



```
1 .
2 .
3 . use "E:\16GBBACKUPUSB\BACKUP_USB_SEPTEMBER2014\May Baydoun_folder\UK_BIOBANK_PROJECT\UKB_PAPER3_LE8INFECTDEM\DATA\
4 .
5 .
6 . *****TABLE 2*****
7 .
8 . capture drop infectionburdenbr

9 . gen infectionburdenbr=1 if infectionburden>=1
   (328,882 missing values generated)

10 . replace infectionburdenbr=0 if infectionburden==0
    (328,882 real changes made)

11 .
12 .
13 . capture drop infectionburdenhospbr

14 . gen infectionburdenhospbr=1 if infectionburdenhosp>=1
    (441,555 missing values generated)

15 . replace infectionburdenhospbr=0 if infectionburdenhosp==0
    (441,555 real changes made)

16 .
17 .
18 . capture drop infectionburdennonhospbr

19 . gen infectionburdennonhospbr=1 if infectionburdennonhosp>=1
    (389,716 missing values generated)

20 . replace infectionburdennonhospbr=0 if infectionburdennonhosp==0
    (389,716 real changes made)

21 .
22 .
23 . capture drop infectionburden_THREE

24 . gen infectionburden_THREE=.
    (502,389 missing values generated)

25 . replace infectionburden_THREE=0 if infectionburdenbr==0
    (328,882 real changes made)

26 . replace infectionburden_THREE=1 if infectionburdenbr==1 & infectionburdenhospbr==0
    (112,673 real changes made)

27 . replace infectionburden_THREE=2 if infectionburdenbr==1 & infectionburdenhospbr==1
    (60,834 real changes made)
```

```

28 .
29 .
30 . *****STSET FOR DEMENTIA*****
31 . stset Age_dementia if sample_final==1, failure(dem_diag==1) enter(baselineage) id(n_eid) scale(1)

```

Survival-time data settings

```

      ID variable: n_eid
      Failure event: dem_diag==1
Observed time interval: (Age_dementia[_n-1], Age_dementia]
      Enter on or after: time baselineage
      Exit on or before: failure
      Keep observations
          if exp: sample_final==1

```

```

502,389 total observations
147,343 ignored at outset because of if exp

```

```

355,046 observations remaining, representing
355,046 subjects
  6,335 failures in single-failure-per-subject data
4,356,387 total analysis time at risk and under observation
              At risk from t =      0
      Earliest observed entry t = 50.00137
      Last observed exit t = 87.63313

```

```

32 .
33 .
34 . *****OVERALL*****
35 .
36 . **Model 1**
37 .
38 . stcox infectionburdenbr AGE SEX NonWhite householdsize SES LE8_TOTALSCORE if sample_final==1

```

```

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

```

```

Iteration 0: log likelihood = -73314.873
Iteration 1: log likelihood = -72959.144
Iteration 2: log likelihood = -72958.063
Iteration 3: log likelihood = -72958.062
Refining estimates:
Iteration 0: log likelihood = -72958.062

```

Cox regression with Breslow method for ties

No. of subjects =	355,046	Number of obs =	355,046
No. of failures =	6,335		
Time at risk =	4,356,387.3		
Log likelihood =	-72958.062	LR chi2(7) =	713.62
		Prob > chi2 =	0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]	
infectionburdenbr	1.070255	.0279224	2.60	0.009	1.016904	1.126405
AGE	.947469	.0048153	-10.62	0.000	.9380781	.9569539
SEX	.7530126	.0191381	-11.16	0.000	.7164217	.7914725
NonWhite	1.128664	.0749532	1.82	0.068	.9909177	1.285559
householdsize	.9600066	.0143933	-2.72	0.006	.9322067	.9886357
SES	.7086286	.0134731	-18.12	0.000	.6827078	.7355336
LE8_TOTALSCORE	.9988018	.0001365	-8.77	0.000	.9985343	.9990695

```

39 .
40 . **Model 2: Interaction with LE8 TOTAL SCORE**
41 . stcox c.infectionburdenbr##c.LE8_TOTALSCOREtert AGE SEX NonWhite householdsize SES if sample_final==1

```

```

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

```

```

Iteration 0:  log likelihood = -73314.873
Iteration 1:  log likelihood = -72971.394
Iteration 2:  log likelihood = -72970.374
Iteration 3:  log likelihood = -72970.374
Refining estimates:
Iteration 0:  log likelihood = -72970.374

