```
1.
3 . use "E:\16GBBACKUPUSB\BACKUP_USB_SEPTEMBER2014\May Baydoun_folder\UK_BIOBANK_PROJECT\UKB_PAPER3_LE8INFECTDEM\DATA\
4 .
5
  . ********TABLE 2*********
6
7.
8.
10 . stset Age_dementia, 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
      502,389 total observations
           3 event time missing (Age_dementia>=.)
                                                      PROBABLE ERROR
         228 observations end on or before enter()
      502,158 observations remaining, representing
      502,158 subjects
       7,668 failures in single-failure-per-subject data
    6,208,727 total analysis time at risk and under observation
                                           At risk from t =
                                  Earliest observed entry t = 37.41821
                                       Last observed exit t = 87.63313
11 .
12 .
15 . **Model 1**
16 .
17 . stcox infectionburdenhospbr AGE SEX NonWhite householdsize SES LE8_TOTALSCORE if sample_final2==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 = -70796.811
  Iteration 1: log likelihood = -70139.744
  Iteration 2:
               log likelihood = -70095.807
  Iteration 3:
               log likelihood = -70095.7
  Refining estimates:
  Iteration 0: log likelihood = -70095.7
  Cox regression with Breslow method for ties
  No. of subjects =
                     351,337
                                                  Number of obs = 351,337
  No. of failures =
                     6,129
  Time at risk
              = 4,349,875.9
                                                  LR chi2(7)
                                                              = 1402.22
                                                  Prob > chi2 = 0.0000
  Log likelihood = -70095.7
```

_t	Haz. ratio	Std. err.	z	P> z	[95% conf.	interval]
infectionburdenhospbr	2.181555	.0637388	26.70	0.000	2.060139	2.310127
AGE	.918682	.0048455	-16.08	0.000	.9092339	.9282284
SEX	.7569637	.0195486	-10.78	0.000	.7196028	.7962644
NonWhite	1.114594	.075868	1.59	0.111	.9753876	1.273668
householdsize	.9555076	.0147458	-2.95	0.003	.9270392	.9848503
SES	.7335477	.014232	-15.97	0.000	.7061772	.7619791
LE8_TOTALSCORE	.9989881	.0001386	-7.30	0.000	.9987166	.9992598

19 . **Model 2: Interaction with LE8 TOTAL SCORE**

20 . stcox c.infectionburdenhospbr##c.LE8_TOTALSCOREtert AGE SEX NonWhite householdsize SES if sample_final2==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 = -70796.811
Iteration 1: log likelihood = -70168.819
Iteration 2: log likelihood = -70105.984
Iteration 3: log likelihood = -70105.471
Iteration 4: log likelihood = -70105.47

Refining estimates:

Iteration 0: log likelihood = -70105.47

Cox regression with Breslow method for ties

No. of subjects = **351,337** No. of failures = **6,129**

Time at risk = 4,349,875.9

Log likelihood = -70105.47

Number of obs = 351,337

LR chi2(8) = 1382.68 Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf.	interval]
infectionburdenhospbr	2.280515	.1644521	11.43	0.000	1.979937	2.626725
LE8_TOTALSCOREtert	.9155058	.0172955	-4.67	0.000		.9500397
$\verb c.infectionburdenhospbr#c.LE8_TOTALSCOREtert \\$.9782184	.0361093	-0.60	0.551	.9099449	1.051614
AGE	.9184208	.0048437	-16.14	0.000	.9089762	.9279636
SEX	.7558101	.0195219	-10.84	0.000	.7185003	.7950572
NonWhite	1.117176	.0760521	1.63	0.104	.9776329	1.276637
householdsize	.9555497	.0147494	-2.95	0.003	.9270743	.9848998
SES	.7271323	.0140408	-16.50	0.000	.7001271	.7551792

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22 . **Stratified analysis by LE8 TERTILES**

23 .

24 . **LOWEST TERTILE**

25 .

