7838
Iteration 2: Log likelihood = -8939.7843
Iteration 3: Log likelihood = -8938.4746
Iteration 4: Log likelihood = -8938.4708
Iteration 5: Log likelihood = -8938.4708
Refining estimates:
Iteration 0: Log likelihood = -8938.4708

```

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) =	238.29
Log likelihood =	-8938.4708	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.192942	.1642587	10.48	0.000	1.893517 2.539715
zomg	.813351	.0315954	-5.32	0.000	.7537238 .8776953
_infectionburXzomg_000	.9699078	.0660128	-0.45	0.653	.8487834 1.108317
AGE	1.028719	.0129779	2.24	0.025	1.003594 1.054472
SEX	.7900172	.051847	-3.59	0.000	.694663 .8984603
NonWhite	1.109787	.1886252	0.61	0.540	.7953621 1.548511
householdsize	.9401027	.0389288	-1.49	0.136	.8668179 1.019583
SES	.8279415	.0408399	-3.83	0.000	.7516445 .9119833
LE8_TOTALSCORE	.9993241	.0003555	-1.90	0.057	.9986275 1.000021

-> Model for the mediator

Iteration 0: Log likelihood =	-50828.792	Number of obs =	36,264
Iteration 1: Log likelihood =	-50828.792	Wald chi2(7) =	1276.13
Log likelihood =	-50828.792	Prob > chi2 =	0.0000

zomg	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	-.1064374	.0150623	-7.07	0.000	-.135959 -.0769159
AGE	-.0028262	.0009835	-2.87	0.004	-.0047539 -.0008985
SEX	.1971195	.0104335	18.89	0.000	.1766703 .2175687
NonWhite	.1752103	.0249657	7.02	0.000	.1262785 .2241421
householdsize	-.0001328	.004745	-0.03	0.978	-.0094329 .0091673
SES	.0808233	.007825	10.33	0.000	.0654866 .09616
LE8_TOTALSCORE	.001193	.0000556	21.47	0.000	.0010841 .0013019
_cons	-.7162156	.0710813	-10.08	0.000	-.8555325 -.5768988
sigma2					
_cons	.9659796	.0071737	134.66	0.000	.9519193 .9800398

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.262753	.1622801	7.78	0.000	.9446896 1.580816
ereri_cde	1.172177	.1606515	7.30	0.000	.8573058 1.487048
ereri_intref	.0341758	.0268086	1.27	0.202	-.0183681 .0867196
ereri_intmed	.0341673	.0151161	2.26	0.024	.0045403 .0637943
ereri_pie	.0222327	.0052898	4.20	0.000	.0118648 .0326006

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): zoptc
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8969.0837**
 Iteration 2: Log likelihood = **-8959.4668**
 Iteration 3: Log likelihood = **-8959.4256**
 Iteration 4: Log likelihood = **-8959.4256**
 Refining estimates:
 Iteration 0: Log likelihood = **-8959.4256**

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) =	196.38
Log likelihood =	-8959.4256	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.265861	.1623743	11.41	0.000	1.968952	2.607542
zoptc	1.062255	.0378787	1.69	0.090	.9905496	1.139152
_infectionburXzoptc_000	.9135807	.0631496	-1.31	0.191	.7978278	1.046128
AGE	1.030981	.0130006	2.42	0.016	1.005812	1.056779
SEX	.7391641	.0493436	-4.53	0.000	.6485122	.8424878
NonWhite	1.074615	.1830071	0.42	0.673	.7696498	1.50042
householdsize	.9367657	.0393229	-1.56	0.120	.8627796	1.017096
SES	.8170225	.0403071	-4.10	0.000	.7417212	.8999686
LE8_TOTALSCORE	.999017	.0003572	-2.75	0.006	.9983171	.9997173

-> Model for the mediator

Iteration 0: Log likelihood = **-49831.769**
 Iteration 1: Log likelihood = **-49831.769**

Linear regression (Maximum Likelihood)	Number of obs =	36,264
	Wald chi2(7) =	3398.15
Log likelihood =	-49831.769	Prob > chi2 = 0.0000

	zoptc	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0229486	.0146538	1.57	0.117	-.0057724
AGE		.0193611	.0009569	20.23	0.000	.0174857
SEX		.4785583	.0101505	47.15	0.000	.4586637
NonWhite		.213751	.0242886	8.80	0.000	.1661462
householdsize		.0053277	.0046163	1.15	0.248	-.0037201
SES		.0063196	.0076128	0.83	0.406	-.0086012
LE8_TOTALSCORE		.0013255	.0000541	24.52	0.000	.0012195
_cons		-2.586292	.0691537	-37.40	0.000	-2.721831
sigma2						
_cons		.9142973	.0067899	134.66	0.000	.9009893
						.9276053

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.26211	.1619933	7.79	0.000	.9446094 1.579612
ereri_cde	1.263995	.1620445	7.80	0.000	.9463936 1.581596
ereri_intref	-.0003271	.0046871	-0.07	0.944	-.0095137 .0088595
ereri_intmed	-.0029443	.0037311	-0.79	0.430	-.010257 .0043685
ereri_pie	.0013869	.001207	1.15	0.251	-.0009788 .0037527

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): zoscar
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 .04635 2.216 -.07454 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 = -9083.3359

Iteration 1: Log likelihood = -8999.0059

Iteration 2: Log likelihood = -8986.7892

Iteration 3: Log likelihood = -8986.6627

Iteration 4: Log likelihood = -8986.6627

Refining estimates:

Iteration 0: Log likelihood = -8986.6627

Cox regression with Breslow method for ties

No. of subjects = 36,480 Number of obs = 36,480

No. of failures = 970

Time at risk = 443,094.176

Log likelihood = -8986.6627

LR chi2(9) = 193.35

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.181843	.1614951	10.54	0.000	1.887207 2.522479
zoscar	1.038389	.0407505	0.96	0.337	.9615135 1.12141
_infectionburXzoscar_000	1.065017	.0727034	0.92	0.356	.9316425 1.217486
AGE	1.034966	.0130561	2.72	0.006	1.00969 1.060875
SEX	.7512849	.0489064	-4.39	0.000	.6612931 .8535233
NonWhite	1.103974	.1879971	0.58	0.561	.7906912 1.541385
householdsize	.9394099	.0392108	-1.50	0.134	.8656176 1.019493
SES	.8345018	.0413172	-3.65	0.000	.7573266 .9195415
LE8_TOTALSCORE	.9990976	.0003564	-2.53	0.011	.9983993 .9997964

-> Model for the mediator

Iteration 0: Log likelihood = -50984.675
 Iteration 1: Log likelihood = -50984.675

Linear regression (Maximum Likelihood)
 Number of obs = 36,480
 Wald chi2(7) = 1589.04
 Log likelihood = -50984.675 Prob > chi2 = 0.0000

zoscar	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.1536518	.0149577	10.27	0.000	.1243351 .1829684
AGE	.0153396	.000976	15.72	0.000	.0134266 .0172526
SEX	.0822164	.0103623	7.93	0.000	.0619067 .102526
NonWhite	-.2409013	.0248414	-9.70	0.000	-.2895897 -.192213
householdsize	-.0017781	.0047159	-0.38	0.706	-.0110211 .0074649
SES	-.1294644	.0077784	-16.64	0.000	-.1447098 -.1142191
LE8_TOTALSCORE	-.0011137	.0000552	-20.18	0.000	-.0012219 -.0010055
_cons	-.5075945	.0705242	-7.20	0.000	-.6458194 -.3693695
sigma2					
_cons	.9582327	.0070951	135.06	0.000	.9443265 .9721388

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.222131	.1599442	7.64	0.000	.9086466 1.535616
ereri_cde	1.18199	.1614722	7.32	0.000	.86551 1.49847
ereri_intref	.006037	.0092331	0.65	0.513	-.0120596 .0241336
ereri_intmed	.0282998	.0199605	1.42	0.156	-.0108221 .0674217
ereri_pie	.0058049	.0060913	0.95	0.341	-.0061339 .0177436

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): zosm
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 .04648 2.215 -.0754 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 = -8973.8261
Iteration 1: Log likelihood = -8887.3365
Iteration 2: Log likelihood = -8873.5831
Iteration 3: Log likelihood = -8873.4022
Iteration 4: Log likelihood = -8873.4021
Refining estimates:
Iteration 0: Log likelihood = -8873.4021

Cox regression with Breslow method for ties

No. of subjects = 36,189                               Number of obs = 36,189
No. of failures = 959
Time at risk = 439,750.94
Log likelihood = -8873.4021
LR chi2(9) = 200.85
Prob > chi2 = 0.0000

```

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.238662	.1640454	11.00	0.000	1.939161 2.584421
zosm	1.078293	.0435055	1.87	0.062	.996308 1.167024
_infectionburXzosm_000	1.018673	.0722024	0.26	0.794	.886549 1.170489
AGE	1.030719	.0130537	2.39	0.017	1.005449 1.056624
SEX	.7696037	.0506908	-3.98	0.000	.6763972 .8756539
NonWhite	1.058988	.1852427	0.33	0.743	.7516142 1.492062
householdsize	.9280349	.0402349	-1.72	0.085	.8524336 1.010341
SES	.8215707	.0407344	-3.96	0.000	.7454893 .9054167
LE8_TOTALSCORE	.9991471	.0003638	-2.34	0.019	.9984343 .9998605

-> Model for the mediator

```

Iteration 0: Log likelihood = -49810.159
Iteration 1: Log likelihood = -49810.159

Linear regression (Maximum Likelihood)
Number of obs = 36,189
Wald chi2(7) = 3213.36
Prob > chi2 = 0.0000
Log likelihood = -49810.159

```

	zosm	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0792716	.0147095	5.39	0.000	.0504416 .1081016
AGE		.0013514	.0009609	1.41	0.160	-.000532 .0032347
SEX		-.2147735	.0101835	-21.09	0.000	-.2347328 -.1948141
NonWhite		-.296339	.0244033	-12.14	0.000	-.3441686 -.2485093
householdsize		-.010795	.0047563	-2.27	0.023	-.0201171 -.0014728
SES		-.0912937	.0076397	-11.95	0.000	-.1062672 -.0763202
LE8_TOTALSCORE		-.0023726	.0000542	-43.76	0.000	-.0024789 -.0022664
_cons		1.455027	.0695644	20.92	0.000	1.318683 1.59137
sigma2						
_cons		.9184222	.0068276	134.52	0.000	.9050403 .9318041

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.258171	.1626071	7.74	0.000	.9394668 1.576875
ereri_cde	1.236459	.1635792	7.56	0.000	.9158498 1.557068
ereri_intref	.0049688	.0101829	0.49	0.626	-.0149894 .024927
ereri_intmed	.0107497	.011123	0.97	0.334	-.0110511 .0325505
ereri_pie	.0059933	.0034054	1.76	0.078	-.0006811 .0126677

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): zosmr
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 -.07506 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 = -9134.0033
 Iteration 1: Log likelihood = -9047.5849
 Iteration 2: Log likelihood = -9036.6769
 Iteration 3: Log likelihood = -9036.5937
 Iteration 4: Log likelihood = -9036.5937
 Refining estimates:
 Iteration 0: Log likelihood = -9036.5937

Cox regression with Breslow method for ties

No. of subjects =	36,648	Number of obs =	36,648
No. of failures =	975		
Time at risk =	445,198.116	LR chi2(9) =	194.82
Log likelihood =	-9036.5937	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.214093	.1607448	10.95	0.000	1.920428	2.552664
zosmr	1.039384	.0414558	0.97	0.333	.9612268	1.123896
_infectionburXzosmr_000	1.074104	.0758464	1.01	0.311	.9352762	1.233539
AGE	1.032446	.0129842	2.54	0.011	1.007309	1.058211
SEX	.7391118	.049593	-4.51	0.000	.6480314	.8429934
NonWhite	1.099307	.1868628	0.56	0.578	.7878248	1.533939
householdszie	.9353437	.0394836	-1.58	0.113	.8610721	1.016021
SES	.8330875	.0411732	-3.70	0.000	.7561746	.9178233
LE8_TOTALSCORE	.999105	.0003546	-2.52	0.012	.9984103	.9998002

-> Model for the mediator

Iteration 0: Log likelihood = -50441.948
 Iteration 1: Log likelihood = -50441.948

Linear regression (Maximum Likelihood)	Number of obs =	36,648	
	Wald chi2(7) =	3254.07	
Log likelihood =	-50441.948	Prob > chi2 =	0.0000

	zosmr	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0903495	.0146196	6.18	0.000	.0616957 .1190034
AGE		.0145095	.0009533	15.22	0.000	.012641 .016378
SEX		.4784671	.0101202	47.28	0.000	.4586319 .4983023
NonWhite		-.1465551	.0242489	-6.04	0.000	-.1940821 -.0990282
householdszie		-.0091186	.0046112	-1.98	0.048	-.0181565 -.0000807
SES		-.1335492	.0075972	-17.58	0.000	-.1484395 -.1186589
LE8_TOTALSCORE		-.0006448	.000054	-11.95	0.000	-.0007506 -.000539
_cons		-1.27839	.0689164	-18.55	0.000	-1.413463 -1.143316
sigma2						
_cons		.9184235	.0067847	135.37	0.000	.9051257 .9317213

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.245165	.1604271	7.76	0.000	.9307332 1.559596
ereri_cde	1.213849	.1606693	7.55	0.000	.8989426 1.528755
ereri_intref	.00909	.0117086	0.78	0.438	-.0138585 .0320385
ereri_intmed	.0187299	.0128021	1.46	0.143	-.0063617 .0438215
ereri_pie	.0034961	.0036603	0.96	0.340	-.003678 .0106702

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): zoxt
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -9066.7116

Iteration 2: Log likelihood = -9057.9896

Iteration 3: Log likelihood = -9057.9598

Iteration 4: Log likelihood = -9057.9598

Refining estimates:

Iteration 0: Log likelihood = -9057.9598

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 = -9057.9598

LR chi2(9) = 204.89

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.240051	.1598587	11.30	0.000	1.947658
zoxt		.8905864	.03584	-2.88	0.004	.8230402
_infectionburXzoxt_000		1.000053	.071333	0.00	0.999	.8695759
AGE		1.033706	.0129573	2.64	0.008	1.008619
SEX		.7176556	.0477052	-4.99	0.000	.6299899
NonWhite		1.093834	.1859425	0.53	0.598	.7838888
householdsize		.9342853	.0394922	-1.61	0.108	.8600016
SES		.8150931	.0400698	-4.16	0.000	.7402226
LE8_TOTALSCORE		.9987316	.0003636	-3.49	0.000	.9980191

-> Model for the mediator

Iteration 0: Log likelihood = -49766.171
Iteration 1: Log likelihood = -49766.171

Linear regression (Maximum Likelihood) Number of obs = 36,751
Log likelihood = -49766.171 Wald chi2(7) = 5083.69
Prob > chi2 = 0.0000

	zoxt	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0499102	.0142705	3.50	0.000	.0219405 .07788
AGE		-.006029	.0009338	-6.46	0.000	-.0078592 -.0041987
SEX		-.3993497	.0098853	-40.40	0.000	-.4187245 -.3799749
NonWhite		.1231349	.0237149	5.19	0.000	.0766546 .1696153
householdsiz		.0039578	.0046956	0.84	0.399	-.0052453 .013161
SES		-.0180092	.0074238	-2.43	0.015	-.0325596 -.0034589
LE8_TOTALSCORE		-.0027691	.0000526	-52.60	0.000	-.0028723 -.0026659
_cons		2.337668	.0677097	34.52	0.000	2.204959 2.470376
sigma2						
_cons		.8784575	.0064804	135.56	0.000	.8657562 .8911589

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.227126	.1592927	7.70	0.000	.914918 1.539334
ereri_cde	1.23177	.158771	7.76	0.000	.920584 1.542955
ereri_intref	.0082682	.0153087	0.54	0.589	-.0217364 .0382727
ereri_intmed	-.007145	.0074014	-0.97	0.334	-.0216515 .0073616
ereri_pie	-.0057667	.0025867	-2.23	0.026	-.0108364 -.0006969