```

Cox regression with Breslow method for ties

```

No. of subjects =      355,046                Number of obs = 355,046
No. of failures =        6,335
Time at risk    = 4,356,387.3

LR chi2(8)      = 689.00
Prob > chi2     = 0.0000

Log likelihood = -72970.374

```

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]	
infectionburdenbr	1.211693	.0796259	2.92	0.003	1.065262	1.378253
LE8_TOTALSCOREtert	.9169142	.0183562	-4.33	0.000	.8816333	.9536069
c.infectionburdenbr#c.LE8_TOTALSCOREtert	.9357243	.0308515	-2.01	0.044	.8771689	.9981886
AGE	.9471862	.0048135	-10.68	0.000	.9377988	.9566675
SEX	.7513588	.0190975	-11.25	0.000	.7148454	.7897372
NonWhite	1.131943	.0751781	1.87	0.062	.9937837	1.289309
householdsize	.9600455	.0144035	-2.72	0.007	.9322262	.988695
SES	.7014616	.013274	-18.74	0.000	.6759215	.7279667

```

42 .
43 . **Stratified analysis by LE8 TERTILES**

```

```

44 .
45 . **LOWEST TERTILE**
46 .
47 . stcox infectionburdenbr AGE SEX NonWhite householdsize SES if sample_final==1 & LE8_TOTALSCOREtert==1

```

```

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

```

```

Iteration 0: log likelihood = -27306.337
Iteration 1: log likelihood = -27148.092
Iteration 2: log likelihood = -27147.572
Iteration 3: log likelihood = -27147.571
Refining estimates:
Iteration 0: log likelihood = -27147.571

```

Cox regression with Breslow method for ties

```

No. of subjects =      124,912          Number of obs = 124,912
No. of failures =        2,588
Time at risk    = 1,512,957.4

LR chi2(6)      = 317.53
Prob > chi2     = 0.0000

Log likelihood = -27147.571

```

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]	
infectionburdenbr	1.156358	.0465214	3.61	0.000	1.06868	1.251229
AGE	.9391307	.0073412	-8.03	0.000	.9248519	.9536299
SEX	.7630194	.0303118	-6.81	0.000	.7058634	.8248034
NonWhite	1.166033	.1119598	1.60	0.110	.966007	1.407477
householdsize	.9421163	.0226819	-2.48	0.013	.8986931	.9876376
SES	.6743463	.0192464	-13.81	0.000	.6376596	.7131436

```

48 .
49 . **MIDDLE TERTILE**
50 .
51 . stcox infectionburdenbr AGE SEX NonWhite householdsize SES if sample_final==1 & LE8_TOTALSCOREtert==2

```

```

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

```

```

Iteration 0: log likelihood = -22262.288
Iteration 1: log likelihood = -22167.548
Iteration 2: log likelihood = -22167.403
Iteration 3: log likelihood = -22167.403
Refining estimates:
Iteration 0: log likelihood = -22167.403

```

Cox regression with Breslow method for ties

```

No. of subjects =      120,827          Number of obs = 120,827
No. of failures =        2,117
Time at risk    = 1,486,758.9

LR chi2(6)      = 189.77
Prob > chi2     = 0.0000

Log likelihood = -22167.403

```

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]	
infectionburdenbr	.9980463	.0455948	-0.04	0.966	.9125662	1.091533
AGE	.9401937	.0083629	-6.93	0.000	.9239448	.9567284
SEX	.7744355	.0340591	-5.81	0.000	.7104771	.8441516
NonWhite	.9523628	.1184246	-0.39	0.695	.7463749	1.2152
householdsize	.9851149	.0227029	-0.65	0.515	.9416079	1.030632
SES	.6904083	.0228105	-11.21	0.000	.6471174	.7365954

52 .
53 . ****HIGHEST TERTILE****
54 . stcox infectionburdenbr AGE SEX NonWhite householdsize SES if sample_final==1 & LE8_TOTALSCOREtert==3

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

Iteration 0: log likelihood = -16837.004
Iteration 1: log likelihood = -16791.35
Iteration 2: log likelihood = -16791.184
Iteration 3: log likelihood = -16791.184
Refining estimates:
Iteration 0: log likelihood = -16791.184