26 . stcox infectionburdenhospbr AGE SEX NonWhite householdsize SES if sample_final2==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 = -26270.126
Iteration 1: log likelihood = -25964.219
Iteration 2: log likelihood = -25947.193
Iteration 3: log likelihood = -25947.168

Refining estimates:

Iteration 0: log likelihood = -25947.168

Cox regression with Breslow method for ties

No. of subjects = 123,145 Number of obs = 123,145

No. of failures = 2,495 Time at risk = 1,509,919.6

LR chi2(6) = 645.92 Log likelihood = -25947.168 Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf.	interval]
infectionburdenhospbr	2.242913	.0983337	18.42	0.000	2.058231	2.444167
AGE	.9092318	.0073961	-11.70	0.000	.8948506	.923844
SEX	.7613619	.0307877	-6.74	0.000	.7033484	.8241604
NonWhite	1.144668	.1136764	1.36	0.174	.9422084	1.390631
householdsize	.9319341	.0235673	-2.79	0.005	.886869	.9792891
SES	.7059741	.0206307	-11.91	0.000	.6666748	.7475899

27 .

28 . **MIDDLE TERTILE**

29

30 . stcox infectionburdenhospbr AGE SEX NonWhite householdsize SES if sample_final2==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 = -21661.663
Iteration 1: log likelihood = -21471.088
Iteration 2: log likelihood = -21460.005
Iteration 3: log likelihood = -21459.978
Refining estimates:

Iteration 0: log likelihood = -21459.978

Cox regression with Breslow method for ties

Time at risk = **1,484,772.9**

LR chi2(6) = 403.37 Log likelihood = -21459.978 Prob > chi2 = 0.0000

t	Haz. ratio	Std. err.	z	P> z	[95% conf.	interval]
infectionburdenhospbr	2.12775	.1093138	14.70	0.000	1.923932	2.353159
AGE	.9163703	.0083893	-9.54	0.000	.9000742	.9329614
SEX	.778802	.0346886	-5.61	0.000	.7136967	.8498464
NonWhite	.9523379	.1210677	-0.38	0.701	.7423018	1.221804
householdsize	.9734532	.0237755	-1.10	0.271	.9279519	1.021186
SES	.7100653	.0238494	-10.19	0.000	.6648267	.7583823

32 . **HIGHEST TERTILE**

33 . stcox infectionburdenhospbr AGE SEX NonWhite householdsize SES if sample_final2==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 = -16181.35
Iteration 1: log likelihood = -16070.648
Iteration 2: log likelihood = -16060.895
Iteration 3: log likelihood = -16060.861

Refining estimates:

Iteration 0: log likelihood = -16060.861

Cox regression with Breslow method for ties

No. of subjects = **108,482**

No. of failures = 1,571

Time at risk = 1,355,183.4

Log likelihood = -16060.861

Number of obs = **108,482**

LR chi2(6) = 240.98 Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf.	interval]
infectionburdenhospbr	2.163168	.131182	12.72	0.000	1.920748	2.436184
AGE	.9375604	.0099515	-6.07	0.000	.9182574	.9572692
SEX	.7302279	.0373505	-6.15	0.000	.6605722	.8072287
NonWhite	1.29221	.1786173	1.85	0.064	.9855406	1.694304
householdsize	.9725501	.0288277	-0.94	0.348	.9176589	1.030725
SES	.8047194	.032364	-5.40	0.000	.7437229	.8707186

36 . 37 .

38 .

39 . 40 . **Model 1**

42 . stcox infectionburdenhospbr AGE SEX NonWhite householdsize SES LE8_TOTALSCORE if SEX==1 & sample_final2==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 = -35909.287
Iteration 1: log likelihood = -35550.191
Iteration 2: log likelihood = -35521.58
Iteration 3: log likelihood = -35521.507

Refining estimates:

Iteration 0: log likelihood = -35521.507

Cox regression with Breslow method for ties

No. of subjects = 162,530 No. of failures = 3,315 Time at risk = 1,995,864.6 Number of obs = **162,530**

LR chi2(6) = **775.56** Prob > chi2 = **0.0000**

Log likelihood = -35521.507

t	Haz. ratio	Std. err.	z	P> z	[95% conf.	interval]
infectionburdenhospbr	2.262235	.0891501	20.72	0.000	2.094082	2.443891
AGE	.9196088	.0065051	-11.85	0.000	.9069471	.9324473
SEX	1	(omitted)				
NonWhite	1.128083	.1017898	1.34	0.182	.9452249	1.346317
householdsize	.9544325	.0196762	-2.26	0.024	.9166365	.9937869
SES	.7153171	.018281	-13.11	0.000	.6803696	.7520596
LE8_TOTALSCORE	.9991218	.0001911	-4.59	0.000	.9987474	.9994963

43 .