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): zp4hb
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 .04661 2.217 -.07475 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 = -8973.4671
Iteration 1: Log likelihood = -8878.305
Iteration 2: Log likelihood = -8869.614
Iteration 3: Log likelihood = -8869.5942
Iteration 4: Log likelihood = -8869.5942
Refining estimates:
Iteration 0: Log likelihood = -8869.5942

```

Cox regression with Breslow method for ties

No. of subjects =	36,234	Number of obs =	36,234
No. of failures =	959		
Time at risk =	440,188.396	LR chi2(9) =	207.75
Log likelihood =	-8869.5942	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.286731	.1646957	11.48	0.000	1.985681 2.633423
zp4hb	.859532	.0350361	-3.71	0.000	.793534 .9310191
_infectionburXzp4hb_000	1.1032	.0789478	1.37	0.170	.9588271 1.269312
AGE	1.034317	.0130939	2.67	0.008	1.008969 1.060301
SEX	.7691016	.0503783	-4.01	0.000	.6764375 .8744597
NonWhite	1.047751	.1828852	0.27	0.789	.7441847 1.475148
householdsize	.9304799	.0398333	-1.68	0.092	.8555936 1.011921
SES	.8154837	.0404896	-4.11	0.000	.7398646 .8988315
LE8_TOTALSCORE	.9988195	.0003643	-3.24	0.001	.9981058 .9995337

-> Model for the mediator

Iteration 0: Log likelihood = -50474.176	Number of obs = 36,234
Iteration 1: Log likelihood = -50474.176	Wald chi2(7) = 1927.82
Log likelihood = -50474.176	Prob > chi2 = 0.0000

	zp4hb	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0342605	.0149619	2.29	0.022	.0049357 .0635853
AGE		.0014112	.0009746	1.45	0.148	-.0004989 .0033213
SEX		.0519813	.0103488	5.02	0.000	.031698 .0722647
NonWhite		.0579255	.0247544	2.34	0.019	.0094079 .1064432
householdsize		-.0072489	.0047067	-1.54	0.124	-.0164738 .001976
SES		-.033277	.0077674	-4.28	0.000	-.0485009 -.0180532
LE8_TOTALSCORE		-.0022565	.0000551	-40.97	0.000	-.0023645 -.0021486
_cons		.9712076	.0704635	13.78	0.000	.8331017 1.109313
sigma2						
_cons		.9494568	.0070539	134.60	0.000	.9356313 .9632823

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.259855	.1626013	7.75	0.000	.9411622 1.578548
ereri_cde	1.271898	.1625373	7.83	0.000	.9533305 1.590465
ereri_intref	-.0079237	.0094723	-0.84	0.403	-.0264891 .0106417
ereri_intmed	.0010535	.0048471	0.22	0.828	-.0084467 .0105537
ereri_pie	-.0051725	.0026469	-1.95	0.051	-.0103604 .0000154

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): zpadi2
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8835.1337**
 Iteration 2: Log likelihood = **-8816.908**
 Iteration 3: Log likelihood = **-8815.5069**
 Iteration 4: Log likelihood = **-8815.4758**
 Iteration 5: Log likelihood = **-8815.4758**
 Refining estimates:
 Iteration 0: Log likelihood = **-8815.4758**

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 = **-8815.4758** LR chi2(9) = **195.71**
 Prob > chi2 = **0.0000**

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.201501	.1605968	10.82	0.000	1.908204 2.539879
zpadi2		1.073616	.0350779	2.17	0.030	1.007019 1.144616
_infectionburXzpadi2_000		1.077053	.070889	1.13	0.259	.9467016 1.225353
AGE		1.036499	.0131444	2.83	0.005	1.011054 1.062585
SEX		.7585244	.0499307	-4.20	0.000	.666712 .8629802
NonWhite		1.04823	.1829366	0.27	0.787	.74457 1.475734
householdszie		.9344518	.0396183	-1.60	0.110	.85994 1.01542
SES		.8238071	.0410078	-3.89	0.000	.7472295 .9082324
LE8_TOTALSCORE		.9991133	.0003587	-2.47	0.013	.9984105 .9998167

-> Model for the mediator

Iteration 0: Log likelihood = **-50623.812**
 Iteration 1: Log likelihood = **-50623.812**

 Linear regression (Maximum Likelihood) Number of obs = **35,761**
 Log likelihood = **-50623.812** Wald chi2(7) = **237.48**
 Prob > chi2 = **0.0000**

	zpadi2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0423463	.0154018	2.75	0.006	.0121594 .0725332
AGE		.0002814	.0010031	0.28	0.779	-.0016848 .0022475
SEX		-.1327474	.0106533	-12.46	0.000	-.1536275 -.1118674
NonWhite		-.0088042	.0254901	-0.35	0.730	-.0587639 .0411555
householdszie		.0025147	.0048456	0.52	0.604	-.0069826 .0120119
SES		-.0021202	.0079874	-0.27	0.791	-.0177752 .0135347
LE8_TOTALSCORE		-.0003981	.0000568	-7.01	0.000	-.0005094 -.0002869
_cons		.3743079	.0724584	5.17	0.000	.2322921 .5163237
sigma2						
_cons		.9933752	.0074289	133.72	0.000	.9788148 1.007936

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.231847	.1615534	7.63	0.000	.9152086 1.548486
ereri_cde	1.198993	.1601786	7.49	0.000	.8850491 1.512938
ereri_intref	.0191675	.0176313	1.09	0.277	-.0153892 .0537241
ereri_intmed	.010674	.0068631	1.56	0.120	-.0027774 .0241255
ereri_pie	.0030125	.0017692	1.70	0.089	-.000455 .00648

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): zpadi4
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 .04684 2.215 -.07399 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 = -8796.3455

Iteration 1: Log likelihood = -8718.1073

Iteration 2: Log likelihood = -8701.1681

Iteration 3: Log likelihood = -8700.2621

Iteration 4: Log likelihood = -8700.2524

Iteration 5: Log likelihood = -8700.2524

Refining estimates:

Iteration 0: Log likelihood = -8700.2524

Cox regression with Breslow method for ties

No. of subjects = 35,544 Number of obs = 35,544

No. of failures = 940

Time at risk = 431,741.054

LR chi2(9) = 192.19

Log likelihood = -8700.2524 Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.198543	.1614593	10.73	0.000	1.903809 2.538905
zpadi4	.9813852	.0381616	-0.48	0.629	.909369 1.059105
_infectionburXzpadi4_000	1.150738	.0753428	2.14	0.032	1.012151 1.3083
AGE	1.037181	.0132378	2.86	0.004	1.011557 1.063453
SEX	.7475949	.0495826	-4.39	0.000	.656466 .8513742
NonWhite	1.08952	.187772	0.50	0.619	.7772054 1.527335
householdsize	.931387	.0401286	-1.65	0.099	.8559656 1.013454
SES	.8103435	.0404402	-4.21	0.000	.7348352 .8936107
LE8_TOTALSCORE	.9992422	.0003618	-2.09	0.036	.9985332 .9999516

-> Model for the mediator

Iteration 0: Log likelihood = -50211.678
 Iteration 1: Log likelihood = -50211.678

Linear regression (Maximum Likelihood)
 Number of obs = 35,544
 Wald chi2(7) = 447.95
 Log likelihood = -50211.678 Prob > chi2 = 0.0000

zpadi4	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	-.0152981	.0153824	-0.99	0.320	-.0454472 .0148509
AGE	.0041777	.0010073	4.15	0.000	.0022035 .0061519
SEX	-.1516074	.0106562	-14.23	0.000	-.1724931 -.1307217
NonWhite	-.0397127	.0254354	-1.56	0.118	-.0895651 .0101397
householdsize	.0068562	.005053	1.36	0.175	-.0030476 .01676
SES	.0032761	.0080057	0.41	0.682	-.0124147 .018967
LE8_TOTALSCORE	-.0007472	.0000568	-13.15	0.000	-.0008586 -.0006359
_cons	.3436386	.0730162	4.71	0.000	.2005294 .4867478
sigma2					
_cons	.9875265	.0074077	133.31	0.000	.9730078 1.002045

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.210814	.1613571	7.50	0.000	.8945599 1.527068
ereri_cde	1.198382	.1614469	7.42	0.000	.8819516 1.514812
ereri_intref	.0165493	.0143176	1.16	0.248	-.0115127 .0446114
ereri_intmed	-.0044044	.004814	-0.91	0.360	-.0138396 .0050308
ereri_pie	.0002875	.0006616	0.43	0.664	-.0010091 .0015841

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): zpaep
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8897.4836
Iteration 2: Log likelihood = -8889.2228
Iteration 3: Log likelihood = -8889.1891
Iteration 4: Log likelihood = -8889.1891
Refining estimates:
Iteration 0: Log likelihood = -8889.1891

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 = -8889.1891                         LR chi2(9)      = 192.52
                                                               Prob > chi2    = 0.0000

```

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.204336	.1588826	10.97	0.000	1.913927 2.538809
zpaep	1.002767	.0430439	0.06	0.949	.9218543 1.090782
_infectionburXzpaep_000	1.014033	.0801655	0.18	0.860	.8684791 1.183981
AGE	1.037351	.0131124	2.90	0.004	1.011966 1.063372
SEX	.7422838	.050343	-4.39	0.000	.6498902 .8478128
NonWhite	1.018821	.1778969	0.11	0.915	.7235509 1.434586
householdsize	.9433912	.0394005	-1.40	0.163	.8692438 1.023863
SES	.8100565	.0401358	-4.25	0.000	.7350907 .8926675
LE8_TOTALSCORE	.9990265	.0003562	-2.73	0.006	.9983285 .9997249

-> Model for the mediator

```

Iteration 0: Log likelihood = -50586.678
Iteration 1: Log likelihood = -50586.678

Linear regression (Maximum Likelihood)                      Number of obs = 36,164
                                                               Wald chi2(7)  = 1484.28
                                                               Prob > chi2  = 0.0000
Log likelihood = -50586.678

```

	zpaep	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.03605	.0150532	2.39	0.017	.0065463 .0655538
AGE		-.0211369	.0009849	-21.46	0.000	-.0230673 -.0192065
SEX		-.3264742	.0104199	-31.33	0.000	-.3468968 -.3060516
NonWhite		.0109522	.0249853	0.44	0.661	-.0380181 .0599226
householdsize		.0195809	.0049416	3.96	0.000	.0098957 .0292662
SES		-.0272952	.0078328	-3.48	0.000	-.0426472 -.0119433
LE8_TOTALSCORE		.0000916	.0000555	1.65	0.098	-.0000171 .0002003
_cons		1.675112	.0713825	23.47	0.000	1.535205 1.815019
sigma2						
_cons		.9605485	.0071433	134.47	0.000	.946548 .974549

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.205797	.1591328	7.58	0.000	.8939023 1.517692
ereri_cde	1.204348	.158883	7.58	0.000	.8929432 1.515753
ereri_intref	.0001214	.0016664	0.07	0.942	-.0031448 .0033875
ereri_intmed	.0012279	.0055845	0.22	0.826	-.0097176 .0121733
ereri_pie	.0000996	.0015482	0.06	0.949	-.0029347 .003134

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): zpag1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8822.9529**
 Iteration 2: Log likelihood = **-8813.3671**
 Iteration 3: Log likelihood = **-8813.2822**
 Iteration 4: Log likelihood = **-8813.2822**
 Refining estimates:
 Iteration 0: Log likelihood = **-8813.2822**

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) =	184.26
Log likelihood =	-8813.2822	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.18187	.1595769	10.67	0.000	1.890488	2.518162
zpag1	.9580961	.0383864	-1.07	0.285	.8857383	1.036365
_infectionburXzpag1_000	1.108384	.0787526	1.45	0.148	.9642973	1.274
AGE	1.037443	.0131825	2.89	0.004	1.011924	1.063604
SEX	.7522501	.0494322	-4.33	0.000	.6613444	.8556514
NonWhite	1.115803	.189809	0.64	0.519	.7994476	1.557347
householdszie	.9385577	.0396684	-1.50	0.134	.8639423	1.019617
SES	.8334278	.0414943	-3.66	0.000	.7559426	.9188554
LE8_TOTALSCORE	.9989798	.0003631	-2.81	0.005	.9982683	.9996917

-> Model for the mediator

Iteration 0: Log likelihood = **-49897.367**
 Iteration 1: Log likelihood = **-49897.367**

Linear regression (Maximum Likelihood)	Number of obs =	35,755
	Wald chi2(7) =	1712.30
Log likelihood =	Prob > chi2 =	0.0000

	zpag1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0705948	.0150823	4.68	0.000	.041034
AGE		-.0049548	.0009844	-5.03	0.000	-.0068843
SEX		-.0394823	.0104441	-3.78	0.000	-.0599524
NonWhite		-.0335627	.0250086	-1.34	0.180	-.0825787
householdszie		-.0060146	.0047627	-1.26	0.207	-.0153493
SES		-.0770025	.0078425	-9.82	0.000	-.0923735
LE8_TOTALSCORE		-.0019919	.0000556	-35.80	0.000	-.002101
_cons		1.355045	.0711741	19.04	0.000	1.215547
sigma2						
_cons		.9542722	.0071371	133.71	0.000	.9402838
						.9682606

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.190796	.159129	7.48	0.000	.8789086 1.502683
ereri_cde	1.180341	.1593565	7.41	0.000	.8680083 1.492674
ereri_intref	.0011798	.0065743	0.18	0.858	-.0117055 .0140652
ereri_intmed	.0122921	.0098842	1.24	0.214	-.0070806 .0316648
ereri_pie	-.0030174	.0028924	-1.04	0.297	-.0086864 .0026516

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): zpak4
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

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

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

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 = **-8732.7631**

Iteration 2: Log likelihood = **-8725.2704**

Iteration 3: Log likelihood = **-8725.2549**

Refining estimates:

Iteration 0: Log likelihood = **-8725.2549**

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) = 188.62
Log likelihood =	-8725.2549	Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.220982	.1619023	10.95	0.000	1.925286 2.562093
zpak4	.9204231	.0375028	-2.04	0.042	.8497774 .9969419
_infectionburXzpak4_000	1.075362	.0783575	1.00	0.319	.9322473 1.240448
AGE	1.03748	.0132091	2.89	0.004	1.011911 1.063695
SEX	.7477839	.0493937	-4.40	0.000	.6569787 .8511398
NonWhite	1.090842	.1879845	0.50	0.614	.7781705 1.529147
householdsize	.9308769	.0401372	-1.66	0.097	.8554418 1.012964
SES	.8151435	.0406765	-4.10	0.000	.7391938 .8988969
LE8_TOTALSCORE	.9991453	.0003613	-2.36	0.018	.9984374 .9998537

-> Model for the mediator

Iteration 0: Log likelihood = **-50354.978**
 Iteration 1: Log likelihood = **-50354.978**

Linear regression (Maximum Likelihood)
 Number of obs = 35,601
 Wald chi2(7) = 321.75
 Log likelihood = **-50354.978** Prob > chi2 = 0.0000

zpak4	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.008053	.0153963	0.52	0.601	-.0221232 .0382292
AGE	-.0042326	.001008	-4.20	0.000	-.0062084 -.0022569
SEX	-.052272	.010666	-4.90	0.000	-.0731769 -.0313671
NonWhite	-.0229689	.02545	-0.90	0.367	-.0728501 .0269123
householdsize	.0034996	.00506	0.69	0.489	-.0064177 .013417
SES	-.0224358	.0080124	-2.80	0.005	-.0381399 -.0067317
LE8_TOTALSCORE	-.0008721	.0000569	-15.34	0.000	-.0009836 -.0007607
_cons	.7617615	.0730803	10.42	0.000	.6185266 .9049963
sigma2					
_cons	.9910154	.0074279	133.42	0.000	.976457 1.005574

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.213181	.1611574	7.53	0.000	.897318 1.529043
ereri_cde	1.216716	.1612005	7.55	0.000	.9007692 1.532664
ereri_intref	-.0033528	.0037159	-0.90	0.367	-.0106359 .0039303
ereri_intmed	.0004846	.0014585	0.33	0.740	-.002374 .0033432
ereri_pie	-.0006675	.0013173	-0.51	0.612	-.0032494 .0019143

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): zpam
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 .04641 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 = -9170.4569
 Iteration 1: Log likelihood = -9082.0638
 Iteration 2: Log likelihood = -9073.9072
 Iteration 3: Log likelihood = -9073.8906
 Iteration 4: Log likelihood = -9073.8906
 Refining estimates:
 Iteration 0: Log likelihood = -9073.8906

Cox regression with Breslow method for ties

No. of subjects =	36,719	Number of obs =	36,719
No. of failures =	979		
Time at risk =	446,020.648	LR chi2(9) =	193.13
Log likelihood =	-9073.8906	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.24065	.1604474	11.27	0.000	1.94725 2.578259
zpam	.9954973	.0380356	-0.12	0.906	.9236718 1.072908
_infectionburXzpam_000	.9917322	.0670467	-0.12	0.902	.8686572 1.132245
AGE	1.037198	.013044	2.90	0.004	1.011945 1.063082
SEX	.7531223	.0489076	-4.37	0.000	.6631147 .855347
NonWhite	1.081328	.1838424	0.46	0.646	.7748903 1.50895
householdsize	.9383838	.0392465	-1.52	0.128	.8645303 1.018546
SES	.826595	.0406442	-3.87	0.000	.7506521 .9102211
LE8_TOTALSCORE	.999056	.0003537	-2.67	0.008	.9983629 .9997495

-> Model for the mediator

Iteration 0: Log likelihood = -51698.206
 Iteration 1: Log likelihood = -51698.206

Linear regression (Maximum Likelihood)
 Number of obs = 36,719
 Wald chi2(7) = 815.52
 Log likelihood = -51698.206 Prob > chi2 = 0.0000

	zparam	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0833062	.0150552	5.53	0.000	.0537987 .1128138
AGE		.0150184	.0009831	15.28	0.000	.0130916 .0169453
SEX		.1186522	.0104335	11.37	0.000	.0982029 .1391015
NonWhite		.0353154	.0250073	1.41	0.158	-.013698 .0843288
householdsize		-.0043026	.0047555	-0.90	0.366	-.0136232 .0050181
SES		-.0618494	.0078311	-7.90	0.000	-.0771981 -.0465007
LE8_TOTALSCORE		-.0007811	.0000556	-14.06	0.000	-.00089 -.0006722
_cons		-.702817	.0710529	-9.89	0.000	-.842078 -.5635559
sigma2						
_cons		.9782462	.0072197	135.50	0.000	.9640958 .9923965

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.238632	.1597657	7.75	0.000	.9254975 1.551767
ereri_cde	1.240573	.1604645	7.73	0.000	.9260686 1.555078
ereri_intref	.0004505	.0030923	0.15	0.884	-.0056103 .0065113
ereri_intmed	-.0020153	.0109287	-0.18	0.854	-.0234352 .0194046
ereri_pie	-.0003759	.0031825	-0.12	0.906	-.0066134 .0058616

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): zparam1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-9030.0453**
 Iteration 2: Log likelihood = **-9019.3233**
 Iteration 3: Log likelihood = **-9019.2427**
 Iteration 4: Log likelihood = **-9019.2426**
 Refining estimates:
 Iteration 0: Log likelihood = **-9019.2426**

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) =	205.14
Log likelihood =	-9019.2426	Prob > chi2 =	0.0000

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.23695	.1597372	11.27	0.000	1.944793 2.572997
zpamr1	.8916148	.0354734	-2.88	0.004	.8247299 .9639239
_infectionburXzpamr1_000	.9773955	.0697445	-0.32	0.749	.8498273 1.124113
AGE	1.035268	.0130015	2.76	0.006	1.010096 1.061066
SEX	.7730656	.0505367	-3.94	0.000	.6800985 .8787411
NonWhite	1.10818	.1884109	0.60	0.546	.7941278 1.54643
householdszie	.9381648	.0392194	-1.53	0.127	.864361 1.01827
SES	.8219316	.0404124	-3.99	0.000	.7464215 .9050805
LE8_TOTALSCORE	.9986999	.0003647	-3.56	0.000	.9979854 .999415

-> Model for the mediator

Iteration 0: Log likelihood = **-49997.189**
 Iteration 1: Log likelihood = **-49997.189**

Linear regression (Maximum Likelihood)	Number of obs =	36,459
	Wald chi2(7) =	3641.35
Log likelihood =	Prob > chi2 =	0.0000

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0055938	.0145719	0.38	0.701	-.0229667 .0341543
AGE	.0106756	.0009537	11.19	0.000	.0088063 .0125449
SEX	.1517136	.0100976	15.57	0.000	.1373826 .1769645
NonWhite	.1631326	.0242089	6.74	0.000	.115684 .2105812
householdszie	.0004577	.0047984	0.10	0.924	-.0089469 .0098623
SES	-.0290369	.0075843	-3.83	0.000	-.0439018 -.0141721
LE8_TOTALSCORE	-.0029412	.0000538	-54.71	0.000	-.0030465 -.0028358
_cons	.577483	.0691651	8.35	0.000	.4419218 .7130442
sigma2					
_cons	.909169	.0067338	135.02	0.000	.8959711 .9223669

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.241138	.1606485	7.73	0.000	.926273 1.556003
ereri_cde	1.229462	.158798	7.74	0.000	.9182238 1.5407
ereri_intref	.0134015	.017542	0.76	0.445	-.0209801 .0477832
ereri_intmed	-.001084	.0029353	-0.37	0.712	-.006837 .0046691
ereri_pie	-.0006415	.0016854	-0.38	0.703	-.0039448 .0026618

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): zpappa
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -8826.6529

Iteration 2: Log likelihood = -8818.9628

Iteration 3: Log likelihood = -8818.9459

Iteration 4: Log likelihood = -8818.9459

Refining estimates:

Iteration 0: Log likelihood = -8818.9459

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) = 188.77

Log likelihood = -8818.9459 Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.243749	.1629195	11.13	0.000	1.946113 2.586904
zpappa	1.060121	.0421875	1.47	0.142	.9805771 1.146117
_infectionburXzpappa_000	.8972372	.0645641	-1.51	0.132	.7792123 1.033139
AGE	1.036637	.0131598	2.83	0.005	1.011162 1.062753
SEX	.7605502	.0516172	-4.03	0.000	.6658224 .8687552
NonWhite	1.062657	.1856239	0.35	0.728	.7545812 1.496512
householdsize	.9351612	.0397906	-1.58	0.115	.8603364 1.016494
SES	.8267739	.0411649	-3.82	0.000	.7499039 .9115237
LE8_TOTALSCORE	.9990664	.0003586	-2.60	0.009	.9983639 .9997695

-> Model for the mediator

Iteration 0: Log likelihood = **-49140.622**
 Iteration 1: Log likelihood = **-49140.622**