Cox regression with Breslow method for ties

No. of subjects = 109,307
No. of failures = 1,630
Time at risk = 1,356,671

Number of obs = 109,307

Log likelihood = -16791.184

LR chi2(6) = 91.64
Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]	
infectionburdenbr	1.03465	.0538509	0.65	0.513	.9343086	1.145767
AGE	.9709363	.0098677	-2.90	0.004	.9517872	.9904706
SEX	.7153903	.0359593	-6.66	0.000	.6482718	.7894579
NonWhite	1.318235	.1805092	2.02	0.044	1.007943	1.724051
householdsize	.9574673	.0304333	-1.37	0.171	.8996392	1.019013
SES	.7825964	.0309152	-6.21	0.000	.72429	.8455966

55 .
56 .
57 .
58 . *******AMONG MEN*******
59 .
60 .
61 .

```

62 .
63 . **Model 1**
64 .
65 . stcox infectionburdenbr AGE SEX NonWhite householdsize SES LE8_TOTALSCORE if SEX==1 & sample_final==1

```

```

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

```

note: **SEX** omitted because of collinearity.

Iteration 0: log likelihood = -37301.86

Iteration 1: log likelihood = -37120.092

Iteration 2: log likelihood = -37119.433

Iteration 3: log likelihood = -37119.433

Refining estimates:

Iteration 0: log likelihood = -37119.433

Cox regression with Breslow method for ties

No. of subjects = 164,922

Number of obs = 164,922

No. of failures = 3,437

Time at risk = 1,999,977.2

LR chi2(6) = 364.85

Prob > chi2 = 0.0000

Log likelihood = -37119.433

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]	
infectionburdenbr	1.102619	.0391455	2.75	0.006	1.028503	1.182075
AGE	.9497502	.006468	-7.57	0.000	.9371574	.9625123
SEX	1 (omitted)					
NonWhite	1.168877	.1021558	1.79	0.074	.9848652	1.38727
householdsize	.9555932	.0193547	-2.24	0.025	.9184018	.9942907
SES	.6901329	.0172569	-14.83	0.000	.6571255	.7247982
LE8_TOTALSCORE	.998981	.000188	-5.42	0.000	.9986126	.9993495

```

66 .
67 . **Model 2: Interaction with LE8 TOTAL SCORE**
68 . stcox c.infectionburdenbr#c.LE8_TOTALSCOREttert AGE SEX NonWhite householdsize SES if SEX==1 & sample_final==1

```

```

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

```

note: **SEX** omitted because of collinearity.

Iteration 0: log likelihood = -37301.86

Iteration 1: log likelihood = -37125.608

Iteration 2: log likelihood = -37124.931

Iteration 3: log likelihood = -37124.931

Refining estimates:

Iteration 0: log likelihood = -37124.931

Cox regression with Breslow method for ties

No. of subjects = 164,922

Number of obs = 164,922

No. of failures = 3,437

Time at risk = 1,999,977.2

LR chi2(7) = 353.86

Prob > chi2 = 0.0000

Log likelihood = -37124.931

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]	
infectionburdenbr	1.292394	.1159464	2.86	0.004	1.084001	1.540848
LE8_TOTALSCOREtert	.9482394	.025863	-1.95	0.051	.89888	1.000309
c.infectionburdenbr#c.LE8_TOTALSCOREtert	.9175587	.0415781	-1.90	0.058	.839581	1.002779
AGE	.9491489	.0064609	-7.67	0.000	.9365698	.9618968
SEX	1	(omitted)				
NonWhite	1.172378	.1024719	1.82	0.069	.987798	1.391448
householdsize	.9554072	.0193811	-2.25	0.025	.9181662	.9941588
SES	.683614	.0170185	-15.28	0.000	.6510591	.7177968

```

69 .
70 . **Stratification by LE8 TERTILES**
71 .
72 . **LOWEST TERTILE**
73 .
74 . stcox infectionburdenbr AGE SEX NonWhite householdsize SES if SEX==1 & sample_final==1 & LE8_TOTALSCOREtert==1

```

```

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

```

```

note: SEX omitted because of collinearity.
Iteration 0: log likelihood = -13983.321
Iteration 1: log likelihood = -13889.198
Iteration 2: log likelihood = -13889.013
Iteration 3: log likelihood = -13889.013
Refining estimates:
Iteration 0: log likelihood = -13889.013

```

Cox regression with Breslow method for ties

```

No. of subjects =      62,999                Number of obs = 62,999
No. of failures =       1,415
Time at risk    = 753,558.77

LR chi2(5)      = 188.62
Prob > chi2     = 0.0000

Log likelihood = -13889.013