44 . **Model 2: Interaction with LE8 TOTAL SCORE**

45 . stcox c.infectionburdenhospbr##c.LE8_TOTALSCOREtert AGE SEX NonWhite householdsize SES if SEX==1 & sample_final2

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 = -35909.287 Iteration 1: log likelihood = -35568.123 Iteration 2: log likelihood = -35526.908 Iteration 3: log likelihood = -35526.537 Iteration 4: log likelihood = -35526.537 Refining estimates:

Iteration 0: log likelihood = -35526.537

Cox regression with Breslow method for ties

No. of subjects = 162,530 No. of failures = 3,315 Time at risk = 1,995,864.6

LR chi2(7) = **765.50**

Number of obs = 162,530

Log likelihood = -35526.537

Prob > chi2 = **0.0000**

_t	Haz. ratio	Std. err.	Z	P> z	[95% conf.	interval]
infectionburdenhospbr LE8_TOTALSCOREtert	2.466839 .942654	.2408834 .0245212	9.25 -2.27	0.000 0.023	2.037146 .895798	2.987166 .9919609
c.infectionburdenhospbr#c.LE8_TOTALSCOREtert	.9550623	.0478884	-0.92	0.359	.8656674	1.053689
AGE SEX	.9190766 1	.0064981 (omitted)	-11.94	0.000	.9064283	.9319014
NonWhite	1.13116	.102085	1.37	0.172	.9477735	1.350029
householdsize	.9543753	.0196926	-2.26	0.024	.9165485	.9937631
SES	.7092239	.0180468	-13.50	0.000	.6747205	.7454918

47 . **Stratification by LE8 TERTILES**

48 .

49 . **LOWEST TERTILE**

50 .

51 . stcox infectionburdenhospbr AGE SEX NonWhite householdsize SES if SEX==1 & sample_final2==1 & LE8_TOTALSCOREtert

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 = -13432.092
Iteration 1: log likelihood = -13255.752
Iteration 2: log likelihood = -13243.745
Iteration 3: log likelihood = -13243.725

Refining estimates:

Iteration 0: log likelihood = -13243.725

Cox regression with Breslow method for ties

No. of subjects = **61,810** No. of failures = **1,362**

Time at risk = **751,539.348**

Log likelihood = -13243.725

Number of obs = 61,810

LR chi2(5) = 376.73 Prob > chi2 = 0.0000

t	Haz. ratio	Std. err.	z	P> z	[95% conf.	interval]
infectionburdenhospbr	2.324636	.1378722	14.22	0.000	2.069526	2.611193
AGE	.9116658	.0098303	-8.58	0.000	.892601	.9311379
SEX	1	(omitted)				
NonWhite	1.007559	.1431601	0.05	0.958	.7626527	1.331112
householdsize	.9493093	.0310374	-1.59	0.112	.8903851	1.012133
SES	.674743	.0258954	-10.25	0.000	.6258508	.7274548

53 . **MIDDLE TERTILE**

54 .

55 . stcox infectionburdenhospbr AGE SEX NonWhite householdsize SES if SEX==1 & sample_final2==1 & LE8_TOTALSCOREtert

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 = -11014.892
Iteration 1: log likelihood = -10895.189
Iteration 2: log likelihood = -10885.923
Iteration 3: log likelihood = -10885.897

Refining estimates:

Iteration 0: log likelihood = -10885.897

Cox regression with Breslow method for ties

No. of subjects = 57,334 Number of obs = 57,334

No. of failures = 1,126 Time at risk = 706,646.333

Log likelihood = -10885.897

LR chi2(5) = 257.99Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf.	interval]
infectionburdenhospbr	2.305951	.1576456	12.22	0.000	2.016777	2.636588
AGE	.9046803	.0111127	-8.16	0.000	.8831598	.9267252
SEX	1	(omitted)				
NonWhite	.9659652	.1630427	-0.21	0.837	.6938881	1.344725
householdsize	.9639049	.0316883	-1.12	0.263	.9037556	1.028057
SES	.7021607	.0308305	-8.05	0.000	.6442611	.7652636

56

57 . **HIGHEST TERTILE**

58 . stcox infectionburdenhospbr AGE SEX NonWhite householdsize SES if SEX==1 & sample_final2==1 & LE8_TOTALSCOREtert

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 = -7869.8693 Iteration 1: log likelihood = -7821.9409 Iteration 2: log likelihood = -7817.0494 Iteration 3: log likelihood = -7817.0314 Iteration 4: log likelihood = -7817.0314

Refining estimates:

Iteration 0: log likelihood = -7817.0314

Cox regression with Breslow method for ties

No. of subjects = 43,386 No. of failures = 827

Time at risk = 537,678.938

LR chi2(5) = 105.68 Log likelihood = -7817.0314 Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf.	interval]
infectionburdenhospbr	2.086448	.1735983	8.84	0.000	1.772496	2.456009
AGE	.9555833	.0139091	-3.12	0.002	.9287071	.9832373
SEX	1	(omitted)				
NonWhite	1.604837	. 2602707	2.92	0.004	1.167842	2.205352
householdsize	.9553131	.0414975	-1.05	0.293	.8773455	1.040209
SES	.8023695	.0433825	-4.07	0.000	.7216917	.8920663

```
59 .
60 .
61 .
64 .
65 .
66 .
67 . **Model 1**
68 .
```

69 . stcox infectionburdenhospbr AGE SEX NonWhite householdsize SES LE8_TOTALSCORE if SEX==2 & sample_final2==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 = -30609.58 Iteration 1: log likelihood = -30355.057 Iteration 2: log likelihood = -30339.153 Iteration 3: log likelihood = -30339.117

Refining estimates:

Iteration 0: log likelihood = -30339.117

Cox regression with Breslow method for ties

No. of subjects = 188,807 Number of obs = 188,807No. of subjects = 188,807 No. of failures = 2,814

Time at risk = 2,354,011.3

LR chi2(6) = 540.93 Prob > chi2 = 0.0000Log likelihood = -30339.117

_t	Haz. ratio	Std. err.	z	P> z	[95% conf.	interval]
infectionburdenhospbr	2.088816	.0910154	16.91	0.000	1.917834	2.275042
AGE	.9163968	.007263	-11.02	0.000	.9022716	.9307431
SEX	1	(omitted)				
NonWhite	1.10273	.1144819	0.94	0.346	.8997054	1.351569
householdsize	.9577575	.0221592	-1.87	0.062	.9152962	1.002189
SES	.7591478	.0226377	-9.24	0.000	.7160504	.804839
LE8_TOTALSCORE	.9988574	.000202	-5.65	0.000	.9984616	.9992534

71 . **Model 2: Interaction with LE8 TOTAL SCORE**

72 . stcox c.infectionburdenhospbr##c.LE8_TOTALSCOREtert AGE SEX NonWhite householdsize SES if SEX==2 & sample_final2

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 = -30609.58 Iteration 1: log likelihood = -30365.116 Iteration 2: log likelihood = -30343.059 Iteration 3: log likelihood = -30342.905 Iteration 4: log likelihood = -30342.905

Refining estimates:

Iteration 0: log likelihood = -30342.905

Cox regression with Breslow method for ties

No. of subjects = 188,807 No. of failures = 2,814

Time at risk = 2,354,011.3

Log likelihood = -30342.905

Number of obs = 188,807

LR chi2(7) = 533.35Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	Z	P> z	[95% conf.	interval]
infectionburdenhospbr	2.0773	.2223106	6.83	0.000	1.684242	2.562088
LE8_TOTALSCOREtert	.8876885	.0244241	-4.33	0.000	.841086	.9368731
c.infectionburdenhospbr#c.LE8_TOTALSCOREtert	1.006113	.0549132	0.11	0.911	.9040423	1.119709
AGE	.9163699	.0072639	-11.02	0.000	.9022429	.930718
SEX	1	(omitted)				
NonWhite	1.104259	`.114654	0.96	0.339	.9009312	1.353475
householdsize	.9579463	.022153	-1.86	0.063	.9154965	1.002364
SES	.7525759	.0223249	-9.58	0.000	.7100676	.797629