Linear regression (Maximum Likelihood) Number of obs = 35,761
 Wald chi2(7) = 3350.91
 Log likelihood = **-49140.622** Prob > chi2 = 0.0000

zpappa	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0100964	.014776	0.68	0.494	-.0188641 .0390569
AGE	.0102971	.0009624	10.70	0.000	.0084108 .0121833
SEX	-.5630449	.0102205	-55.09	0.000	-.5830767 -.5430131
NonWhite	-.1666023	.0244546	-6.81	0.000	-.2145323 -.1186723
householdsize	.0006877	.0046488	0.15	0.882	-.0084237 .0097991
SES	-.0277929	.0076629	-3.63	0.000	-.0428119 -.012774
LE8_TOTALSCORE	.0000988	.0000545	1.81	0.070	-7.97e-06 .0002055
_cons	.1950743	.0695146	2.81	0.005	.0588281 .3313205
sigma2					
_cons	.9142996	.0068375	133.72	0.000	.9008983 .9277009

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.242029	.1627422	7.63	0.000	.9230604 1.560998
ereri_cde	1.241914	.1624968	7.64	0.000	.9234258 1.560402
ereri_intref	.0012489	.0069121	0.18	0.857	-.0122985 .0147964
ereri_intmed	-.0017229	.0029031	-0.59	0.553	-.0074128 .003967
ereri_pie	.0005896	.0009522	0.62	0.536	-.0012767 .0024559

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): zspark7
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -9032.1177
 Iteration 2: Log likelihood = -9023.9368
 Iteration 3: Log likelihood = -9023.9179
 Iteration 4: Log likelihood = -9023.9179
 Refining estimates:
 Iteration 0: Log likelihood = -9023.9179

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) =	195.79
Log likelihood =	-9023.9179	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.239084	.1600095	11.28	0.000	1.946443 2.575722
zspark7	.9285458	.0363505	-1.89	0.058	.8599647 1.002596
_infectionburXzspark7_000	1.070198	.0761725	0.95	0.340	.9308485 1.230409
AGE	1.035545	.0130124	2.78	0.005	1.010353 1.061366
SEX	.7468488	.0486477	-4.48	0.000	.6573365 .8485504
NonWhite	1.096188	.1864503	0.54	0.589	.7854249 1.529909
householdsize	.9388607	.0393146	-1.51	0.132	.8648828 1.019166
SES	.8243496	.0405434	-3.93	0.000	.7485957 .9077694
LE8_TOTALSCORE	.9989647	.0003558	-2.91	0.004	.9982676 .9996623

-> Model for the mediator

Iteration 0: Log likelihood = -51343.095
 Iteration 1: Log likelihood = -51343.095

Linear regression (Maximum Likelihood) Number of obs = 36,459
 Log likelihood = -51343.095 Wald chi2(7) = 787.35
 Prob > chi2 = 0.0000

	zpark7	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0081605	.0151199	-0.54	0.589	-.037795
AGE		-.0018879	.0009896	-1.91	0.056	-.0038275
SEX		-.160851	.0104773	-15.35	0.000	-.1813861
NonWhite		.1834148	.0251193	7.30	0.000	.1341818
householdsize		-.002055	.0049788	-0.41	0.680	-.0118132
SES		-.0165729	.0078695	-2.11	0.035	-.0319968
LE8_TOTALSCORE		-.0010962	.0000558	-19.65	0.000	-.0012055
_cons		.9045312	.0717661	12.60	0.000	.7638722
sigma2						
_cons		.9788341	.0072497	135.02	0.000	.9646249
						.9930433

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.233399	.1595023	7.73	0.000	.9207797
ereri_cde	1.235859	.1595115	7.75	0.000	.9232221
ereri_intref	-.0025751	.0028824	-0.89	0.372	-.0082245
ereri_intmed	-.0004905	.0014526	-0.34	0.736	-.0033376
ereri_pie	.0006052	.0011663	0.52	0.604	-.0016807

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): zparp1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8943.7458**
 Iteration 2: Log likelihood = **-8934.604**
 Iteration 3: Log likelihood = **-8934.5807**
 Iteration 4: Log likelihood = **-8934.5807**
 Refining estimates:
 Iteration 0: Log likelihood = **-8934.5807**

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) =	203.71
Log likelihood =	-8934.5807	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.269839	.1626544	11.44	0.000	1.972417 2.612109
zparp1		.8785018	.0404285	-2.81	0.005	.8027319 .9614236
_infectionburXzparp1_000		1.041373	.0828086	0.51	0.610	.8910865 1.217006
AGE		1.033656	.0130292	2.63	0.009	1.008432 1.059511
SEX		.7513035	.0490485	-4.38	0.000	.6610665 .8538581
NonWhite		1.070235	.1844341	0.39	0.694	.763469 1.500262
householdszie		.9338483	.0396423	-1.61	0.107	.8592952 1.01487
SES		.8189641	.0404301	-4.05	0.000	.7434355 .902166
LE8_TOTALSCORE		.9988458	.0003599	-3.21	0.001	.9981407 .9995513

-> Model for the mediator

Iteration 0: Log likelihood = **-51009.739**
 Iteration 1: Log likelihood = **-51009.739**

Linear regression (Maximum Likelihood)	Number of obs =	36,352
	Wald chi2(7) =	1160.16
Log likelihood =	Prob > chi2 =	0.0000

	<u>zparp1</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0402041	.0150802	2.67	0.008	.0106474 .0697607
AGE		.0049286	.0009844	5.01	0.000	.0029992 .006858
SEX		-.1177741	.0104374	-11.28	0.000	-.138231 -.0973173
NonWhite		.1405689	.0250114	5.62	0.000	.0915474 .1895904
householdszie		-.0061512	.0048307	-1.27	0.203	-.0156192 .0033169
SES		-.0034795	.0078285	-0.44	0.657	-.0188232 .0118641
LE8_TOTALSCORE		-.0015819	.0000556	-28.47	0.000	-.0016908 -.001473
_cons		.676926	.0712125	9.51	0.000	.5373521 .8164998
sigma2						
_cons		.9690458	.0071878	134.82	0.000	.954958 .9831336

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.251535	.1616596	7.74	0.000	.9346886 1.568382
ereri_cde	1.258648	.1611117	7.81	0.000	.9428749 1.574421
ereri_intref	.0009581	.0148072	0.06	0.948	-.0280635 .0299797
ereri_intmed	-.0028762	.0063591	-0.45	0.651	-.0153398 .0095875
ereri_pie	-.0051944	.0026766	-1.94	0.052	-.0104404 .0000516

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): zpbld
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -8731.6065

Iteration 2: Log likelihood = -8721.7156

Iteration 3: Log likelihood = -8721.6547

Iteration 4: Log likelihood = -8721.6547

Refining estimates:

Iteration 0: Log likelihood = -8721.6547

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) = 195.82

Log likelihood = -8721.6547 Prob > chi2 = 0.0000

-> Model for the mediator

Iteration 0: Log likelihood = -49912.576
Iteration 1: Log likelihood = -49912.576

Linear regression (Maximum Likelihood) Number of obs = 35,601
Log likelihood = -49912.576 Wald chi2(7) = 1225.74
Prob > chi2 = 0.0000

	zpbld	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.016321	.0152062	1.07	0.283	-.0134825 .0461246
AGE		-.0070773	.0009956	-7.11	0.000	-.0090287 -.005126
SEX		-.1214167	.0105342	-11.53	0.000	-.1420634 -.1007699
NonWhite		.0474449	.0251357	1.89	0.059	-.0018202 .0967101
householdsiz		-.0017069	.0049975	-0.34	0.733	-.0115018 .008088
SES		-.0149202	.0079135	-1.89	0.059	-.0304303 .0005899
LE8_TOTALSCORE		-.0016951	.0000562	-30.19	0.000	-.0018051 -.001585
_cons		1.458308	.0721778	20.20	0.000	1.316842 1.599774
sigma2						
	_cons	.9666889	.0072455	133.42	0.000	.9524879 .9808899

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.202205	.1604294	7.49	0.000	.887769 1.516641
ereri_cde	1.192634	.1605456	7.43	0.000	.8779705 1.507298
ereri_intref	.0144426	.0189334	0.76	0.446	-.0226661 .0515514
ereri_intmed	-.0031365	.0037691	-0.83	0.405	-.0105239 .0042508
ereri_pie	-.0017352	.001747	-0.99	0.321	-.0051592 .0016888

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): zpcdh1
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 .04668 2.218 -.07565 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 = -9118.0858
 Iteration 1: Log likelihood = -9027.9672
 Iteration 2: Log likelihood = -9018.8219
 Iteration 3: Log likelihood = -9018.7945
 Iteration 4: Log likelihood = -9018.7945
 Refining estimates:
 Iteration 0: Log likelihood = -9018.7945

Cox regression with Breslow method for ties

No. of subjects =	36,695	Number of obs =	36,695
No. of failures =	973		
Time at risk =	445,839.811	LR chi2(9) =	198.58
Log likelihood =	-9018.7945	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.261548	.1625273	11.36	0.000	1.964417 2.603621
zpcdh1	.9701079	.0381542	-0.77	0.440	.8981368 1.047846
_infectionburXzpcdh1_000	1.043841	.0747547	0.60	0.549	.9071424 1.201139
AGE	1.035698	.0130152	2.79	0.005	1.0105 1.061524
SEX	.751585	.0490724	-4.37	0.000	.6613045 .8541904
NonWhite	1.052033	.1813512	0.29	0.769	.7504089 1.474895
householdsize	.9356126	.0393841	-1.58	0.114	.8615197 1.016078
SES	.8169657	.0401825	-4.11	0.000	.7418865 .899643
LE8_TOTALSCORE	.9990699	.0003546	-2.62	0.009	.9983752 .999765

-> Model for the mediator

Iteration 0: Log likelihood = -51543.272
 Iteration 1: Log likelihood = -51543.272

Linear regression (Maximum Likelihood)
 Number of obs = 36,695
 Wald chi2(7) = 1063.47
 Log likelihood = -51543.272 Prob > chi2 = 0.0000

	zpcdh1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0575248	.0150294	3.83	0.000	.0280678 .0869818
AGE		.0173946	.0009805	17.74	0.000	.0154728 .0193164
SEX		-.2261532	.0104038	-21.74	0.000	-.2465443 -.2057621
NonWhite		-.1233743	.0248691	-4.96	0.000	-.1721168 -.0746318
householdsize		-.0027889	.0047402	-0.59	0.556	-.0120796 .0065018
SES		-.0138435	.0078003	-1.77	0.076	-.0291318 .0014447
LE8_TOTALSCORE		-.0004125	.0000554	-7.45	0.000	-.000521 -.0003039
_cons		-.4912472	.0708594	-6.93	0.000	-.6301292 -.3523652
sigma2						
_cons		.9718083	.0071745	135.45	0.000	.9577465 .9858701

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.261569	.1618703	7.79	0.000	.9443089 1.578829
ereri_cde	1.260678	.1624944	7.76	0.000	.9421949 1.579161
ereri_intref	-.0007425	.0016176	-0.46	0.646	-.0039129 .0024279
ereri_intmed	.0033775	.0081592	0.41	0.679	-.0126143 .0193694
ereri_pie	-.0017442	.0023039	-0.76	0.449	-.0062599 .0027714

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): zpcdh17
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8975.0525**
 Iteration 2: Log likelihood = **-8966.0984**
 Iteration 3: Log likelihood = **-8966.0777**
 Iteration 4: Log likelihood = **-8966.0777**
 Refining estimates:
 Iteration 0: Log likelihood = **-8966.0777**

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) =	197.50
Log likelihood =	-8966.0777	Prob > chi2 =	0.0000

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.287413	.1638079	11.55	0.000	1.987869 2.632094
zpcdh17	1.03574	.0396634	0.92	0.359	.9608468 1.11647
_infectionburXzpcdh17_000	.962083	.0665867	-0.56	0.577	.8400401 1.101856
AGE	1.033093	.0130233	2.58	0.010	1.00788 1.058936
SEX	.7542883	.0494821	-4.30	0.000	.6632812 .8577822
NonWhite	1.007775	.178358	0.04	0.965	.7123871 1.425643
householdszie	.9270011	.0399114	-1.76	0.078	.8519858 1.008621
SES	.8270403	.0409147	-3.84	0.000	.750614 .9112482
LE8_TOTALSCORE	.9990511	.0003555	-2.67	0.008	.9983545 .9997482

-> Model for the mediator

Iteration 0: Log likelihood = **-51422.442**
 Iteration 1: Log likelihood = **-51422.442**

Linear regression (Maximum Likelihood)	Number of obs =	36,441	
	Wald chi2(7) =	573.66	
Log likelihood =	-51422.442	Prob > chi2 =	0.0000

<u>zpcdh17</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0892797	.0151636	5.89	0.000	.0595596 .1189998
AGE	.0093151	.0009904	9.41	0.000	.007374 .0112562
SEX	-.2050073	.0105077	-19.51	0.000	-.2256021 -.1844125
NonWhite	.0698507	.0251602	2.78	0.005	.0205376 .1191639
householdszie	-.0025703	.0047819	-0.54	0.591	-.0119427 .0068021
SES	-.0247349	.0078852	-3.14	0.002	-.0401896 -.0092803
LE8_TOTALSCORE	.0002548	.000056	4.55	0.000	.000145 .0003646
_cons	-.3860557	.0715775	-5.39	0.000	-.5263451 -.2457663
sigma2					
_cons	.9844747	.0072933	134.98	0.000	.9701801 .9987693

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.286413	.163222	7.88	0.000	.9665036 1.606322
ereri_cde	1.287192	.1637351	7.86	0.000	.9662773 1.608107
ereri_intref	-.0000568	.0022873	-0.02	0.980	-.0045398 .0044262
ereri_intmed	-.0038625	.0123076	-0.31	0.754	-.0279849 .0202599
ereri_pie	.0031401	.003471	0.90	0.366	-.003663 .0099431

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): zpcolce
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

Referent exposure level (a0): 0

Actual exposure level (a1): 1

Mediator level for the decomposition (m): 0

Fixed values of the covariates (c): 60.26 1.53 .04586 2.21 -.07236 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 = -2776.708

Iteration 1: Log likelihood = -2732.0109

Iteration 2: Log likelihood = -2726.1301

Iteration 3: Log likelihood = -2726.113

Iteration 4: Log likelihood = -2726.113

Refining estimates:

Iteration 0: Log likelihood = -2726.113

Cox regression with Breslow method for ties

No. of subjects = 13,629 Number of obs = 13,629

No. of failures = 331

Time at risk = 165,526.834

LR chi2(9) = 101.19

Log likelihood = -2726.113

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.534589	.3142529	7.50	0.000	1.987791 3.231799
zpcolce		1.082831	.0705565	1.22	0.222	.9530091 1.230338
_infectionburXzpcolce_000		.8953192	.0978094	-1.01	0.311	.7227501 1.109092
AGE		1.046853	.0229563	2.09	0.037	1.002813 1.092827
SEX		.8027994	.0895477	-1.97	0.049	.6451495 .998973
NonWhite		1.243152	.3457321	0.78	0.434	.7207709 2.144131
householdsize		.8812143	.0704823	-1.58	0.114	.7533551 1.030774
SES		.7901626	.0672249	-2.77	0.006	.6688034 .9335432
LE8_TOTALSCORE		.9981068	.0006093	-3.10	0.002	.9969134 .9993017

-> Model for the mediator

Iteration 0: Log likelihood = **-18905.646**
 Iteration 1: Log likelihood = **-18905.646**

Linear regression (Maximum Likelihood) Number of obs = 13,629
 Wald chi2(7) = 893.18
 Log likelihood = **-18905.646** Prob > chi2 = 0.0000

	zpcolce	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0865311	.0244694	3.54	0.000	.038572 .1344901
AGE		.0308921	.0015826	19.52	0.000	.0277903 .033994
SEX		-.2170778	.016761	-12.95	0.000	-.2499288 -.1842268
NonWhite		-.1263003	.0403415	-3.13	0.002	-.2053682 -.0472324
householdsize		.0152624	.0071131	2.15	0.032	.001321 .0292037
SES		-.1134495	.0126252	-8.99	0.000	-.1381944 -.0887045
LE8_TOTALSCORE		-.0006262	.0000898	-6.97	0.000	-.0008021 -.0004502
_cons		-1.26378	.1137802	-11.11	0.000	-1.486786 -1.040775
sigma2						
_cons		.9384264	.011368	82.55	0.000	.9161455 .9607072

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.524717	.3101869	4.92	0.000	.9167617 2.132672
ereri_cde	1.531468	.3128983	4.89	0.000	.9181987 2.144737
ereri_intref	.0000293	.0102032	0.00	0.998	-.0199686 .0200273
ereri_intmed	-.0136905	.0206597	-0.66	0.508	-.0541827 .0268017
ereri_pie	.0069098	.0060063	1.15	0.250	-.0048623 .0186819