```

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]	
infectionburdenbr	1.182962	.0646172	3.08	0.002	1.062858	1.316637
AGE	.9407175	.0097544	-5.89	0.000	.9217921	.9600314
SEX	1	(omitted)				
NonWhite	1.057821	.1439402	0.41	0.680	.8101909	1.381139
householdsize	.949613	.0299968	-1.64	0.102	.8926034	1.010264
SES	.6449885	.0241732	-11.70	0.000	.5993082	.6941506

```

75 .
76 . **MIDDLE TERTILE**
77 .
78 . stcox infectionburdenbr AGE SEX NonWhite householdsize SES if SEX==1 & sample_final==1 & LE8_TOTALSCOREtert==2

```

```

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

```

note: **SEX** omitted because of collinearity.

Iteration 0: log likelihood = **-11365.47**

Iteration 1: log likelihood = **-11310.069**

Iteration 2: log likelihood = **-11309.982**

Iteration 3: log likelihood = **-11309.982**

Refining estimates:

Iteration 0: log likelihood = **-11309.982**

Cox regression with Breslow method for ties

No. of subjects = **58,075**

Number of obs = **58,075**

No. of failures = **1,160**

Time at risk = **707,942.594**

LR chi2(5) = **110.98**

Prob > chi2 = **0.0000**

Log likelihood = **-11309.982**

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]	
infectionburdenbr	1.084755	.0665861	1.33	0.185	.961794	1.223437
AGE	.9313013	.0110812	-5.98	0.000	.9098338	.9532753
SEX	1 (omitted)					
NonWhite	.9946091	.1615938	-0.03	0.973	.7233659	1.367561
householdsize	.9769509	.0300983	-0.76	0.449	.919705	1.03776
SES	.6800037	.0292796	-8.96	0.000	.6249715	.7398818

```

79 .
80 . **HIGHEST TERTILE**
81 . stcox infectionburdenbr AGE SEX NonWhite householdsize SES if SEX==1 & sample_final==1 & LE8_TOTALSCOREtert==3

```

```

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

```

note: **SEX** omitted because of collinearity.

Iteration 0: log likelihood = **-8227.7277**

Iteration 1: log likelihood = **-8210.232**

Iteration 2: log likelihood = **-8209.6386**

Iteration 3: log likelihood = **-8209.6362**

Refining estimates:

Iteration 0: log likelihood = **-8209.6362**

Cox regression with Breslow method for ties

No. of subjects = **43,848**

Number of obs = **43,848**

No. of failures = **862**

Time at risk = **538,475.809**

LR chi2(5) = **36.18**

Prob > chi2 = **0.0000**

Log likelihood = **-8209.6362**

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]	
infectionburdenbr	.9991432	.0722434	-0.01	0.991	.8671242	1.151262
AGE	.9919041	.0138244	-0.58	0.560	.9651755	1.019373
SEX	1	(omitted)				
NonWhite	1.669992	.2673266	3.20	0.001	1.220273	2.28545
householdsize	.9353736	.0431024	-1.45	0.147	.854597	1.023785
SES	.7816109	.0413341	-4.66	0.000	.7046546	.8669717

```

82 .
83 .
84 .
85 . *****AMONG WOMEN*****
86 .
87 .
88 .
89 .
90 . **Model 1**
91 .
92 . stcox infectionburdenbr AGE SEX NonWhite householdsize SES LE8_TOTALSCORE if SEX==2 & sample_final==1

```

```

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

```

```

note: SEX omitted because of collinearity.
Iteration 0:  log likelihood = -31588.189
Iteration 1:  log likelihood = -31462.44
Iteration 2:  log likelihood = -31462.138
Iteration 3:  log likelihood = -31462.138
Refining estimates:
Iteration 0:  log likelihood = -31462.138

```

Cox regression with Breslow method for ties

```

No. of subjects =    190,124          Number of obs = 190,124
No. of failures =      2,898
Time at risk    = 2,356,410.2

LR chi2(6)      = 252.10
Prob > chi2     = 0.0000

Log likelihood = -31462.138

```

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]	
infectionburdenbr	1.034915	.0397941	0.89	0.372	.9597866	1.115924
AGE	.9435584	.0072131	-7.60	0.000	.9295263	.9578022
SEX	1	(omitted)				
NonWhite	1.084998	.1109956	0.80	0.425	.8878726	1.325888
householdsize	.9661326	.0213522	-1.56	0.119	.9251765	1.008902
SES	.7345436	.0215113	-10.53	0.000	.6935695	.7779384
LE8_TOTALSCORE	.9986239	.0001993	-6.90	0.000	.9982334	.9990146

```

93 .
94 . **Model 2: Interaction with LE8 TOTAL SCORE**
95 . stcox c.infectionburdenbr#c.LE8_TOTALSCOREtert AGE SEX NonWhite householdsize SES if SEX==2 & sample_final==1

