```
2 . use "E:\16GBBACKUPUSB\BACKUP USB SEPTEMBER2014\May Baydoun folder\UK BIOBANK PROJECT\UKB PAPER3 LE8INFECTDEM\DATA\
3.
4.
6 . stset Age_AD, failure(ad_diag==1) enter(baselineage) id(n_eid) scale(1)
  Survival-time data settings
            ID variable: n_eid
          Failure event: ad_diag==1
  Observed time interval: (Age_AD[_n-1], Age_AD]
       Enter on or after: time baselineage
      Exit on or before: failure
      502,389 total observations
          3 event time missing (Age_AD>=.)
                                                      PROBABLE ERROR
          18 observations end on or before enter()
      502,368 observations remaining, representing
      502,368 subjects
       3,272 failures in single-failure-per-subject data
    6,221,064 total analysis time at risk and under observation
                                            At risk from t =
                                  Earliest observed entry t = 37.41821
                                       Last observed exit t = 87.63313
7.
8 .
9.
11 .
12 . **Model 1**
13 .
14 . stcox infectionburdenhospbr AGE SEX NonWhite householdsize SES LE8_TOTALSCORE if sample_final2==1
          Failure _d: ad_diag==1
     Analysis time _t: Age_AD
    Enter on or after: time baselineage
         ID variable: n_eid
               log likelihood = -29849.733
  Iteration 0:
  Iteration 1: log likelihood = -29657.493
  Iteration 2: log likelihood = -29649.32
  Iteration 3: log likelihood = -29649.307
  Refining estimates:
  Iteration 0: log likelihood = -29649.307
  Cox regression with Breslow method for ties
  No. of subjects =
                     351,337
                                                  Number of obs = 351,337
  No. of failures =
                     2,595
  Time at risk
              = 4,357,327.7
                                                              = 400.85
                                                  LR chi2(7)
  Log likelihood = -29649.307
                                                  Prob > chi2 = 0.0000
```

_t	Haz. ratio	Std. err.	z	P> z	[95% conf.	interval]
infectionburdenhospbr	1.93357	.089392	14.26	0.000	1.766069	2.116959
AGE	.9237835	.0076679	-9.55	0.000	.9088763	.9389352
SEX	.9119399	.0360378	-2.33	0.020	.8439733	.9853801
NonWhite	1.06075	.1142002	0.55	0.584	.8589602	1.309946
householdsize	.985784	.0201464	-0.70	0.484	.9470782	1.026072
SES	.7228754	.0216	-10.86	0.000	.681756	.766475
LE8_TOTALSCORE	.9999948	.0002148	-0.02	0.981	.999574	1.000416

15

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

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

Failure _d: ad_diag==1
Analysis time _t: Age_AD

Enter on or after: time baselineage

ID variable: n_eid

Iteration 0: log likelihood = -29849.733
Iteration 1: log likelihood = -29657.017
Iteration 2: log likelihood = -29648.901
Iteration 3: log likelihood = -29648.887
Iteration 4: log likelihood = -29648.887

Refining estimates:

Iteration 0: log likelihood = -29648.887

Cox regression with Breslow method for ties

No. of subjects = **351,337**

No. of failures = 2,595

Time at risk = **4,357,327.7**

Log likelihood = -29648.887

Number of obs = 351,337

LR chi2(8) = 401.69 Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf.	interval]
infectionburdenhospbr	1.816024	.2124233	5.10	0.000	1.44396	2.283957
LE8_TOTALSCOREtert	1.009014	.0286785	0.32	0.752	.9543424	1.066818
c.infectionburdenhospbr#c.LE8_TOTALSCOREtert	1.035128	.0594407	0.60	0.548	.9249427	1.158438
AGE	.9237301	.0076672	-9.56	0.000	.9088243	.9388805
SEX	.911388	.0360192	-2.35	0.019	.8434566	.9847906
NonWhite	1.060916	.1142188	0.55	0.583	.8590933	1.310153
householdsize	.9858886	.0201232	-0.70	0.486	.9472263	1.026129
SES	.7201523	.0214244	-11.04	0.000	.679362	.7633918

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19 . **Stratified analysis by LE8 TERTILES**

20 .