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): zpcsk9
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -9136.8452
Iteration 2: Log likelihood = -9128.3309
Iteration 3: Log likelihood = -9128.3074
Iteration 4: Log likelihood = -9128.3074
Refining estimates:
Iteration 0: Log likelihood = -9128.3074

```

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) =	193.74
Log likelihood =	-9128.3074	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.228571	.1594478	11.20	0.000	1.936982 2.564056
zpcsk9	.9795849	.0379204	-0.53	0.594	.9080119 1.0568
_infectionburXzpcsk9_000	1.053022	.0749884	0.73	0.468	.9158434 1.210748
AGE	1.034599	.0129461	2.72	0.007	1.009534 1.060287
SEX	.756017	.0498889	-4.24	0.000	.6642958 .8604024
NonWhite	1.068444	.181602	0.39	0.697	.765727 1.490834
householdsize	.9371696	.0391809	-1.55	0.121	.8634385 1.017197
SES	.8238748	.0404064	-3.95	0.000	.7483669 .9070013
LE8_TOTALSCORE	.9990535	.0003566	-2.65	0.008	.9983549 .9997526

-> Model for the mediator

Iteration 0: Log likelihood = -50889.959	Number of obs = 36,896
Iteration 1: Log likelihood = -50889.959	Wald chi2(7) = 3044.49
Log likelihood = -50889.959	Prob > chi2 = 0.0000

zpcsk9	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0650662	.0145977	4.46	0.000	.0364553 .0936771
AGE	.0073616	.000953	7.72	0.000	.0054937 .0092294
SEX	.3856609	.0101155	38.13	0.000	.3658348 .405487
NonWhite	-.0132892	.0242236	-0.55	0.583	-.0607665 .0341881
householdsize	-.0087209	.0046119	-1.89	0.059	-.0177599 .0003182
SES	-.0349355	.0075912	-4.60	0.000	-.0498141 -.020057
LE8_TOTALSCORE	-.0020578	.0000539	-38.19	0.000	-.0021634 -.0019522
_cons	.0047635	.0689009	0.07	0.945	-.1302797 .1398067
sigma2					
_cons	.9237492	.0068011	135.82	0.000	.9104193 .9370791

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.232588	.158856	7.76	0.000	.9212359 1.54394
ereri_cde	1.228101	.1593899	7.71	0.000	.9157025 1.540499
ereri_intref	-.0000172	.0029469	-0.01	0.995	-.0057931 .0057587
ereri_intmed	.0058454	.0092003	0.64	0.525	-.0121869 .0238776
ereri_pie	-.0013412	.0025333	-0.53	0.597	-.0063063 .003624

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): zpdcd1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 -.0748 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 = **-9171.6965**
 Iteration 1: Log likelihood = **-9083.2532**
 Iteration 2: Log likelihood = **-9073.7223**
 Iteration 3: Log likelihood = **-9073.6835**
 Iteration 4: Log likelihood = **-9073.6835**
 Refining estimates:
 Iteration 0: Log likelihood = **-9073.6835**

Cox regression with Breslow method for ties

No. of subjects =	36,677	Number of obs =	36,677
No. of failures =	979		
Time at risk =	445,519.794	LR chi2(9) =	196.03
Log likelihood =	-9073.6835	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.288064	.1643296	11.52	0.000	1.987626	2.633916
zpdcd1	1.068483	.0405386	1.75	0.081	.9919111	1.150966
_infectionburXzpdcd1_000	.8732815	.0570023	-2.08	0.038	.7684104	.9924653
AGE	1.033649	.0129769	2.64	0.008	1.008525	1.059399
SEX	.7583717	.0494134	-4.24	0.000	.6674522	.8616761
NonWhite	1.081216	.1838591	0.46	0.646	.7747597	1.508891
householdszie	.936515	.0393849	-1.56	0.119	.8624177	1.016978
SES	.8231165	.0404672	-3.96	0.000	.7475037	.9063778
LE8_TOTALSCORE	.9990976	.0003538	-2.55	0.011	.9984044	.9997913

-> Model for the mediator

Iteration 0: Log likelihood = **-51389.171**
 Iteration 1: Log likelihood = **-51389.171**

Linear regression (Maximum Likelihood)	Number of obs =	36,677
	Wald chi2(7) =	1328.99
Log likelihood =	Prob > chi2 =	0.0000

	zpdcd1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.1803213	.014986	12.03	0.000	.1509492
AGE		.0178344	.0009774	18.25	0.000	.0159188
SEX		.2249051	.0103697	21.69	0.000	.2045809
NonWhite		-.0375771	.0248032	-1.52	0.130	-.0861905
householdszie		.0071991	.0047366	1.52	0.129	-.0020844
SES		-.1018131	.0077801	-13.09	0.000	-.1170619
LE8_TOTALSCORE		-.0002757	.0000552	-4.99	0.000	-.0003839
_cons		-1.326491	.0706888	-18.77	0.000	-1.465039
sigma2						
_cons		.9650059	.007126	135.42	0.000	.9510391
						.9789726

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.267779	.1618483	7.83	0.000	.9505625 1.584996
ereri_cde	1.28747	.1641409	7.84	0.000	.9657596 1.60918
ereri_intref	.0088084	.0115485	0.76	0.446	-.0138263 .0314431
ereri_intmed	-.040515	.023591	-1.72	0.086	-.0867526 .0057225
ereri_pie	.0120161	.0069962	1.72	0.086	-.0016961 .0257283

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): zpdcd1lg2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -8967.7911

Iteration 2: Log likelihood = -8958.1992

Iteration 3: Log likelihood = -8958.1485

Iteration 4: Log likelihood = -8958.1485

Refining estimates:

Iteration 0: Log likelihood = -8958.1485

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) = 198.94

Log likelihood = -8958.1485

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.250199	.1637361	11.15	0.000	1.951116 2.595128
zpdcd1lg2		1.085079	.0409145	2.17	0.030	1.00778 1.168308
_infectionburXzpdcd1lg2_000		.9752628	.0665452	-0.37	0.714	.8531817 1.114812
AGE		1.030542	.0129875	2.39	0.017	1.005398 1.056313
SEX		.7487422	.048764	-4.44	0.000	.6590151 .8506859
NonWhite		1.074608	.1829199	0.42	0.672	.7697659 1.500175
householdsize		.9377359	.0393537	-1.53	0.126	.8636911 1.018129
SES		.8208954	.0405386	-4.00	0.000	.7451653 .9043219
LE8_TOTALSCORE		.9990695	.0003549	-2.62	0.009	.9983741 .9997654

-> Model for the mediator

Iteration 0: Log likelihood = **-51183.744**
 Iteration 1: Log likelihood = **-51183.744**

Linear regression (Maximum Likelihood) Number of obs = 36,264
 Wald chi2(7) = 548.39
 Log likelihood = **-51183.744** Prob > chi2 = 0.0000

	zpdcd1lg2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.1223491	.0152104	8.04	0.000	.0925372 .152161
AGE		.0140185	.0009932	14.11	0.000	.0120718 .0159651
SEX		.048637	.0105361	4.62	0.000	.0279866 .0692873
NonWhite		.1278294	.0252112	5.07	0.000	.0784163 .1772425
householdsize		-.0117016	.0047917	-2.44	0.015	-.0210932 -.0023101
SES		-.0744425	.007902	-9.42	0.000	-.08993 -.0589549
LE8_TOTALSCORE		-.0000339	.0000561	-0.60	0.546	-.0001439 .0000761
_cons		-.9037717	.0717805	-12.59	0.000	-1.044459 -.7630845
sigma2						
_cons		.9850759	.0073155	134.66	0.000	.9707377 .9994141

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.262938	.1622091	7.79	0.000	.9450142 1.580862
ereri_cde	1.24783	.1632346	7.64	0.000	.9278964 1.567764
ereri_intref	-.0005101	.0054921	-0.09	0.926	-.0112744 .0102542
ereri_intmed	.0055777	.0163286	0.34	0.733	-.0264257 .0375811
ereri_pie	.0100403	.0048256	2.08	0.037	.0005823 .0194982

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): zpdc5
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -9069.433
 Iteration 2: Log likelihood = -9061.1194
 Iteration 3: Log likelihood = -9061.097
 Iteration 4: Log likelihood = -9061.097
 Refining estimates:
 Iteration 0: Log likelihood = -9061.097

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) =	198.62
Log likelihood =	-9061.097	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.230977	.1594173	11.23	0.000	1.939417 2.566367
zpdc5	.9144857	.0360216	-2.27	0.023	.8465412 .9878835
_infectionburXzpdc5_000	1.098489	.0789394	1.31	0.191	.9541721 1.264633
AGE	1.03482	.012974	2.73	0.006	1.009701 1.060564
SEX	.7513108	.0487453	-4.41	0.000	.6615968 .8531901
NonWhite	1.105795	.1883993	0.59	0.555	.7918653 1.544179
householdsize	.9330393	.0394252	-1.64	0.101	.8588806 1.013601
SES	.8170761	.0401146	-4.11	0.000	.7421172 .8996062
LE8_TOTALSCORE	.9989397	.0003572	-2.97	0.003	.9982399 .9996399

-> Model for the mediator

Iteration 0: Log likelihood = -51479.118	Number of obs = 36,751
Iteration 1: Log likelihood = -51479.118	Wald chi2(7) = 1360.15
Log likelihood = -51479.118	Prob > chi2 = 0.0000

	zpdcd5	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0096967	.0149514	0.65	0.517	-.0196075 .0390009
AGE		.0028534	.0009784	2.92	0.004	.0009358 .004771
SEX		-.0941961	.0103569	-9.09	0.000	-.1144953 -.0738969
NonWhite		.3645578	.0248464	14.67	0.000	.3158597 .4132559
householdsize		-.0010827	.0049196	-0.22	0.826	-.010725 .0085596
SES		-.0206231	.007778	-2.65	0.008	-.0358677 -.0053786
LE8_TOTALSCORE		-.0016092	.0000552	-29.17	0.000	-.0017174 -.0015011
_cons		.760661	.0709403	10.72	0.000	.6216205 .8997014
sigma2						
_cons		.9642848	.0071135	135.56	0.000	.9503425 .978227

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.222236	.1587051	7.70	0.000	.9111802 1.533293
ereri_cde	1.226095	.1587137	7.73	0.000	.9150223 1.537168
ereri_intref	-.0039568	.0035079	-1.13	0.259	-.0108323 .0029186
ereri_intmed	.0009643	.0020122	0.48	0.632	-.0029794 .0049081
ereri_pie	-.0008664	.0013889	-0.62	0.533	-.0035886 .0018557

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): zpdcd6
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8975.5516**
 Iteration 2: Log likelihood = **-8965.8964**
 Iteration 3: Log likelihood = **-8965.8671**
 Iteration 4: Log likelihood = **-8965.8671**
 Refining estimates:
 Iteration 0: Log likelihood = **-8965.8671**

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) =	197.92
Log likelihood =	-8965.8671	Prob > chi2 =	0.0000

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.274956	.1626821	11.49	0.000	1.977442 2.617233
zpcd6	1.021669	.040314	0.54	0.587	.9456332 1.103819
_infectionburXzpcd6_000	1.041551	.0790334	0.54	0.592	.8976168 1.208565
AGE	1.033262	.0130198	2.60	0.009	1.008056 1.059098
SEX	.7478924	.0488086	-4.45	0.000	.6580947 .849943
NonWhite	1.002515	.1774937	0.01	0.989	.7085773 1.418388
householdszie	.9273682	.0398449	-1.76	0.079	.8524715 1.008845
SES	.8270566	.0409024	-3.84	0.000	.7506522 .9112378
LE8_TOTALSCORE	.9990579	.0003555	-2.65	0.008	.9983614 .9997548

-> Model for the mediator

Iteration 0: Log likelihood = **-51611.681**
 Iteration 1: Log likelihood = **-51611.681**

Linear regression (Maximum Likelihood)	Number of obs =	36,441
	Wald chi2(7) =	191.22
Log likelihood =	-51611.681	Prob > chi2 = 0.0000

zpcd6	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0261062	.0152426	1.71	0.087	-.0037687 .055981
AGE	.0020626	.0009955	2.07	0.038	.0001114 .0040138
SEX	.109842	.0105625	9.56	0.000	.0802822 .1216863
NonWhite	.1934399	.0252912	7.65	0.000	.14387 .2430098
householdszie	-.0025067	.0048068	-0.52	0.602	-.0119279 .0069145
SES	-.0296555	.0079262	-3.74	0.000	-.0451907 -.0141204
LE8_TOTALSCORE	-.0000773	.0000563	-1.37	0.170	-.0001876 .0000331
_cons	-.2493945	.0719502	-3.47	0.001	-.3904143 -.1083747
sigma2					
_cons	.9947528	.0073694	134.98	0.000	.980309 1.009197

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.282173	.1628515	7.87	0.000	.9629901 1.601356
ereri_cde	1.274764	.1626533	7.84	0.000	.9559695 1.593559
ereri_intref	.0037094	.0086426	0.43	0.668	-.0132297 .0206485
ereri_intmed	.0031399	.0044044	0.71	0.476	-.0054926 .0117725
ereri_pie	.0005598	.0010813	0.52	0.605	-.0015595 .0026791

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): zpdgfa
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -9139.2701

Iteration 2: Log likelihood = -9119.0835

Iteration 3: Log likelihood = -9118.6413

Iteration 4: Log likelihood = -9118.6409

Refining estimates:

Iteration 0: Log likelihood = -9118.6409

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) = 213.07

Log likelihood = -9118.6409

Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.197666	.1581079	10.94	0.000	1.908637 2.530464
zpdgfa	.9114403	.0346022	-2.44	0.015	.846083 .9818463
_infectionburXzpdgfa_000	.881839	.0609349	-1.82	0.069	.7701431 1.009734
AGE	1.034032	.0129363	2.68	0.007	1.008986 1.0597
SEX	.7594749	.0491261	-4.25	0.000	.669043 .8621301
NonWhite	1.052045	.178945	0.30	0.765	.7537919 1.468309
householdszie	.9332205	.0391641	-1.65	0.100	.8595325 1.013226
SES	.8220171	.0402489	-4.00	0.000	.7467977 .9048128
LE8_TOTALSCORE	.9989127	.0003542	-3.07	0.002	.9982187 .9996072

-> Model for the mediator

Iteration 0: Log likelihood = -52074.059
 Iteration 1: Log likelihood = -52074.059

Linear regression (Maximum Likelihood)
 Number of obs = 36,896
 Wald chi2(7) = 561.42
 Log likelihood = -52074.059 Prob > chi2 = 0.0000

	zpdgfa	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0099886	.0150737	-0.66	0.508	-.0395326 .0195554
AGE		.0003013	.0009841	0.31	0.759	-.0016275 .00223
SEX		.0332819	.0104454	3.19	0.001	.0128092 .0537546
NonWhite		-.2350689	.0250136	-9.40	0.000	-.2840947 -.1860432
householdszie		-.0139753	.0047623	-2.93	0.003	-.0233091 -.0046414
SES		-.0272243	.0078388	-3.47	0.001	-.0425881 -.0118605
LE8_TOTALSCORE		-.0011138	.0000556	-20.02	0.000	-.0012229 -.0010048
_cons		.5296126	.071148	7.44	0.000	.3901651 .66906
sigma2						
_cons		.984985	.007252	135.82	0.000	.9707715 .9991986

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.244934	.1596276	7.80	0.000	.9320697 1.557798
ereri_cde	1.192758	.1574066	7.58	0.000	.8842473 1.50127
ereri_intref	.0472818	.0277112	1.71	0.088	-.0070311 .1015947
ereri_intmed	.003967	.0061546	0.64	0.519	-.0080958 .0160299
ereri_pie	.0009267	.0014496	0.64	0.523	-.0019146 .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 householdszie SES LE8_TOTALSCORE were not provided. All

-> Summary