```

```

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

```

```

note: SEX omitted because of collinearity.
Iteration 0: log likelihood = -31588.189
Iteration 1: log likelihood = -31468.192
Iteration 2: log likelihood = -31467.949
Iteration 3: log likelihood = -31467.949
Refining estimates:
Iteration 0: log likelihood = -31467.949

```

Cox regression with Breslow method for ties

```

No. of subjects =      190,124      Number of obs = 190,124
No. of failures =        2,898
Time at risk    = 2,356,410.2

LR chi2(7)      = 240.48
Prob > chi2     = 0.0000
Log likelihood = -31467.949

```

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]	
infectionburdenbr	1.118878	.108049	1.16	0.245	.9259405	1.352018
LE8_TOTALSCOREtert	.8833403	.0260655	-4.20	0.000	.8337022	.9359339
c.infectionburdenbr#c.LE8_TOTALSCOREtert	.9599817	.0461701	-0.85	0.396	.873624	1.054876
AGE	.9436052	.0072147	-7.59	0.000	.9295702	.9578522
SEX	1	(omitted)				
NonWhite	1.086989	.1112205	0.82	0.415	.8894679	1.328372
householdsize	.9664481	.0213417	-1.55	0.122	.9255114	1.009196
SES	.7268184	.0211771	-10.95	0.000	.6864749	.7695328

```

96 .
97 . **Stratif SEX==2 by LE8 TERTILES**
98 .
99 . **LOWEST TERTILE**
100 .
101 . stcox infectionburdenbr AGE SEX NonWhite householdsize SES if SEX==2 & sample_final==1 & LE8_TOTALSCOREtert==1

```

```

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

```

```

note: SEX omitted because of collinearity.
Iteration 0: log likelihood = -11526.89
Iteration 1: log likelihood = -11476.28
Iteration 2: log likelihood = -11475.894
Iteration 3: log likelihood = -11475.892
Iteration 4: log likelihood = -11475.892
Refining estimates:
Iteration 0: log likelihood = -11475.892

```

Cox regression with Breslow method for ties

No. of subjects = **61,913**
 No. of failures = **1,173**
 Time at risk = **759,398.626**

Number of obs = **61,913**

Log likelihood = **-11475.892**

LR chi2(5) = **102.00**
 Prob > chi2 = **0.0000**

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]	
infectionburdenbr	1.127368	.0670101	2.02	0.044	1.003393	1.266662
AGE	.9366691	.0111484	-5.50	0.000	.9150716	.9587765
SEX	1	(omitted)				
NonWhite	1.30876	.17748	1.98	0.047	1.003297	1.707226
householdsize	.9358698	.0346876	-1.79	0.074	.870294	1.006387
SES	.7172948	.0316259	-7.54	0.000	.6579119	.7820375

102 .
 103 . ****MIDDLE TERTILE****
 104 .
 105 . stcox infectionburdenbr AGE SEX NonWhite householdsize SES if SEX==2 & sample_final==1 & LE8_TOTALSCOREtert==2

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

note: **SEX** omitted because of collinearity.
 Iteration 0: log likelihood = **-9424.2598**
 Iteration 1: log likelihood = **-9394.8608**
 Iteration 2: log likelihood = **-9394.8347**
 Iteration 3: log likelihood = **-9394.8347**
 Refining estimates:
 Iteration 0: log likelihood = **-9394.8347**

Cox regression with Breslow method for ties

No. of subjects = **62,752**
 No. of failures = **957**
 Time at risk = **778,816.313**

Number of obs = **62,752**

Log likelihood = **-9394.8347**

LR chi2(5) = **58.85**
 Prob > chi2 = **0.0000**

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]	
infectionburdenbr	.9049528	.0618935	-1.46	0.144	.791423	1.034768
AGE	.9517919	.012731	-3.69	0.000	.927164	.9770741
SEX	1	(omitted)				
NonWhite	.9060275	.1753451	-0.51	0.610	.6200216	1.323963
householdsize	.9980039	.0348536	-0.06	0.954	.9319775	1.068708
SES	.70316	.036264	-6.83	0.000	.6355581	.7779524