78 . stcox infectionburdenhospbr AGE SEX NonWhite householdsize SES if SEX==2 & sample_final2==1 & LE8_TOTALSCOREtert

```
74 . **Stratif SEX==2 by LE8 TERTILES**
```

75 .

76 . **LOWEST TERTILE**

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 = -11106.178 Iteration 1: log likelihood = -10989.531 Iteration 2: log likelihood = -10983.359 Iteration 3: log likelihood = -10983.348 Iteration 4: log likelihood = -10983.348

Refining estimates:

Iteration 0: log likelihood = -10983.348

Cox regression with Breslow method for ties

No. of failures = 1,133 Time at risk = 758,380.258

LR chi2(5) = 245.66 Log likelihood = -10983.348 Prob > chi2 = 0.0000

t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]	
infectionburdenhospbr	2.152431	.1401568	11.77	0.000	1.894535	2.445432
AGE	.9054377	.0112307	-8.01	0.000	.8836913	.9277193
SEX	1	(omitted)				
NonWhite	1.32295	.1838512	2.01	0.044	1.007515	1.737143
householdsize	.9126358	.0363466	-2.30	0.022	.8441072	.9867279
SES	.7518203	.0339335	-6.32	0.000	.6881688	.8213591

79 .

80 . **MIDDLE TERTILE**

81

82 . stcox infectionburdenhospbr AGE SEX NonWhite householdsize SES if SEX==2 & sample_final2==1 & LE8_TOTALSCOREtert

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 = -9212.595
Iteration 1: log likelihood = -9151.1335
Iteration 2: log likelihood = -9148.3781
Iteration 3: log likelihood = -9148.3732

Refining estimates:

Iteration 0: log likelihood = -9148.3732

Cox regression with Breslow method for ties

No. of subjects = 62,376 Number of obs = 62,376

No. of failures = 937

Time at risk = **778**,**126**.**536**

LR chi2(5) = 128.44 Log likelihood = -9148.3732 Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]
infectionburdenhospbr	1.930278	.1506276	8.43	0.000	1.656522 2.249276
AGE	.9311919	.0127727	-5.20	0.000	.9064914 .9565656
SEX	1	(omitted)			
NonWhite	.943484	.1826355	-0.30	0.764	.6455987 1.378816
householdsize	.9880591	.0362644	-0.33	0.743	.9194785 1.061755
SES	.7207944	.037645	-6.27	0.000	.6506623 .7984858

84 . **HIGHEST TERTILE**

85 . stcox infectionburdenhospbr AGE SEX NonWhite householdsize SES if SEX==2 & sample_final2==1 & LE8_TOTALSCOREtert

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 = -7208.9888
Iteration 1: log likelihood = -7157.4686
Iteration 2: log likelihood = -7152.2818
Iteration 3: log likelihood = -7152.261
Iteration 4: log likelihood = -7152.261

Refining estimates:

Iteration 0: log likelihood = -7152.261

Cox regression with Breslow method for ties

No. of subjects = 65,096 Number of obs = 65,096

No. of failures = **744** Time at risk = **817,504.486**

LR chi2(5) = 113.46 Log likelihood = -7152.261 Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf.	interval]
infectionburdenhospbr	2.241957	.198647	9.11	0.000	1.884548	2.66715
AGE	.914763	.0143333	-5.69	0.000	.8870972	.9432917
SEX	1	(omitted)				
NonWhite	.8352659	.2259423	-0.67	0.506	.4915546	1.419312
householdsize	.9873219	.0404542	-0.31	0.755	.9111333	1.069881
SES	.8088973	.0487045	-3.52	0.000	.7188556	.9102172

86 .

87 .

88 . capture log close