```

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

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

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 = -9040.2429
Iteration 2: Log likelihood = -9020.2414
Iteration 3: Log likelihood = -9019.775
Iteration 4: Log likelihood = -9019.7745
Refining estimates:
Iteration 0: Log likelihood = -9019.7745

```

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) =	212.22
Log likelihood =	-9019.7745	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.203947	.1591583	10.94	0.000	1.913073 2.539047
zpdgfb	.9007716	.0342557	-2.75	0.006	.8360727 .9704771
_infectionburXzpdgfb_000	.8916194	.0615485	-1.66	0.097	.7787913 1.020794
AGE	1.035291	.0129901	2.76	0.006	1.010141 1.061066
SEX	.7618871	.0494869	-4.19	0.000	.6708146 .8653241
NonWhite	1.080302	.1839467	0.45	0.650	.773763 1.50828
householdszie	.933354	.0394015	-1.63	0.102	.8592369 1.013864
SES	.82648	.0406738	-3.87	0.000	.7504849 .9101705
LE8_TOTALSCORE	.9988499	.0003565	-3.22	0.001	.9981515 .9995488

-> Model for the mediator

Iteration 0: Log likelihood = -51582.841	Number of obs = 36,595
Iteration 1: Log likelihood = -51582.841	Wald chi2(7) = 691.89
Linear regression (Maximum Likelihood)	Prob > chi2 = 0.0000
Log likelihood = -51582.841	

	zpdgfb	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0065583	.0151114	-0.43	0.664	-.0361761 .0230595
AGE		.0011424	.0009862	1.16	0.247	-.0007905 .0030754
SEX		-.0046388	.0104705	-0.44	0.658	-.0251606 .015883
NonWhite		-.2265739	.025103	-9.03	0.000	-.2757749 -.1773729
householdsize		-.0116546	.0047673	-2.44	0.014	-.0209982 -.0023109
SES		-.0229466	.0078591	-2.92	0.004	-.0383501 -.0075432
LE8_TOTALSCORE		-.0012896	.0000558	-23.13	0.000	-.0013989 -.0011803
_cons		.61931	.0712351	8.69	0.000	.4796917 .7589283
sigma2						
_cons		.9814174	.0072553	135.27	0.000	.9671972 .9956376

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.247472	.1605724	7.77	0.000	.9327561 1.562189
ereri_cde	1.197627	.1582496	7.57	0.000	.887463 1.50779
ereri_intref	.0466168	.0278558	1.67	0.094	-.0079795 .1012131
ereri_intmed	.0025433	.0059363	0.43	0.668	-.0090916 .0141782
ereri_pie	.0006856	.0015999	0.43	0.668	-.0024501 .0038213

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): zpdgfc
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8790.78**
 Iteration 2: Log likelihood = **-8777.7116**
 Iteration 3: Log likelihood = **-8777.5624**
 Iteration 4: Log likelihood = **-8777.5624**
 Refining estimates:
 Iteration 0: Log likelihood = **-8777.5624**

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) =	209.27
Log likelihood =	-8777.5624	Prob > chi2 =	0.0000

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.262358	.1643686	11.24	0.000	1.962088 2.608581
zpdgfc	.8523948	.0348729	-3.90	0.000	.7867136 .9235596
_infectionburXzpdgfc_000	.9847283	.0734239	-0.21	0.836	.8508414 1.139683
AGE	1.036639	.0131797	2.83	0.005	1.011126 1.062795
SEX	.7605722	.0501183	-4.15	0.000	.6684209 .8654279
NonWhite	1.069098	.1820762	0.39	0.695	.765686 1.49274
householdszie	.9378633	.0394932	-1.52	0.128	.8635662 1.018553
SES	.8240657	.0410781	-3.88	0.000	.7473621 .9086416
LE8_TOTALSCORE	.9989708	.0003621	-2.84	0.004	.9982614 .9996807

-> Model for the mediator

Iteration 0: Log likelihood = **-50001.786**
 Iteration 1: Log likelihood = **-50001.786**

Linear regression (Maximum Likelihood)	Number of obs =	35,573	
	Wald chi2(7) =	959.95	
Log likelihood =	-50001.786	Prob > chi2 =	0.0000

zpdgfc	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0319069	.0152855	2.09	0.037	.0019479 .061866
AGE	-.001615	.0009967	-1.62	0.105	-.0035686 .0003385
SEX	.061198	.0105768	5.79	0.000	.0404679 .081928
NonWhite	-.2688111	.0252775	-10.63	0.000	-.3183541 -.2192681
householdszie	.0043286	.0048139	0.90	0.369	-.0051064 .0137635
SES	-.0165161	.0079329	-2.08	0.037	-.0320642 -.000968
LE8_TOTALSCORE	-.0015792	.0000563	-28.04	0.000	-.0016896 -.0014688
_cons	.7913911	.0720356	10.99	0.000	.650204 .9325782
sigma2					
_cons	.9736963	.0073009	133.37	0.000	.9593867 .9880058

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.255558	.1630292	7.70	0.000	.9360268 1.575089
ereri_cde	1.245899	.1618499	7.70	0.000	.9286792 1.563119
ereri_intref	.0222954	.0256413	0.87	0.385	-.0279606 .0725515
ereri_intmed	-.0075537	.0060355	-1.25	0.211	-.0193831 .0042756
ereri_pie	-.0050828	.0027542	-1.85	0.065	-.0104809 .0003154

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): zpdgfra
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

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

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

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 = **-8975.0374**

Iteration 2: Log likelihood = **-8963.5976**

Iteration 3: Log likelihood = **-8963.5008**

Iteration 4: Log likelihood = **-8963.5008**

Refining estimates:

Iteration 0: Log likelihood = **-8963.5008**

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) = **202.66**

Log likelihood = **-8963.5008** Prob > chi2 = **0.0000**

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.274576	.1659319	11.27	0.000	1.971535 2.624195
zpdgfra		1.084376	.0414474	2.12	0.034	1.006109 1.168732
_infectionburXzpdgfra_000		.9916819	.0682756	-0.12	0.903	.8665001 1.134949
AGE		1.03127	.0130241	2.44	0.015	1.006057 1.057115
SEX		.7514082	.0489745	-4.39	0.000	.661298 .853797
NonWhite		.9956916	.1762888	-0.02	0.981	.7037498 1.408742
householdsize		.9280882	.0398904	-1.74	0.083	.853107 1.00966
SES		.8295493	.0410461	-3.78	0.000	.7528783 .9140283
LE8_TOTALSCORE		.9990798	.0003552	-2.59	0.010	.998384 .9997762

-> Model for the mediator

Iteration 0: Log likelihood = -51339.659
 Iteration 1: Log likelihood = -51339.659

Linear regression (Maximum Likelihood)
 Number of obs = 36,441
 Wald chi2(7) = 742.22
 Log likelihood = -51339.659 Prob > chi2 = 0.0000

	zpdgfra	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0936718	.0151292	6.19	0.000	.0640191 .1233245
AGE		.0221661	.0009881	22.43	0.000	.0202294 .0241028
SEX		.0134689	.0104839	1.28	0.199	-.0070792 .0340169
NonWhite		.1050025	.0251031	4.18	0.000	.0558013 .1542038
householdsize		-.0113491	.0047711	-2.38	0.017	-.0207002 -.001998
SES		-.036527	.0078673	-4.64	0.000	-.0519466 -.0211074
LE8_TOTALSCORE		-.0001151	.0000559	-2.06	0.040	-.0002246 -5.52e-06
_cons		-1.292547	.0714151	-18.10	0.000	-1.432518 -1.152576
sigma2						
_cons		.980012	.0072602	134.98	0.000	.9657822 .9942418

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.288917	.1640056	7.86	0.000	.9674717 1.610362
ereri_cde	1.271824	.1653018	7.69	0.000	.9478388 1.59581
ereri_intref	.0015683	.0079632	0.20	0.844	-.0140392 .0171758
ereri_intmed	.0079075	.0127598	0.62	0.535	-.0171014 .0329163
ereri_pie	.0076167	.0038131	2.00	0.046	.0001431 .0150903

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): zpdgfrb
 Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -9136.833
 Iteration 2: Log likelihood = -9128.5969
 Iteration 3: Log likelihood = -9128.5797
 Iteration 4: Log likelihood = -9128.5797
 Refining estimates:
 Iteration 0: Log likelihood = -9128.5797

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) =	193.19
Log likelihood =	-9128.5797	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.23765	.1591828	11.32	0.000	1.946431 2.57244
zpdgfrb	1.004693	.038452	0.12	0.903	.9320863 1.082957
_infectionburXzpdgfrb_000	.9967466	.0707214	-0.05	0.963	.8673415 1.145459
AGE	1.034533	.012947	2.71	0.007	1.009466 1.060223
SEX	.7537168	.0487207	-4.37	0.000	.6640274 .8555204
NonWhite	1.069335	.1818378	0.39	0.693	.7662475 1.492308
householdsize	.9374007	.0391648	-1.55	0.122	.8636979 1.017393
SES	.8232985	.0403446	-3.97	0.000	.7479031 .9062944
LE8_TOTALSCORE	.9990694	.0003525	-2.64	0.008	.9983788 .9997604

-> Model for the mediator

Iteration 0: Log likelihood = -52245.567
 Iteration 1: Log likelihood = -52245.567

Linear regression (Maximum Likelihood)
 Number of obs = 36,896
 Wald chi2(7) = 214.80
 Log likelihood = -52245.567 Prob > chi2 = 0.0000

	zpdgfrb	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0153689	.015144	1.01	0.310	-.0143127 .0450506
AGE		.0095056	.0009887	9.61	0.000	.0075678 .0114434
SEX		.0222412	.0104941	2.12	0.034	.0016732 .0428093
NonWhite		-.1796347	.0251301	-7.15	0.000	-.2288888 -.1303806
householdsize		.000834	.0047844	0.17	0.862	-.0085434 .0102113
SES		-.0047015	.0078753	-0.60	0.551	-.0201369 .0107339
LE8_TOTALSCORE		-.0003544	.0000559	-6.34	0.000	-.000464 -.0002449
_cons		-.4247264	.0714795	-5.94	0.000	-.5648235 -.2846292
sigma2						
_cons		.9941849	.0073197	135.82	0.000	.9798386 1.008531

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.237693	.159105	7.78	0.000	.9258526 1.549533
ereri_cde	1.237649	.1591799	7.78	0.000	.9256622 1.549636
ereri_intref	-5.45e-06	.0001367	-0.04	0.968	-.0002735 .0002626
ereri_intmed	-.000023	.0021375	-0.01	0.991	-.0042125 .0041665
ereri_pie	.000072	.0005925	0.12	0.903	-.0010893 .0012333

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): zpdlim7
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-9036.7415**
 Iteration 2: Log likelihood = **-9028.4889**
 Iteration 3: Log likelihood = **-9028.4692**
 Iteration 4: Log likelihood = **-9028.4692**
 Refining estimates:
 Iteration 0: Log likelihood = **-9028.4692**

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) =	194.83
Log likelihood =	-9028.4692	Prob > chi2 =	0.0000

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.244348	.1605068	11.30	0.000	1.950813 2.58205
_zpdlim7	.9292344	.0361677	-1.89	0.059	.8609834 1.002896
_infectionburXzpdlim7_000	1.033006	.0748049	0.45	0.654	.8963201 1.190535
AGE	1.036223	.0129996	2.84	0.005	1.011055 1.062017
SEX	.7626751	.04957	-4.17	0.000	.6714532 .8662901
NonWhite	1.09663	.1865877	0.54	0.588	.7856534 1.530696
householdszie	.936167	.0393033	-1.57	0.116	.8622182 1.016458
SES	.8275808	.0407462	-3.84	0.000	.7514519 .9114222
LE8_TOTALSCORE	.9989923	.0003546	-2.84	0.005	.9982976 .9996875

-> Model for the mediator

Iteration 0: Log likelihood = **-51777.031**
 Iteration 1: Log likelihood = **-51777.031**

Linear regression (Maximum Likelihood)	Number of obs =	36,595	
	Wald chi2(7) =	298.26	
Log likelihood =	-51777.031	Prob > chi2 =	0.0000

zpdlim7	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0019651	.0151918	0.13	0.897	-.0278103 .0317405
AGE	-.0004014	.0009915	-0.40	0.686	-.0023447 .0015418
SEX	.0781329	.0105262	7.42	0.000	.057502 .0987639
NonWhite	.062832	.0252366	2.49	0.013	.0133693 .1122948
householdszie	-.0039431	.0047926	-0.82	0.411	-.0133365 .0054503
SES	-.0187368	.0079009	-2.37	0.018	-.0342222 -.0032513
LE8_TOTALSCORE	-.0008127	.0000561	-14.50	0.000	-.0009225 -.0007028
_cons	.3153853	.0716141	4.40	0.000	.1750242 .4557464
sigma2					
_cons	.9918885	.0073328	135.27	0.000	.9775166 1.00626

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.24002	.1599415	7.75	0.000	.92654 1.553499
ereri_cde	1.241003	.1599631	7.76	0.000	.9274811 1.554525
ereri_intref	-.0008032	.0062683	-0.13	0.898	-.0130888 .0114823
ereri_intmed	-.0000359	.0003944	-0.09	0.927	-.0008089 .0007371
ereri_pie	-.0001442	.0011175	-0.13	0.897	-.0023344 .002046

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): zpdpl
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -8796.9553

Iteration 2: Log likelihood = -8788.7997

Iteration 3: Log likelihood = -8788.781

Iteration 4: Log likelihood = -8788.781

Refining estimates:

Iteration 0: Log likelihood = -8788.781

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

Log likelihood = -8788.781

LR chi2(9) = 186.83

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.249842	.1624492	11.23	0.000	1.952951
zpdp1		1.015451	.0397314	0.39	0.695	.9404896
_infectionburXzpdp1_000		.9564334	.0680372	-0.63	0.531	.8319618
AGE		1.037648	.0131977	2.91	0.004	1.012101
SEX		.7458756	.049057	-4.46	0.000	.6556651
NonWhite		1.111815	.1892824	0.62	0.534	.796377
householdsize		.9394314	.0396375	-1.48	0.139	.8648689
SES		.8291645	.0413615	-3.76	0.000	.7519344
LE8_TOTALSCORE		.9992231	.000359	-2.16	0.031	.9985197
						.9999269

-> Model for the mediator

Iteration 0: Log likelihood = -50448.53
Iteration 1: Log likelihood = -50448.53

Linear regression (Maximum Likelihood) Number of obs = 35,573
Log likelihood = -50448.53 Wald chi2(7) = 53.78
Prob > chi2 = 0.0000

	zpdp1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0220844	.0154787	1.43	0.154	-.0082533 .0524221
AGE		-.0050349	.0010093	-4.99	0.000	-.0070132 -.0030567
SEX		.0000101	.0107104	0.00	0.999	-.0209819 .0210022
NonWhite		.0467017	.0255969	1.82	0.068	-.0034674 .0968707
householdsiz		-.0001093	.0048747	-0.02	0.982	-.0096636 .0094449
SES		-.0065891	.0080331	-0.82	0.412	-.0223337 .0091555
LE8_TOTALSCORE		-.0002394	.000057	-4.20	0.000	-.0003512 -.0001276
_cons		.4173719	.0729459	5.72	0.000	.2744005 .5603433
sigma2						
_cons		.9984624	.0074866	133.37	0.000	.9837888 1.013136

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.249392	.1624259	7.69	0.000	.9310432 1.567741
ereri_cde	1.249754	.1624439	7.69	0.000	.93137 1.568138
ereri_intref	.0010895	.0043636	0.25	0.803	- .007463 .009642
ereri_intmed	-.0017903	.0033249	-0.54	0.590	- .008307 .0047265
ereri_pie	.0003387	.0008964	0.38	0.706	- .0014182 .0020956

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): zpear1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -9136.7177
Iteration 2: Log likelihood = -9128.3672
Iteration 3: Log likelihood = -9128.3475
Iteration 4: Log likelihood = -9128.3475
Refining estimates:
Iteration 0: Log likelihood = -9128.3475

```

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) =	193.66
Log likelihood =	-9128.3475	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.238252	.1590634	11.34	0.000	1.947232 2.572767
zpear1	1.020818	.0391791	0.54	0.591	.9468457 1.10057
_infectionburXzpear1_000	1.005298	.0707848	0.08	0.940	.8757095 1.154062
AGE	1.034667	.0129483	2.72	0.006	1.009597 1.060359
SEX	.7523239	.0486858	-4.40	0.000	.6627052 .854062
NonWhite	1.07042	.1819835	0.40	0.689	.7670789 1.493716
householdsize	.9380218	.0391722	-1.53	0.125	.8643039 1.018027
SES	.8235146	.040355	-3.96	0.000	.7480997 .9065319
LE8_TOTALSCORE	.9990644	.0003522	-2.66	0.008	.9983743 .999755

-> Model for the mediator

Iteration 0: Log likelihood = -52278.486	Number of obs = 36,896
Iteration 1: Log likelihood = -52278.486	Wald chi2(7) = 148.64
Log likelihood = -52278.486	Prob > chi2 = 0.0000

	zpear1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0098106	.0151575	0.65	0.517	-.0198976 .0395187
AGE		-.0048292	.0009896	-4.88	0.000	-.0067686 -.0028897
SEX		.0747187	.0105035	7.11	0.000	.0541323 .0953051
NonWhite		-.1536963	.0251526	-6.11	0.000	-.2029944 -.1043982
householdsize		-.0157619	.0047887	-3.29	0.001	-.0251476 -.0063762
SES		-.0276168	.0078824	-3.50	0.000	-.043066 -.0121677
LE8_TOTALSCORE		.0001856	.0000559	3.32	0.001	.0000759 .0002953
_cons		.1219967	.0715433	1.71	0.088	-.0182255 .262219
sigma2						
_cons		.9959606	.0073328	135.82	0.000	.9815886 1.010333

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.239079	.1593112	7.78	0.000	.9268344 1.551323
ereri_cde	1.238025	.1590466	7.78	0.000	.9262998 1.549751
ereri_intref	.0004847	.0033195	0.15	0.884	-.0060215 .0069908
ereri_intmed	.0003664	.001467	0.25	0.803	-.0025089 .0032418
ereri_pie	.0002022	.0004893	0.41	0.679	-.0007568 .0011612

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): zpebp1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-9032.8868**
 Iteration 2: Log likelihood = **-9024.4174**
 Iteration 3: Log likelihood = **-9024.392**
 Iteration 4: Log likelihood = **-9024.392**
 Refining estimates:
 Iteration 0: Log likelihood = **-9024.392**

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) =	194.85
Log likelihood =	-9024.392	Prob > chi2 =	0.0000

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.235527	.159753	11.26	0.000	1.943355 2.571625
zpebp1	.9381968	.0370743	-1.61	0.106	.8682752 1.013749
_infectionburXzpebp1_000	1.076058	.0775041	1.02	0.309	.9343873 1.239208
AGE	1.035646	.0130169	2.79	0.005	1.010445 1.061475
SEX	.7486075	.0487361	-4.45	0.000	.6589294 .8504904
NonWhite	1.093911	.1861146	0.53	0.598	.7837203 1.526872
householdszie	.938922	.0393096	-1.51	0.132	.864953 1.019217
SES	.8242357	.0405384	-3.93	0.000	.7484912 .9076452
LE8_TOTALSCORE	.9989671	.0003568	-2.89	0.004	.998268 .9996667

-> Model for the mediator

Iteration 0: Log likelihood = **-51201.877**
 Iteration 1: Log likelihood = **-51201.877**

Linear regression (Maximum Likelihood)	Number of obs =	36,459
	Wald chi2(7) =	1077.01
Log likelihood =	Prob > chi2 =	0.0000

zpebp1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0107246	.0150615	0.71	0.476	-.0187953 .0402446
AGE	.0010857	.0009858	1.10	0.271	-.0008463 .0030178
SEX	-.1608459	.0104368	-15.41	0.000	-.1813016 -.1403901
NonWhite	.2172917	.0250222	8.68	0.000	.1682491 .2663343
householdszie	-.0011522	.0049596	-0.23	0.816	-.0108727 .0085684
SES	-.0172169	.007839	-2.20	0.028	-.0325811 -.0018527
LE8_TOTALSCORE	-.001362	.0000556	-24.51	0.000	-.0014709 -.0012531
_cons	.8523752	.0714887	11.92	0.000	.7122599 .9924905
sigma2					
_cons	.9712807	.0071938	135.02	0.000	.9571812 .9853803

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.231195	.1593812	7.72	0.000	.9188133 1.543576
ereri_cde	1.23297	.1593836	7.74	0.000	.9205842 1.545356
ereri_intref	-.0020031	.0027652	-0.72	0.469	-.0074227 .0034166
ereri_intmed	.0009115	.0019775	0.46	0.645	-.0029643 .0047872
ereri_pie	-.000684	.0010494	-0.65	0.515	-.0027408 .0013729

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): zpecam1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-9032.2899**

Iteration 2: Log likelihood = **-9023.336**

Iteration 3: Log likelihood = **-9023.3021**

Iteration 4: Log likelihood = **-9023.3021**

Refining estimates:

Iteration 0: Log likelihood = **-9023.3021**

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) = 197.03

Log likelihood = **-9023.3021**

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.232743	.1595944	11.24	0.000	1.940866 2.568514
zpecam1		.9326433	.0367546	-1.77	0.077	.8633175 1.007536
_infectionburXzpecam1_000		.9911631	.0715555	-0.12	0.902	.8603871 1.141817
AGE		1.035731	.0130184	2.79	0.005	1.010527 1.061564
SEX		.7548378	.0490459	-4.33	0.000	.6645787 .8573553
NonWhite		1.102383	.1874653	0.57	0.567	.7899175 1.538449
householdszie		.9377059	.0393127	-1.53	0.125	.8637352 1.018012
SES		.8244524	.0405251	-3.93	0.000	.7487308 .9078321
LE8_TOTALSCORE		.9989592	.0003553	-2.93	0.003	.998263 .9996559

-> Model for the mediator

Iteration 0: Log likelihood = **-51554.174**
 Iteration 1: Log likelihood = **-51554.174**

Linear regression (Maximum Likelihood) Number of obs = 36,459
 Wald chi2(7) = 358.56
 Log likelihood = **-51554.174** Prob > chi2 = 0.0000

	zpecam1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0096204	.0152077	0.63	0.527	-.0201862 .039427
AGE		.0038929	.0009954	3.91	0.000	.001942 .0058437
SEX		-.0000185	.0105382	-0.00	0.999	-.0206729 .0206359
NonWhite		.1939324	.0252652	7.68	0.000	.1444136 .2434512
householdszie		-.0073954	.0050077	-1.48	0.140	-.0172104 .0024195
SES		-.0066442	.0079152	-0.84	0.401	-.0221577 .0088692
LE8_TOTALSCORE		-.0008675	.0000561	-15.46	0.000	-.0009775 -.0007576
_cons		.2055167	.0721828	2.85	0.004	.064041 .3469925
sigma2						
_cons		.9902339	.0073342	135.02	0.000	.9758592 1.004609

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.232537	.1594539	7.73	0.000	.9200127 1.545061
ereri_cde	1.229664	.1591633	7.73	0.000	.9177099 1.541618
ereri_intref	.0045615	.0110773	0.41	0.680	-.0171496 .0262726
ereri_intmed	-.0010184	.0021093	-0.48	0.629	-.0051525 .0031158
ereri_pie	-.0006706	.0011255	-0.60	0.551	-.0028765 .0015352

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): zpfdn2
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8732.1412
Iteration 2: Log likelihood = -8724.2543
Iteration 3: Log likelihood = -8724.2269
Iteration 4: Log likelihood = -8724.2269
Refining estimates:
Iteration 0: Log likelihood = -8724.2269

```

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) =	190.67
Log likelihood =	-8724.2269	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.220428	.1620911	10.93	0.000	1.924416 2.561972
zpfdn2	.9091935	.0361773	-2.39	0.017	.8409817 .982938
_infectionburXzpfdn2_000	1.052962	.0724236	0.75	0.453	.9201665 1.204922
AGE	1.037847	.0132108	2.92	0.004	1.012275 1.064065
SEX	.7494947	.0494996	-4.37	0.000	.6584939 .8530713
NonWhite	1.096299	.1889581	0.53	0.594	.7820168 1.536888
householdszie	.9294548	.0401884	-1.69	0.091	.8539323 1.011656
SES	.8162139	.0407342	-4.07	0.000	.7401567 .9000866
LE8_TOTALSCORE	.9991772	.0003603	-2.28	0.022	.9984713 .9998837

-> Model for the mediator

Iteration 0: Log likelihood = -50504.45	Number of obs = 35,601
Iteration 1: Log likelihood = -50504.45	Wald chi2(7) = 21.37
Log likelihood = -50504.45	Prob > chi2 = 0.0033

	zpfdn2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0029174	.0154611	-0.19	0.850	-.0332206
AGE		-.0006603	.0010123	-0.65	0.514	-.0026444
SEX		-.0031786	.0107108	-0.30	0.767	-.0241715
NonWhite		.0162688	.0255571	0.64	0.524	-.0338222
householdsize		-.0009028	.0050813	-0.18	0.859	-.0108619
SES		.0077001	.0080461	0.96	0.339	-.0080701
LE8_TOTALSCORE		-.0002547	.0000571	-4.46	0.000	-.0003666
_cons		.1742707	.0733878	2.37	0.018	.0304332
sigma2						
_cons		.9993721	.0074905	133.42	0.000	.9846909
						1.014053

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.212823	.1611037	7.53	0.000	.8970654
ereri_cde	1.214961	.1611849	7.54	0.000	.8990439
ereri_intref	-.0024191	.0065356	-0.37	0.711	-.0152286
ereri_intmed	3.62e-06	.000381	0.01	0.992	-.0007431
ereri_pie	.0002778	.0014768	0.19	0.851	-.0026168

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): zpfkfb2
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8955.6268**
 Iteration 2: Log likelihood = **-8947.1525**
 Iteration 3: Log likelihood = **-8947.1345**
 Refining estimates:
 Iteration 0: Log likelihood = **-8947.1345**

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	LR chi2(9) =	198.12
Log likelihood =	-8947.1345	Prob > chi2 =	0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.266969	.1624132	11.42	0.000	1.969984 2.608726
zpfkfb2		.9244938	.035478	-2.05	0.041	.8575089 .9967114
_infectionburXzpfkfb2_000		1.058019	.0757086	0.79	0.431	.9195683 1.217315
AGE		1.032665	.013009	2.55	0.011	1.00748 1.05848
SEX		.7474376	.0488084	-4.46	0.000	.6576436 .8494919
NonWhite		1.088202	.1850889	0.50	0.619	.7797063 1.518755
householdsize		.9366705	.0393268	-1.56	0.119	.8626775 1.01701
SES		.8171152	.0402942	-4.10	0.000	.7418365 .9000329
LE8_TOTALSCORE		.9990206	.0003561	-2.75	0.006	.9983229 .9997188

-> Model for the mediator

Iteration 0: Log likelihood = **-51097.096**
 Iteration 1: Log likelihood = **-51097.096**

Linear regression (Maximum Likelihood)	Number of obs =	36,203
	Wald chi2(7) =	548.59
Log likelihood =	-51097.096	Prob > chi2 = 0.0000

	zpfkfb2	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0037829	.0152267	-0.25	0.804	-.0336267 .026061
AGE		-.0012486	.0009939	-1.26	0.209	-.0031967 .0006994
SEX		-.1670542	.0105447	-15.84	0.000	-.1877215 -.1463869
NonWhite		.0173509	.0252186	0.69	0.491	-.0320767 .0667784
householdsize		-.0025676	.0047933	-0.54	0.592	-.0119624 .0068272
SES		-.0018427	.0079086	-0.23	0.816	-.0173432 .0136578
LE8_TOTALSCORE		-.0008698	.0000562	-15.49	0.000	-.0009799 -.0007598
_cons		.7717961	.0718365	10.74	0.000	.630999 .9125931
sigma2						
_cons		.9850459	.0073215	134.54	0.000	.9706961 .9993958

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.260898	.161849	7.79	0.000	.9436794 1.578116
ereri_cde	1.263181	.1618177	7.81	0.000	.9460237 1.580337
ereri_intref	-.002472	.0041287	-0.60	0.549	-.0105641 .0056201
ereri_intmed	-.0001079	.0006915	-0.16	0.876	-.0014633 .0012474
ereri_pie	.000297	.0012046	0.25	0.805	-.0020639 .002658

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): zpgf
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -9076.4581

Iteration 2: Log likelihood = -9065.1249

Iteration 3: Log likelihood = -9065.0128

Iteration 4: Log likelihood = -9065.0128

Refining estimates:

Iteration 0: Log likelihood = -9065.0128

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) = 202.73

Log likelihood = -9065.0128

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.302592	.1768561	10.86	0.000	1.980789
zpgf		1.075851	.0449334	1.75	0.080	.9912916
_infectionburXzpgf_000		.9522423	.0638216	-0.73	0.465	.8350219
AGE		1.032508	.0130713	2.53	0.012	1.007204
SEX		.7815874	.0534403	-3.60	0.000	.6835613
NonWhite		1.073422	.1853377	0.41	0.682	.7652466
householdsize		.9371655	.03927	-1.55	0.121	.8632736
SES		.8216834	.0403687	-4.00	0.000	.7462522
LE8_TOTALSCORE		.9991747	.0003581	-2.30	0.021	.9984731

-> Model for the mediator

Iteration 0: Log likelihood = -47629.357
Iteration 1: Log likelihood = -47629.357

Linear regression (Maximum Likelihood) Number of obs = 36,824
Log likelihood = -47629.357 Wald chi2(7) = 10505.55
Prob > chi2 = 0.0000

	zpgf	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.2269394	.0134209	16.91	0.000	.200635 .2532438
AGE		.0431364	.0008754	49.28	0.000	.0414207 .044852
SEX		-.5960611	.0092928	-64.14	0.000	-.6142748 -.5778475
NonWhite		-.3567271	.0222298	-16.05	0.000	-.4002966 -.3131575
householdsizE		-.0018624	.0042366	-0.44	0.660	-.010166 .0064412
SES		-.0798488	.0069684	-11.46	0.000	-.0935067 -.0661909
LE8_TOTALSCORE		-.0017751	.0000495	-35.88	0.000	-.0018721 -.0016781
_cons		-.8117364	.0632757	-12.83	0.000	-.9357545 -.6877183
sigma2						
_cons		.7780129	.0057337	135.69	0.000	.7667751 .7892508

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.314539	.1700425	7.73	0.000	.9812619 1.647816
ereri_cde	1.302882	.176693	7.37	0.000	.9565696 1.649193
ereri_intref	-.0010065	.0019925	-0.51	0.613	-.0049118 .0028987
ereri_intmed	-.0040663	.0297404	-0.14	0.891	-.0623565 .0542238
ereri_pie	.0167305	.0096883	1.73	0.084	-.0022583 .0357192

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): zpglyrp1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 -.07562 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 = -9172.505
Iteration 1: Log likelihood = -9090.3207
Iteration 2: Log likelihood = -9074.075
Iteration 3: Log likelihood = -9073.6411
Iteration 4: Log likelihood = -9073.6403
Refining estimates:
Iteration 0: Log likelihood = -9073.6403

```

Cox regression with Breslow method for ties

No. of subjects =	36,736	Number of obs =	36,736
No. of failures =	979		
Time at risk =	446,311.526	LR chi2(9) =	197.73
Log likelihood =	-9073.6403	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.164821	.1593578	10.49	0.000	1.873972 2.500812
zpglyrp1	1.019536	.0397015	0.50	0.619	.9446176 1.100396
_infectionburXzpglyrp1_000	1.098508	.0726386	1.42	0.155	.9649781 1.250514
AGE	1.035473	.0130327	2.77	0.006	1.010242 1.061334
SEX	.7571344	.0492135	-4.28	0.000	.6665691 .8600046
NonWhite	1.067303	.1846947	0.38	0.707	.7603065 1.498257
householdsize	.9421691	.0391477	-1.43	0.152	.8684822 1.022108
SES	.8255724	.0405678	-3.90	0.000	.7497699 .9090385
LE8_TOTALSCORE	.9990787	.0003553	-2.59	0.010	.9983825 .9997754

-> Model for the mediator

Iteration 0: Log likelihood = -51125.768	Number of obs = 36,736
Iteration 1: Log likelihood = -51125.768	Wald chi2(7) = 2055.14
Log likelihood = -51125.768	Prob > chi2 = 0.0000

zpglyrp1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.1242969	.0148075	8.39	0.000	.0952748 .153319
AGE	.0117039	.0009671	12.10	0.000	.0098085 .0135993
SEX	-.1691075	.0102642	-16.48	0.000	-.1892248 -.1489901
NonWhite	-.5773938	.0245824	-23.49	0.000	-.6255745 -.5292132
householdsize	-.0059974	.0046777	-1.28	0.200	-.0151656 .0031708
SES	-.0703642	.0077019	-9.14	0.000	-.0854596 -.0552688
LE8_TOTALSCORE	-.0013026	.0000547	-23.83	0.000	-.0014098 -.0011955
_cons	.2238559	.0699075	3.20	0.001	.0868397 .3608721
sigma2					
_cons	.9469945	.0069874	135.53	0.000	.9332994 .9606896

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.204933	.1581773	7.62	0.000	.8949106 1.514954
ereri_cde	1.165005	.1593804	7.31	0.000	.8526248 1.477384
ereri_intref	.0090938	.010525	0.86	0.388	-.0115347 .0297224
ereri_intmed	.0284263	.0156457	1.82	0.069	-.0022387 .0590913
ereri_pie	.0024077	.0048604	0.50	0.620	-.0071184 .0119338

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): zphospho1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8899.4011**
 Iteration 2: Log likelihood = **-8887.5125**
 Iteration 3: Log likelihood = **-8887.3798**
 Iteration 4: Log likelihood = **-8887.3798**
 Refining estimates:
 Iteration 0: Log likelihood = **-8887.3798**

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) =	196.13
Log likelihood =	-8887.3798	Prob > chi2 =	0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.151459	.1637613	10.07	0.000	1.853287 2.497603
zphospho1		1.043672	.0415387	1.07	0.283	.9653518 1.128346
_infectionburXzphospho1_000		1.056948	.0762303	0.77	0.443	.9176194 1.217433
AGE		1.035482	.0131334	2.75	0.006	1.010058 1.061545
SEX		.7511114	.0495953	-4.33	0.000	.6599335 .8548866
NonWhite		1.028749	.1797447	0.16	0.871	.7304423 1.448881
householdsize		.9439765	.0392977	-1.38	0.166	.8700129 1.024228
SES		.8106744	.0401553	-4.24	0.000	.7356711 .8933244
LE8_TOTALSCORE		.9990989	.0003583	-2.51	0.012	.9983969 .9998014

-> Model for the mediator

Iteration 0: Log likelihood = **-49871.628**
 Iteration 1: Log likelihood = **-49871.628**

Linear regression (Maximum Likelihood)	Number of obs =	36,164
	Wald chi2(7) =	3002.91
Log likelihood =	Prob > chi2 =	0.0000

	zphospho1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.132036	.0147585	8.95	0.000	.1031099 .1609622
AGE		.0290476	.0009656	30.08	0.000	.027155 .0309402
SEX		-.3066772	.0102159	-30.02	0.000	-.3267 -.2866545
NonWhite		-.162519	.0244962	-6.63	0.000	-.2105306 -.1145074
householdsize		.0035544	.0048448	0.73	0.463	-.0059412 .0130501
SES		-.0390315	.0076794	-5.08	0.000	-.0540829 -.0239801
LE8_TOTALSCORE		-.0011613	.0000544	-21.36	0.000	-.0012678 -.0010547
_cons		-.7183931	.069985	-10.26	0.000	-.8555611 -.5812251
sigma2						
_cons		.923305	.0068663	134.47	0.000	.9098473 .9367627

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.185164	.1601057	7.40	0.000	.8713626 1.498965
ereri_cde	1.151389	.1636532	7.04	0.000	.8306344 1.472143
ereri_intref	.0056451	.0094486	0.60	0.550	-.0128737 .024164
ereri_intmed	.0224703	.0179996	1.25	0.212	-.0128083 .0577488
ereri_pie	.0056598	.0053228	1.06	0.288	-.0047726 .0160923

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): zpi3
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 .04684 2.217 -.07538 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 = -8871.4322

Iteration 1: Log likelihood = -8791.3371

Iteration 2: Log likelihood = -8767.3092

Iteration 3: Log likelihood = -8766.0071

Iteration 4: Log likelihood = -8765.9995

Iteration 5: Log likelihood = -8765.9995

Refining estimates:

Iteration 0: Log likelihood = -8765.9995

Cox regression with Breslow method for ties

No. of subjects = 35,973 Number of obs = 35,973

No. of failures = 949

Time at risk = 436,951.236

LR chi2(9) = 210.87

Log likelihood = -8765.9995 Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.172702	.1657779	10.17	0.000	1.870911
zpi3		1.166621	.0442095	4.07	0.000	1.083112
_infectionburXzpi3_000		.9941262	.0614643	-0.10	0.924	.8806715
AGE		1.033125	.0131878	2.55	0.011	1.007598
SEX		.836867	.0585809	-2.54	0.011	.7295786
NonWhite		1.070517	.1846589	0.40	0.693	.7634231
householdsize		.9424858	.0398382	-1.40	0.161	.8675512
SES		.8214147	.0410671	-3.93	0.000	.7447426
LE8_TOTALSCORE		.9993358	.0003617	-1.84	0.066	.9986272
						1.000045

-> Model for the mediator

Iteration 0: Log likelihood = -48019.813
Iteration 1: Log likelihood = -48019.813

Linear regression (Maximum Likelihood)
Number of obs = 35,973
Log likelihood = -48019.813 Wald chi2(7) = 6584.16
Prob > chi2 = 0.0000

	zpi3	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.1350166	.0141408	9.55	0.000	.1073012
AGE		.0073838	.0009229	8.00	0.000	.005575
SEX		-.6687043	.0098003	-68.23	0.000	-.6879124
NonWhite		-.1535539	.023385	-6.57	0.000	-.1993876
householdsiz		-.0002251	.0044493	-0.05	0.960	-.0089456
SES		-.1136343	.0073532	-15.45	0.000	-.1280463
LE8_TOTALSCORE		-.0013848	.0000522	-26.53	0.000	-.0014871
_cons		1.252761	.0667095	18.78	0.000	1.122013
sigma2						
_cons		.8452631	.0063026	134.11	0.000	.8329103
						.8576159

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.215198	.1625146	7.48	0.000	.8966751 1.533721
ereri_cde	1.164353	.1641027	7.10	0.000	.8427178 1.485988
ereri_intref	.0069543	.0121189	0.57	0.566	-.0167983 .0307069
ereri_intmed	.0228648	.0156867	1.46	0.145	-.0078806 .0536102
ereri_pie	.0210256	.0056782	3.70	0.000	.0098966 .0321547

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): zpigr
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 .04639 2.213 -.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 = -8956.7529
Iteration 1: Log likelihood = -8870.7626
Iteration 2: Log likelihood = -8860.1629
Iteration 3: Log likelihood = -8860.0568
Iteration 4: Log likelihood = -8860.0568
Refining estimates:
Iteration 0: Log likelihood = -8860.0568

```

Cox regression with Breslow method for ties

No. of subjects =	35,998	Number of obs =	35,998
No. of failures =	957		
Time at risk =	437,222.707	LR chi2(9) =	193.39
Log likelihood =	-8860.0568	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.212902	.1634067	10.76	0.000	1.914728 2.557509
zpigr	1.047996	.0428784	1.15	0.252	.9672375 1.135498
_infectionburXzpigr_000	.998357	.0698328	-0.02	0.981	.870455 1.145053
AGE	1.037488	.013137	2.91	0.004	1.012057 1.063558
SEX	.7552495	.0495475	-4.28	0.000	.6641224 .8588807
NonWhite	1.126021	.1917011	0.70	0.486	.8065517 1.572029
householdsize	.9408802	.039567	-1.45	0.147	.8664402 1.021716
SES	.8264441	.041286	-3.82	0.000	.7493603 .9114573
LE8_TOTALSCORE	.9991103	.000364	-2.44	0.015	.9983972 .999824

-> Model for the mediator

Iteration 0: Log likelihood = -49327.237	Number of obs = 35,998
Iteration 1: Log likelihood = -49327.237	Wald chi2(7) = 3678.47
Linear regression (Maximum Likelihood)	Prob > chi2 = 0.0000
Log likelihood = -49327.237	

zpigr	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.1791016	.0146416	12.23	0.000	.1504046 .2077987
AGE	.0058271	.0009585	6.08	0.000	.0039484 .0077058
SEX	-.0372757	.0101516	-3.67	0.000	-.0571724 -.017379
NonWhite	-.2864487	.0243353	-11.77	0.000	-.3341451 -.2387523
householdsize	-.0261255	.0048183	-5.42	0.000	-.0355692 -.0166817
SES	-.1848849	.0076206	-24.26	0.000	-.199821 -.1699487
LE8_TOTALSCORE	-.0022839	.0000541	-42.25	0.000	-.0023899 -.002178
_cons	.8818932	.0695048	12.69	0.000	.7456663 1.01812
sigma2					
_cons	.9072631	.0067625	134.16	0.000	.8940088 .9205174

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.230841	.1612822	7.63	0.000	.9147336 1.546948
ereri_cde	1.213109	.1633803	7.43	0.000	.8928893 1.533328
ereri_intref	-.0002687	.002201	-0.12	0.903	-.0045825 .0040451
ereri_intmed	.0095692	.0239256	0.40	0.689	-.0373242 .0564625
ereri_pie	.0084316	.007422	1.14	0.256	-.0061152 .0229785

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): zpik3ap1
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8948.5864**
 Iteration 2: Log likelihood = **-8939.7365**
 Iteration 3: Log likelihood = **-8939.7091**
 Iteration 4: Log likelihood = **-8939.7091**
 Refining estimates:
 Iteration 0: Log likelihood = **-8939.7091**

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) =	193.46
Log likelihood =	-8939.7091	Prob > chi2 =	0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.257692	.1617201	11.37	0.000	1.961971 2.597986
zpi3ap1		.9822496	.0377651	-0.47	0.641	.9109514 1.059128
_infectionburXzpi3ap1_000		1.050073	.0741734	0.69	0.489	.9143099 1.205994
AGE		1.032479	.013017	2.54	0.011	1.007279 1.05831
SEX		.758948	.0495094	-4.23	0.000	.6678587 .862461
NonWhite		1.055909	.1820197	0.32	0.752	.7531729 1.480329
householdsize		.9329736	.0396927	-1.63	0.103	.8583327 1.014105
SES		.819399	.0404685	-4.03	0.000	.7438001 .9026817
LE8_TOTALSCORE		.9990196	.0003568	-2.75	0.006	.9983206 .9997191

-> Model for the mediator

Iteration 0: Log likelihood = **-51437.744**
 Iteration 1: Log likelihood = **-51437.744**

Linear regression (Maximum Likelihood)	Number of obs =	36,352
	Wald chi2(7) =	287.15
Log likelihood =	-51437.744	Prob > chi2 = 0.0000

	zpi3ap1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0131413	.0152588	0.86	0.389	-.0167654 .0430481
AGE		.001374	.0009961	1.38	0.168	-.0005782 .0033262
SEX		.0255464	.010561	2.42	0.016	.0048473 .0462456
NonWhite		.0894463	.0253077	3.53	0.000	.0398442 .1390484
householdsize		-.0088619	.0048879	-1.81	0.070	-.0184421 .0007183
SES		.0176684	.0079213	2.23	0.026	.002143 .0331937
LE8_TOTALSCORE		-.0009041	.0000562	-16.08	0.000	-.0010143 -.0007939
_cons		.3458008	.0720559	4.80	0.000	.2045739 .4870277
sigma2						
_cons		.9921355	.0073591	134.82	0.000	.9777121 1.006559

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.259123	.1617931	7.78	0.000	.9420146 1.576232
ereri_cde	1.257451	.1616761	7.78	0.000	.9405716 1.57433
ereri_intref	.0007538	.0039836	0.19	0.850	-.0070538 .0085614
ereri_intmed	.001154	.0022721	0.51	0.612	-.0032992 .0056071
ereri_pie	-.0002353	.0005743	-0.41	0.682	-.0013609 .0008903

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): zpiK3ip1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -9032.0175

Iteration 2: Log likelihood = -9023.527

Iteration 3: Log likelihood = -9023.4936

Iteration 4: Log likelihood = -9023.4936

Refining estimates:

Iteration 0: Log likelihood = -9023.4936

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 = -9023.4936

LR chi2(9) = 196.64

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.27207	.1712475	10.89	0.000	1.960045 2.633767
zpik3ip1		1.085726	.0419038	2.13	0.033	1.006626 1.171042
_infectionburXzpik3ip1_000		.930451	.0583848	-1.15	0.251	.8227758 1.052217
AGE		1.031915	.0130749	2.48	0.013	1.006604 1.057862
SEX		.7586599	.0493805	-4.24	0.000	.667795 .8618884
NonWhite		1.119181	.19081	0.66	0.509	.801269 1.563228
householdsize		.9392391	.0392924	-1.50	0.134	.8653002 1.019496
SES		.8293411	.0408635	-3.80	0.000	.7529958 .9134269
LE8_TOTALSCORE		.9990779	.0003555	-2.59	0.010	.9983814 .9997749

-> Model for the mediator

Iteration 0: Log likelihood = -49797.694
Iteration 1: Log likelihood = -49797.694

Linear regression (Maximum Likelihood)
Number of obs = 36,459
Log likelihood = -49797.694 Wald chi2(7) = 4082.61
Prob > chi2 = 0.0000

	zpiK3ip1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.2409984	.0144924	16.63	0.000	.2125938 .269403
AGE		.0419624	.0009485	44.24	0.000	.0401033 .0438215
SEX		-.099964	.0100425	-9.95	0.000	-.119647 -.0802811
NonWhite		-.4341423	.0240768	-18.03	0.000	-.481332 -.3869527
householdszie		.0030699	.0047722	0.64	0.520	-.0062834 .0124231
SES		-.099884	.0075429	-13.24	0.000	-.1146678 -.0851003
LE8_TOTALSCORE		-.0009263	.0000535	-17.33	0.000	-.0010311 -.0008215
_cons		-1.936481	.0687877	-28.15	0.000	-2.071303 -1.80166
sigma2						
_cons		.8992737	.0066605	135.02	0.000	.8862194 .912328

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.276317	.1656958	7.70	0.000	.9515592 1.601075
ereri_cde	1.271704	.1709246	7.44	0.000	.9366975 1.60671
ereri_intref	-.0009553	.0032323	-0.30	0.768	-.0072905 .0053799
ereri_intmed	-.01444511	.0288954	-0.50	0.617	-.0710851 .0421829
ereri_pie	.0200196	.0095652	2.09	0.036	.0012722 .0387671

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): zpilra
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -9033.0861
Iteration 2: Log likelihood = -9023.5359
Iteration 3: Log likelihood = -9023.482
Iteration 4: Log likelihood = -9023.482
Refining estimates:
Iteration 0: Log likelihood = -9023.482

```

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) =	196.67
Log likelihood =	-9023.482	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.243137	.167188	10.84	0.000	1.938264 2.595963
zpilra	1.083526	.0429338	2.02	0.043	1.002562 1.171028
_infectionburXzpilra_000	.9576564	.0662569	-0.63	0.532	.8362151 1.096734
AGE	1.033031	.0130251	2.58	0.010	1.007815 1.058878
SEX	.7568227	.0491984	-4.29	0.000	.6662857 .8596622
NonWhite	1.098289	.1867999	0.55	0.581	.7869404 1.53282
householdszie	.9392675	.0393138	-1.50	0.134	.8652897 1.01957
SES	.8309232	.0409963	-3.75	0.000	.7543347 .9152879
LE8_TOTALSCORE	.999109	.0003567	-2.50	0.013	.9984101 .9998085

-> Model for the mediator

Iteration 0: Log likelihood = -50451.479	Number of obs = 36,459
Iteration 1: Log likelihood = -50451.479	Wald chi2(7) = 2654.38
Log likelihood = -50451.479	Prob > chi2 = 0.0000

	zpilra	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.1669602	.0147547	11.32	0.000	.1380416 .1958787
AGE		.0260071	.0009657	26.93	0.000	.0241144 .0278998
SEX		-.0843186	.0102242	-8.25	0.000	-.1043576 -.0642795
NonWhite		-.1775112	.0245125	-7.24	0.000	-.2255547 -.1294676
householdsize		.0040031	.0048585	0.82	0.410	-.0055194 .0135257
SES		-.1231252	.0076793	-16.03	0.000	-.1381764 -.1080739
LE8_TOTALSCORE		-.0014506	.0000544	-26.65	0.000	-.0015573 -.0013439
_cons		-.7431388	.0700324	-10.61	0.000	-.8803997 -.6058779
sigma2						
_cons		.9321107	.0069037	135.02	0.000	.9185798 .9456417

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.253954	.1630085	7.69	0.000	.9344628 1.573444
ereri_cde	1.241722	.1667153	7.45	0.000	.9149661 1.568478
ereri_intref	-.0016323	.0024894	-0.66	0.512	-.0065114 .0032468
ereri_intmed	.0003801	.0222651	0.02	0.986	-.0432586 .0440188
ereri_pie	.0134837	.0068113	1.98	0.048	.0001338 .0268337

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): zpilrb
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8974.918**
 Iteration 2: Log likelihood = **-8964.2033**
 Iteration 3: Log likelihood = **-8964.1448**
 Iteration 4: Log likelihood = **-8964.1448**
 Refining estimates:
 Iteration 0: Log likelihood = **-8964.1448**

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) =	201.37
Log likelihood =	-8964.1448	Prob > chi2 =	0.0000

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.280727	.1683533	11.17	0.000	1.973519 2.635756
zpilrb	1.082869	.0433753	1.99	0.047	1.001106 1.171309
_infectionburXzpilrb_000	.9710305	.0685685	-0.42	0.677	.8455241 1.115167
AGE	1.031599	.0130262	2.46	0.014	1.006382 1.057449
SEX	.7537129	.049145	-4.34	0.000	.6632912 .856461
NonWhite	1.013773	.179449	0.08	0.938	.7165868 1.43421
householdszie	.9274628	.0398787	-1.75	0.080	.8525048 1.009012
SES	.8319616	.041224	-3.71	0.000	.7549635 .9168126
LE8_TOTALSCORE	.9991349	.0003575	-2.42	0.016	.9984345 .9998359

-> Model for the mediator

Iteration 0: Log likelihood = **-50875.377**
 Iteration 1: Log likelihood = **-50875.377**

Linear regression (Maximum Likelihood)	Number of obs =	36,441
	Wald chi2(7) =	1701.87
Log likelihood =	Prob > chi2 =	0.0000

<u>zpilrb</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.1234484	.0149377	8.26	0.000	.0941711 .1527257
AGE	.0210329	.0009756	21.56	0.000	.0191207 .022945
SEX	-.0765648	.0103512	-7.40	0.000	-.0968527 -.0562769
NonWhite	-.1290581	.0247853	-5.21	0.000	-.1776364 -.0804797
householdszie	.0021526	.0047107	0.46	0.648	-.0070802 .0113853
SES	-.0994643	.0077677	-12.80	0.000	-.1146887 -.0842399
LE8_TOTALSCORE	-.0011919	.0000552	-21.60	0.000	-.0013001 -.0010838
_cons	-.5754995	.070511	-8.16	0.000	-.7136985 -.4373004
sigma2					
_cons	.9553555	.0070776	134.98	0.000	.9414837 .9692273

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.291885	.1650855	7.83	0.000	.9683228 1.615446
ereri_cde	1.2786	.1677785	7.62	0.000	.9497602 1.60744
ereri_intref	-.0008792	.0047089	-0.19	0.852	-.0101085 .0083501
ereri_intmed	.0042871	.017082	0.25	0.802	-.029193 .0377671
ereri_pie	.0098766	.0051361	1.92	0.054	-.0001899 .0199431

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): zpklr
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = -9019.2727

Iteration 2: Log likelihood = -9004.4214

Iteration 3: Log likelihood = -9004.1468

Iteration 4: Log likelihood = -9004.1466

Refining estimates:

Iteration 0: Log likelihood = -9004.1466

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) = 197.23

Log likelihood = -9004.1466

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.218868	.1595641	11.08	0.000	1.927168
zpklr		1.032944	.0389029	0.86	0.389	.9594416
_infectionburXzpklr_000		1.115937	.0765725	1.60	0.110	.9755118
AGE		1.034994	.0130197	2.73	0.006	1.009788
SEX		.7613766	.0495101	-4.19	0.000	.6702678
NonWhite		1.075028	.1830184	0.42	0.671	.7700285
householdsize		.9380312	.0392454	-1.53	0.126	.8641808
SES		.8229846	.0405608	-3.95	0.000	.7472058
LE8_TOTALSCORE		.9990731	.0003545	-2.61	0.009	.9983785
						.9997681

-> Model for the mediator

Iteration 0: Log likelihood = -51632.869
Iteration 1: Log likelihood = -51632.869

Linear regression (Maximum Likelihood)
Number of obs = 36,478
Log likelihood = -51632.869 Wald chi2(7) = 254.22
Prob > chi2 = 0.0000

	zpklr	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0013346	.0152238	0.09	0.930	-.0285035 .0311727
AGE		.0019906	.0009936	2.00	0.045	.0000432 .003938
SEX		-.1035062	.0105491	-9.81	0.000	-.124182 -.0828303
NonWhite		.1664594	.0253079	6.58	0.000	.1168567 .216062
householdsiz		-.0015638	.0048006	-0.33	0.745	-.0189727 .0078452
SES		.017272	.0079205	2.18	0.029	.0017481 .0327959
LE8_TOTALSCORE		-.0005271	.0000562	-9.38	0.000	-.0006373 -.000417
_cons		.299423	.0717808	4.17	0.000	.1587353 .4401107
sigma2						
_cons		.9930518	.0073531	135.05	0.000	.97864 1.007464

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.240439	.1602796	7.74	0.000	.9262967 1.554581
ereri_cde	1.218239	.1594636	7.64	0.000	.9056967 1.530782
ereri_intref	.0217745	.0181532	1.20	0.230	-.0138052 .0573542
ereri_intmed	.0003816	.0043572	0.09	0.930	-.0081583 .0089216
ereri_pie	.0000433	.000496	0.09	0.931	-.0009289 .0010154

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): zpla2g10
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8894.6767
Iteration 2: Log likelihood = -8885.1053
Iteration 3: Log likelihood = -8885.0406
Iteration 4: Log likelihood = -8885.0406
Refining estimates:
Iteration 0: Log likelihood = -8885.0406

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 = -8885.0406                         LR chi2(9)      = 200.81
                                                               Prob > chi2 = 0.0000

```

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.181802	.159845	10.65	0.000	1.889966 2.518702
zpla2g10	1.091974	.0438818	2.19	0.029	1.009267 1.181459
_infectionburXzpla2g10_000	1.033503	.0752817	0.45	0.651	.8960028 1.192105
AGE	1.034805	.013108	2.70	0.007	1.00943 1.060818
SEX	.7213883	.0476882	-4.94	0.000	.633723 .8211807
NonWhite	.9953813	.1740437	-0.03	0.979	.7065709 1.402243
householdsize	.9453828	.0394484	-1.35	0.178	.8711426 1.02595
SES	.8136033	.0402669	-4.17	0.000	.7383885 .8964796
LE8_TOTALSCORE	.9988339	.0003618	-3.22	0.001	.9981251 .9995433

-> Model for the mediator

```

Iteration 0: Log likelihood = -49778.734
Iteration 1: Log likelihood = -49778.734

Linear regression (Maximum Likelihood)                      Number of obs = 36,164
                                                               Wald chi2(7) = 3204.64
                                                               Prob > chi2 = 0.0000
Log likelihood = -49778.734

```

	zpla2g10	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr	.0660667	.0147206	4.49	0.000	.0372147	.0949186
AGE	.0214219	.0009632	22.24	0.000	.0195341	.0233096
SEX	.3036797	.0101897	29.80	0.000	.2837083	.3236511
NonWhite	.2896032	.0244333	11.85	0.000	.2417148	.3374917
householdsize	-.0163382	.0048324	-3.38	0.001	-.0258095	-.0068669
SES	-.0477952	.0076597	-6.24	0.000	-.062808	-.0327824
LE8_TOTALSCORE	.0020858	.0000542	38.46	0.000	.0019795	.0021921
_cons	-2.788378	.0698054	-39.95	0.000	-2.925195	-2.651562
sigma2						
_cons	.9185738	.0068311	134.47	0.000	.9051851	.9319625

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.205605	.1591337	7.58	0.000	.8937086 1.517501
ereri_cde	1.178557	.159233	7.40	0.000	.8664663 1.490648
ereri_intref	.0094946	.0139253	0.68	0.495	-.0177985 .0367877
ereri_intmed	.0117231	.00967	1.21	0.225	-.0072298 .0306759
ereri_pie	.00583	.0029713	1.96	0.050	6.40e-06 .0116535

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): zpla2g15
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-9044.6554**
 Iteration 2: Log likelihood = **-9035.9056**
 Iteration 3: Log likelihood = **-9035.8822**
 Iteration 4: Log likelihood = **-9035.8822**
 Refining estimates:
 Iteration 0: Log likelihood = **-9035.8822**

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) =	192.72
Log likelihood =	-9035.8822	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.258561	.1626459	11.31	0.000	1.961256 2.600935
zpla2g15		.9871313	.0397737	-0.32	0.748	.9121749 1.068247
_infectionburXzpla2g15_000		.9943624	.0679509	-0.08	0.934	.8697148 1.136875
AGE		1.034029	.0130033	2.66	0.008	1.008855 1.059832
SEX		.7656444	.0497489	-4.11	0.000	.6740917 .8696314
NonWhite		1.059932	.1827502	0.34	0.736	.7559902 1.486071
householdsize		.9315593	.0394872	-1.67	0.094	.8572935 1.012258
SES		.8209242	.0405497	-3.99	0.000	.7451742 .9043746
LE8_TOTALSCORE		.9990229	.0003614	-2.70	0.007	.9983148 .9997315

-> Model for the mediator

Iteration 0: Log likelihood = **-50421.88**
 Iteration 1: Log likelihood = **-50421.88**

Linear regression (Maximum Likelihood)	Number of obs =	36,540
	Wald chi2(7) =	2965.46
Log likelihood =	Prob > chi2 =	0.0000

	zpla2g15	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.1326778	.0146948	9.03	0.000	.1038766 .161479
AGE		.0086278	.0009583	9.00	0.000	.0067495 .010506
SEX		-.0950584	.010171	-9.35	0.000	-.1149931 -.0751236
NonWhite		-.2925542	.0243766	-12.00	0.000	-.3403315 -.2447769
householdsize		-.0093719	.0046312	-2.02	0.043	-.018449 -.0002948
SES		-.1127189	.0076349	-14.76	0.000	-.1276831 -.0977547
LE8_TOTALSCORE		-.0022441	.0000542	-41.44	0.000	-.0023502 -.0021379
_cons		.7572847	.069296	10.93	0.000	.6214671 .8931023
sigma2						
_cons		.92491	.0068427	135.17	0.000	.9114985 .9383216

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.253413	.161304	7.77	0.000	.9372631 1.569563
ereri_cde	1.258164	.1626766	7.73	0.000	.9393236 1.577004
ereri_intref	.0008188	.0046736	0.18	0.861	-.0083412 .0099788
ereri_intmed	-.0038526	.0175969	-0.22	0.827	-.0383419 .0306368
ereri_pie	-.001717	.0053401	-0.32	0.748	-.0121834 .0087494

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): zpla2g1b
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 -.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 = -9215.2318

Iteration 1: Log likelihood = -9127.4389

Iteration 2: Log likelihood = -9117.5837

Iteration 3: Log likelihood = -9117.5246

Iteration 4: Log likelihood = -9117.5246

Refining estimates:

Iteration 0: Log likelihood = -9117.5246

Cox regression with Breslow method for ties

No. of subjects = 36,841 Number of obs = 36,841

No. of failures = 983

Time at risk = 447,529.519

Log likelihood = -9117.5246

LR chi2(9) = 195.41

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.224156	.1589889	11.18	0.000	1.933387 2.558653
zpla2g1b		1.048177	.0407675	1.21	0.226	.971244 1.131205
_infectionburXzpla2g1b_000		.9208635	.0595114	-1.28	0.202	.8113081 1.045213
AGE		1.034247	.0129444	2.69	0.007	1.009185 1.059931
SEX		.7500641	.0490339	-4.40	0.000	.6598615 .8525972
NonWhite		1.062015	.1809905	0.35	0.724	.7604445 1.483181
householdsize		.9381329	.039182	-1.53	0.126	.8643969 1.018159
SES		.8231882	.0403451	-3.97	0.000	.7477925 .9061855
LE8_TOTALSCORE		.9990103	.0003561	-2.78	0.005	.9983127 .9997084

-> Model for the mediator

Iteration 0: Log likelihood = -51071.6
 Iteration 1: Log likelihood = -51071.6

Linear regression (Maximum Likelihood)
 Number of obs = 36,841
 Wald chi2(7) = 2486.34
 Prob > chi2 = 0.0000
 Log likelihood = -51071.6

	zpla2g1b	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.010585	.014711	-0.72	0.472	-.0394181 .0182481
AGE		.001392	.0009604	1.45	0.147	-.0004903 .0032743
SEX		.3258415	.0101945	31.96	0.000	.3058606 .3458225
NonWhite		.2698211	.0244144	11.05	0.000	.2219697 .3176725
householdsize		-.0010549	.0046466	-0.23	0.820	-.0101621 .0080523
SES		.0100774	.0076504	1.32	0.188	-.0049171 .0250719
LE8_TOTALSCORE		.0018033	.0000543	33.21	0.000	.0016969 .0019097
_cons		-1.493104	.0694295	-21.51	0.000	-1.629183 -1.357024
sigma2						
_cons		.936753	.006902	135.72	0.000	.9232254 .9502807

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.223717	.1586357	7.71	0.000	.912797 1.534638
ereri_cde	1.222802	.1588547	7.70	0.000	.9114527 1.534152
ereri_intref	.0000824	.0041799	0.02	0.984	-.00811 .0082747
ereri_intmed	.0013308	.0022544	0.59	0.555	-.0030877 .0057493
ereri_pie	-.0004979	.000805	-0.62	0.536	-.0020756 .0010798

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): zpla2g2a
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 .04637 2.216 -.07574 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 = -9089.8862
Iteration 1: Log likelihood = -9001.4754
Iteration 2: Log likelihood = -8992.2873
Iteration 3: Log likelihood = -8992.2383
Iteration 4: Log likelihood = -8992.2383
Refining estimates:
Iteration 0: Log likelihood = -8992.2383

Cox regression with Breslow method for ties

No. of subjects = 36,385                               Number of obs = 36,385
No. of failures = 971
Time at risk = 442,014.48
Log likelihood = -8992.2383                           LR chi2(9)      = 195.30
                                                       Prob > chi2 = 0.0000

```

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.229619	.1613213	11.08	0.000	1.934831 2.56932
zpla2g2a	1.018493	.039932	0.47	0.640	.9431592 1.099844
_infectionburXzpla2g2a_000	1.037523	.0693333	0.55	0.581	.9101557 1.182715
AGE	1.032753	.0129982	2.56	0.010	1.007589 1.058546
SEX	.733555	.0486138	-4.68	0.000	.6442023 .8353011
NonWhite	1.069649	.1842693	0.39	0.696	.7631402 1.499266
householdsize	.9322068	.0396168	-1.65	0.099	.8577052 1.01318
SES	.8238812	.04072	-3.92	0.000	.7478152 .9076845
LE8_TOTALSCORE	.9991065	.0003561	-2.51	0.012	.9984088 .9998047

-> Model for the mediator

```

Iteration 0: Log likelihood = -50446.323
Iteration 1: Log likelihood = -50446.323

Linear regression (Maximum Likelihood)                         Number of obs = 36,385
                                                               Wald chi2(7) = 2440.90
                                                               Prob > chi2 = 0.0000
Log likelihood = -50446.323

```

	zpla2g2a	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr	.1208239	.0147984	8.16	0.000	.0918196	.1498282
AGE	.0127483	.0009662	13.19	0.000	.0108546	.014642
SEX	.4099169	.010259	39.96	0.000	.3898097	.4300241
NonWhite	.0578528	.0245976	2.35	0.019	.0096424	.1060631
householdsize	.0019444	.004667	0.42	0.677	-.0072028	.0110917
SES	-.0701187	.0077002	-9.11	0.000	-.0852109	-.0550265
LE8_TOTALSCORE	-.001112	.0000546	-20.35	0.000	-.0012191	-.001005
_cons	-.8669269	.0698311	-12.41	0.000	-1.003793	-.7300604
sigma2						
_cons	.9371065	.0069477	134.88	0.000	.9234892	.9507238

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.245985	.160728	7.75	0.000	.930964 1.561006
ereri_cde	1.229805	.1613451	7.62	0.000	.9135739 1.546035
ereri_intref	.0012614	.0042975	0.29	0.769	-.0071616 .0096844
ereri_intmed	.0127026	.0155215	0.82	0.413	-.0177191 .0431243
ereri_pie	.0022164	.0047554	0.47	0.641	-.007104 .0115368

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): zpla2g4a
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-9035.6104**
 Iteration 2: Log likelihood = **-9026.7568**
 Iteration 3: Log likelihood = **-9026.7233**
 Iteration 4: Log likelihood = **-9026.7233**
 Refining estimates:
 Iteration 0: Log likelihood = **-9026.7233**

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) =	198.32
Log likelihood =	-9026.7233	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.242587	.1607439	11.27	0.000	1.948664 2.580844
zpla2g4a		.9099215	.0350205	-2.45	0.014	.8438076 .9812155
_infectionburXzpla2g4a_000		1.021159	.0727946	0.29	0.769	.8880028 1.174282
AGE		1.035961	.0129941	2.82	0.005	1.010803 1.061744
SEX		.7609843	.0494262	-4.21	0.000	.6700232 .864294
NonWhite		1.094594	.1862377	0.53	0.595	.7841997 1.527844
householdsize		.9362538	.0393224	-1.57	0.117	.8622701 1.016585
SES		.8268088	.0407144	-3.86	0.000	.75074 .9105853
LE8_TOTALSCORE		.998991	.0003541	-2.85	0.004	.9982973 .9996852

-> Model for the mediator

Iteration 0: Log likelihood = **-51846.873**
 Iteration 1: Log likelihood = **-51846.873**

Linear regression (Maximum Likelihood)	Number of obs =	36,595
	Wald chi2(7) =	157.70
Log likelihood =	Prob > chi2 =	0.0000

	zpla2g4a	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0056101	.0152208	-0.37	0.712	-.0354424 .0242222
AGE		-.0019724	.0009934	-1.99	0.047	-.0039194 -.0000254
SEX		.0328538	.0105463	3.12	0.002	.0121834 .0535242
NonWhite		.0054667	.0252848	0.22	0.829	-.0440905 .055024
householdsize		-.0012683	.0048018	-0.26	0.792	-.0106796 .008143
SES		-.0239396	.007916	-3.02	0.002	-.0394546 -.0084246
LE8_TOTALSCORE		-.0006121	.0000562	-10.90	0.000	-.0007222 -.000502
_cons		.3762771	.0717509	5.24	0.000	.2356478 .5169064
sigma2						
_cons		.9956819	.0073608	135.27	0.000	.981255 1.010109

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.239626	.1599107	7.75	0.000	.9262069 1.553045
ereri_cde	1.237178	.1598699	7.74	0.000	.9238391 1.550517
ereri_intref	.0015251	.010347	0.15	0.883	-.0187547 .021805
ereri_intmed	.0003931	.0013253	0.30	0.767	-.0022045 .0029907
ereri_pie	.0005297	.0014537	0.36	0.716	-.0023195 .0033789

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): zpla2g7
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-9033.629**

Iteration 2: Log likelihood = **-9024.9784**

Iteration 3: Log likelihood = **-9024.9482**

Iteration 4: Log likelihood = **-9024.9482**

Refining estimates:

Iteration 0: Log likelihood = **-9024.9482**

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) = 193.73

Log likelihood = -9024.9482

Prob > chi2 = 0.0000

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.221775	.1597044	11.11	0.000	1.92981 2.557912
zpla2g7		1.026599	.0399022	0.68	0.499	.9512971 1.107862
_infectionburXzpla2g7_000		.9187364	.0625168	-1.25	0.213	.8040253 1.049814
AGE		1.035182	.0130204	2.75	0.006	1.009975 1.061019
SEX		.7552555	.0497558	-4.26	0.000	.6637693 .8593511
NonWhite		1.093371	.1871259	0.52	0.602	.7817857 1.529139
householdsize		.9393251	.0392114	-1.50	0.134	.8655321 1.01941
SES		.8245693	.0406067	-3.92	0.000	.7487018 .9081245
LE8_TOTALSCORE		.9990232	.0003576	-2.73	0.006	.9983226 .9997243

-> Model for the mediator

Iteration 0: Log likelihood = **-49844.773**
 Iteration 1: Log likelihood = **-49844.773**

Linear regression (Maximum Likelihood) Number of obs = 36,459
 Wald chi2(7) = 3978.04
 Log likelihood = **-49844.773** Prob > chi2 = 0.0000

	zpla2g7	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		-.0845565	.0145112	-5.83	0.000	-.1129978 -.0561151
AGE		-.0086627	.0009498	-9.12	0.000	-.0105242 -.0068012
SEX		-.4304542	.0100555	-42.81	0.000	-.4501626 -.4107458
NonWhite		-.6839996	.0241079	-28.37	0.000	-.7312502 -.6367489
householdsize		.0047258	.0047783	0.99	0.323	-.0046395 .0140912
SES		.0736687	.0075526	9.75	0.000	.0588658 .0884715
LE8_TOTALSCORE		-.001672	.0000535	-31.23	0.000	-.0017769 -.001567
_cons		2.055867	.0688766	29.85	0.000	1.920871 2.190862
sigma2						
_cons		.9015992	.0066777	135.02	0.000	.8885111 .9146872

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.233322	.1594724	7.73	0.000	.9207614 1.545882
ereri_cde	1.221019	.1595699	7.65	0.000	.9082675 1.53377
ereri_intref	.001282	.0054362	0.24	0.814	-.0093726 .0119367
ereri_intmed	.0132381	.0113363	1.17	0.243	-.0089806 .0354567
ereri_pie	-.0022173	.0033012	-0.67	0.502	-.0086876 .004253

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): zplat
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -9089.4439
Iteration 2: Log likelihood = -9081.1004
Iteration 3: Log likelihood = -9081.08
Iteration 4: Log likelihood = -9081.08
Refining estimates:
Iteration 0: Log likelihood = -9081.08

```

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) =	205.92
Log likelihood =	-9081.08	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.233841	.1612458	11.13	0.000	1.939143 2.573325
zplat	.884003	.0364934	-2.99	0.003	.8152944 .9585019
_infectionburXzplat_000	1.024044	.0729537	0.33	0.739	.8905915 1.177495
AGE	1.03853	.0130661	3.00	0.003	1.013234 1.064457
SEX	.7292682	.0476238	-4.83	0.000	.6416539 .8288458
NonWhite	1.022852	.1761508	0.13	0.896	.7298319 1.433517
householdszie	.9397968	.0392248	-1.49	0.137	.8659782 1.019908
SES	.8130408	.0399568	-4.21	0.000	.7383805 .8952504
LE8_TOTALSCORE	.998684	.0003668	-3.59	0.000	.9979653 .9994031

-> Model for the mediator

Iteration 0: Log likelihood =	-48662.271	Number of obs =	36,787
Iteration 1: Log likelihood =	-48662.271	Wald chi2(7) =	7796.83
Linear regression (Maximum Likelihood)		Prob > chi2 =	0.0000
Log likelihood =	-48662.271		

	zplat	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0576977	.0138101	4.18	0.000	.0306305 .0847649
AGE		.0277442	.0009019	30.76	0.000	.0259765 .029512
SEX		-.3099026	.0095743	-32.37	0.000	-.3286679 -.2911373
NonWhite		-.0177774	.022926	-0.78	0.438	-.0627114 .0271567
householdsize		-.0031533	.004363	-0.72	0.470	-.0117046 .0053981
SES		-.0663779	.0071841	-9.24	0.000	-.0804585 -.0522973
LE8_TOTALSCORE		-.003332	.000051	-65.34	0.000	-.0034319 -.003232
_cons		.4668676	.0652097	7.16	0.000	.339059 .5946762
sigma2						
_cons		.8250974	.0060838	135.62	0.000	.8131734 .8370214

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.21578	.16165	7.52	0.000	.8989521 1.532608
ereri_cde	1.224914	.1605627	7.63	0.000	.910217 1.539611
ereri_intref	.0036279	.0128622	0.28	0.778	-.0215817 .0288374
ereri_intmed	-.0056731	.0083249	-0.68	0.496	-.0219896 .0106434
ereri_pie	-.0070886	.0029071	-2.44	0.015	-.0127865 -.0013907

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): zplau
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-9030.9168**
 Iteration 2: Log likelihood = **-9022.2711**
 Iteration 3: Log likelihood = **-9022.2448**
 Iteration 4: Log likelihood = **-9022.2448**
 Refining estimates:
 Iteration 0: Log likelihood = **-9022.2448**

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) =	199.14
Log likelihood =	-9022.2448	Prob > chi2 =	0.0000

<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.238611	.1599463	11.28	0.000	1.946083 2.575112
zplau	.9013518	.0370627	-2.53	0.012	.8315602 .9770008
_infectionburXzplau_000	1.068435	.076351	0.93	0.354	.9287972 1.229067
AGE	1.036438	.013035	2.85	0.004	1.011203 1.062304
SEX	.7785705	.05166	-3.77	0.000	.6836262 .8867009
NonWhite	1.081106	.1838697	0.46	0.647	.77464 1.508818
householdszie	.9382211	.0393154	-1.52	0.128	.8642439 1.018531
SES	.8201897	.0403818	-4.03	0.000	.7447417 .9032811
LE8_TOTALSCORE	.9990202	.0003548	-2.76	0.006	.998325 .9997158

-> Model for the mediator

Iteration 0: Log likelihood = **-50979.802**
 Iteration 1: Log likelihood = **-50979.802**

Linear regression (Maximum Likelihood)	Number of obs =	36,459
	Wald chi2(7) =	1537.07
Log likelihood =	Prob > chi2 =	0.0000

<u>zplau</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu					
infectionburdenhospbr	.0503963	.01497	3.37	0.001	.0210556 .079737
AGE	.0139316	.0009798	14.22	0.000	.0120113 .015852
SEX	.3507444	.0103734	33.81	0.000	.3304128 .3710759
NonWhite	-.0815313	.0248702	-3.28	0.001	-.1302761 -.0327865
householdszie	-.0151585	.0049294	-3.08	0.002	-.02482 -.0054969
SES	-.0565199	.0077914	-7.25	0.000	-.0717909 -.041249
LE8_TOTALSCORE	-.0000692	.0000552	-1.25	0.210	-.0001774 .0000391
_cons	-1.314789	.0710546	-18.50	0.000	-1.454054 -1.175525
sigma2					
_cons	.9595202	.0071067	135.02	0.000	.9455913 .973449

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.223316	.1588662	7.70	0.000	.9119438 1.534688
ereri_cde	1.231322	.15894	7.75	0.000	.9198057 1.542839
ereri_intref	-.0037824	.0071103	-0.53	0.595	-.0177183 .0101535
ereri_intmed	.0009963	.0069464	0.14	0.886	-.0126184 .014611
ereri_pie	-.0052205	.0025771	-2.03	0.043	-.0102716 -.0001694

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): zplaur
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 .04633 2.216 -.07517 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 = -8985.8691

Iteration 1: Log likelihood = -8896.7038

Iteration 2: Log likelihood = -8877.8638

Iteration 3: Log likelihood = -8877.2774

Iteration 4: Log likelihood = -8877.2762

Iteration 5: Log likelihood = -8877.2762

Refining estimates:

Iteration 0: Log likelihood = -8877.2762

Cox regression with Breslow method for ties

No. of subjects = 36,194

Number of obs = 36,194

No. of failures = 960

Time at risk = 439,656.484

LR chi2(9) = 217.19

Log likelihood = -8877.2762 Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.183311	.1711188	9.96	0.000	1.872414 2.545829
zplaur	1.190765	.0477285	4.36	0.000	1.100799 1.288084
_infectionburXzplaur_000	.9705738	.0650841	-0.45	0.656	.8510386 1.106899
AGE	1.030106	.0131071	2.33	0.020	1.004734 1.056119
SEX	.72648	.0476619	-4.87	0.000	.638821 .8261676
NonWhite	1.111087	.1916781	0.61	0.541	.7923257 1.558089
householdszie	.9452719	.0391364	-1.36	0.174	.8715957 1.025176
SES	.8424528	.0420322	-3.44	0.001	.7639711 .9289968
LE8_TOTALSCORE	.9994128	.0003634	-1.62	0.106	.9987007 1.000125

-> Model for the mediator

Iteration 0: Log likelihood = **-48596.024**
 Iteration 1: Log likelihood = **-48596.024**

Linear regression (Maximum Likelihood) Number of obs = 36,194
 Wald chi2(7) = 5964.42
 Log likelihood = **-48596.024** Prob > chi2 = 0.0000

	zplaur	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.2697582	.0142059	18.99	0.000	.2419153 .2976012
AGE		.0289206	.0009276	31.18	0.000	.0271025 .0307387
SEX		.1898916	.0098468	19.28	0.000	.1705923 .209191
NonWhite		-.2200754	.0236122	-9.32	0.000	-.2663545 -.1737964
householdszie		-.0120972	.0044751	-2.70	0.007	-.0208683 -.0033262
SES		-.205085	.0073881	-27.76	0.000	-.2195653 -.1906047
LE8_TOTALSCORE		-.0022905	.0000525	-43.67	0.000	-.0023933 -.0021877
_cons		-.9011322	.0670116	-13.45	0.000	-1.032473 -.7697918
sigma2						
_cons		.8584999	.0063817	134.53	0.000	.8459919 .8710078

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.263497	.1650436	7.66	0.000	.9400178 1.586977
ereri_cde	1.175605	.1693385	6.94	0.000	.843708 1.507503
ereri_intref	.001224	.0110424	0.11	0.912	-.0204187 .0228666
ereri_intmed	.0384424	.0337971	1.14	0.255	-.0277986 .1046834
ereri_pie	.0482256	.0116283	4.15	0.000	.0254345 .0710166

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): zplin1
Covariates   (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE

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

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 = -8734.957
Iteration 2: Log likelihood = -8727.0341
Iteration 3: Log likelihood = -8727.007
Iteration 4: Log likelihood = -8727.007
Refining estimates:
Iteration 0: Log likelihood = -8727.007

```

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) =	185.11
Log likelihood =	-8727.007	Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	2.200044	.1616161	10.73	0.000	1.90503 2.540744
zplin1	.9751932	.0400131	-0.61	0.540	.8998395 1.056857
_infectionburXzplin1_000	1.063174	.0747789	0.87	0.384	.9262637 1.220321
AGE	1.037585	.0132168	2.90	0.004	1.012001 1.063815
SEX	.7510047	.0506815	-4.24	0.000	.6579598 .8572074
NonWhite	1.091047	.1880239	0.51	0.613	.7783108 1.529445
householdszie	.9302129	.0401573	-1.68	0.094	.8547438 1.012345
SES	.816081	.0407487	-4.07	0.000	.7399986 .8999857
LE8_TOTALSCORE	.9991836	.0003679	-2.22	0.027	.9984628 .9999049

-> Model for the mediator

Iteration 0: Log likelihood = -49114.581	Number of obs = 35,601
Iteration 1: Log likelihood = -49114.581	Wald chi2(7) = 2914.24
Log likelihood = -49114.581	Prob > chi2 = 0.0000

	zplin1	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0689907	.0148691	4.64	0.000	.0398477 .0981336
AGE		.0105017	.0009735	10.79	0.000	.0085937 .0124098
SEX		.3534185	.0103007	34.31	0.000	.3332294 .3736076
NonWhite		-.0284857	.0245786	-1.16	0.246	-.0766588 .0196875
householdsize		.0135125	.0048867	2.77	0.006	.0039347 .0230903
SES		-.0266184	.0077381	-3.44	0.001	-.0417847 -.011452
LE8_TOTALSCORE		-.0022094	.0000549	-40.24	0.000	-.002317 -.0021018
_cons		-.1073405	.070578	-1.52	0.128	-.2456707 .0309898
sigma2						
_cons		.9243094	.0069279	133.42	0.000	.910731 .9378878

-> 4-way decomposition: delta method

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
tereri	1.20493	.1609136	7.49	0.000	.889545 1.520315
ereri_cde	1.199405	.1615492	7.42	0.000	.8827747 1.516036
ereri_intref	.0000338	.0034509	0.01	0.992	-.0067299 .0067974
ereri_intmed	.0072221	.0093605	0.77	0.440	-.0111242 .0255684
ereri_pie	-.0017315	.0028503	-0.61	0.544	-.0073181 .003855

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): zplin3
Covariates (cvars): AGE SEX NonWhite householdsize SES LE8_TOTALSCORE
```

Model for the outcome (yreg): cox

Model for the mediator (mreg): linear

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 = **-8974.5407**
 Iteration 2: Log likelihood = **-8965.6516**
 Iteration 3: Log likelihood = **-8965.6329**
 Refining estimates:
 Iteration 0: Log likelihood = **-8965.6329**

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) =	198.39
Log likelihood =	-8965.6329	Prob > chi2 =	0.0000

	<u>t</u>	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr		2.288142	.1635915	11.58	0.000	1.988959 2.632327
zplin3		.953961	.0380242	-1.18	0.237	.8822717 1.031475
_infectionburXzplin3_000		1.012475	.0735553	0.17	0.864	.8781031 1.16741
AGE		1.034034	.0130357	2.65	0.008	1.008798 1.059902
SEX		.7473783	.0487629	-4.46	0.000	.6576634 .8493317
NonWhite		1.009723	.1786649	0.05	0.956	.7138166 1.428294
householdszie		.9265286	.0398926	-1.77	0.076	.8515487 1.008111
SES		.8245337	.0408045	-3.90	0.000	.7483145 .9085161
LE8_TOTALSCORE		.9990245	.0003565	-2.74	0.006	.998326 .9997234

-> Model for the mediator

Iteration 0: Log likelihood =	-51452.09	
Iteration 1: Log likelihood =	-51452.09	(backed up)
Linear regression (Maximum Likelihood)		Number of obs = 36,441
		Wald chi2(7) = 513.48
Log likelihood =	-51452.09	Prob > chi2 = 0.0000

	<u>zplin3</u>	Coefficient	Std. err.	z	P> z	[95% conf. interval]
mu						
infectionburdenhospbr		.0779238	.0151759	5.13	0.000	.0481795 .1076681
AGE		.0044322	.0009912	4.47	0.000	.0024895 .0063749
SEX		-.0849194	.0105163	-8.08	0.000	-.105531 -.0643078
NonWhite		.0217361	.0251807	0.86	0.388	-.0276172 .0710894
householdszie		-.0049104	.0047858	-1.03	0.305	-.0142904 .0044697
SES		-.0637613	.0078916	-8.08	0.000	-.0792285 -.0482941
LE8_TOTALSCORE		-.0007764	.0000561	-13.85	0.000	-.0008863 -.0006666
_cons		.2461062	.0716358	3.44	0.001	.1057026 .3865097
sigma2						
_cons		.9860779	.0073052	134.98	0.000	.97176 1.000396

-> 4-way decomposition: delta method