21 . **LOWEST TERTILE**
22 .

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

Failure _d: ad_diag==1
Analysis time _t: Age_AD

Enter on or after: time baselineage

ID variable: n_eid

Iteration 0: log likelihood = -9898.5019
Iteration 1: log likelihood = -9812.6882
Iteration 2: log likelihood = -9810.18
Iteration 3: log likelihood = -9810.1776

Refining estimates:

Iteration 0: log likelihood = -9810.1776

Cox regression with Breslow method for ties

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

No. of failures = 947 Time at risk = 1,513,183.3

LR chi2(6) = 176.65 Log likelihood = -9810.1776 Prob > chi2 = 0.0000

t	Haz. ratio	Std. err.	z	P> z	[95% conf.	interval]
infectionburdenhospbr	1.897308	.1391941	8.73	0.000	1.6432	2.190713
AGE	.9129275	.0124993	-6.65	0.000	.8887552	.9377573
SEX	.9485404	.0619458	-0.81	0.419	.8345779	1.078065
NonWhite	1.100782	.1801219	0.59	0.557	.798764	1.516995
householdsize	.9728143	.0348113	-0.77	0.441	.9069231	1.043493
SES	.6976221	.0331073	-7.59	0.000	.6356594	.7656248

24 .

25 . **MIDDLE TERTILE**

26

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

Failure _d: ad_diag==1
Analysis time _t: Age_AD

Enter on or after: time baselineage

ID variable: **n_eid**

Iteration 0: log likelihood = -9430.549
Iteration 1: log likelihood = -9368.9646
Iteration 2: log likelihood = -9366.6385
Iteration 3: log likelihood = -9366.6348
Refining estimates:

Iteration 0: log likelihood = -9366.6348

Cox regression with Breslow method for ties

Time at risk = 1,487,228.1

LR chi2(6) = 127.83 Log likelihood = -9366.6348 Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf.	interval]
infectionburdenhospbr	1.890294	.1510829	7.97	0.000	1.616206	2.210865
AGE	.9271741	.0130019	-5.39	0.000	.9020378	.9530108
SEX	.9727311	.0653071	-0.41	0.680	.8527955	1.109534
NonWhite	.7752693	.1647773	-1.20	0.231	.5111361	1.175895
householdsize	.9950857	.0328055	-0.15	0.881	.9328213	1.061506
SES	.7130553	.0364411	-6.62	0.000	.6450927	.7881781

28 .

29 . **HIGHEST TERTILE**

30 . stcox infectionburdenhospbr AGE SEX NonWhite householdsize SES if sample_final2==1 & LE8_TOTALSCOREtert==3

Failure _d: ad_diag==1
Analysis time _t: Age_AD

Enter on or after: time baselineage

ID variable: **n_eid**

Iteration 0: log likelihood = -7679.3911
Iteration 1: log likelihood = -7630.1662
Iteration 2: log likelihood = -7626.7019
Iteration 3: log likelihood = -7626.6917

Refining estimates:

Iteration 0: log likelihood = -7626.6917

Cox regression with Breslow method for ties

No. of subjects = 108,482 Number of obs = 108,482

No. of failures = 749 Time at risk = 1,356,916.4

LR chi2(6) = 105.40 Log likelihood = -7626.6917 Prob > chi2 = 0.0000

t	Haz. ratio	Std. err.	z	P> z	[95% conf.	interval]
infectionburdenhospbr	2.041953	.1817547	8.02	0.000	1.715063	2.431148
AGE	.9326139	.0146108	-4.45	0.000	.9044125	.9616947
SEX	.8065063	.059587	-2.91	0.004	.69778	.932174
NonWhite	1.38426	.2684284	1.68	0.094	.94658	2.024316
householdsize	.9927399	.0370648	-0.20	0.845	.9226885	1.06811
SES	.7671598	.0443382	-4.59	0.000	.6849997	.8591743

33 .

34 . **Model 1**
35 .

36 . stcox infectionburdenhospbr AGE SEX NonWhite householdsize SES LE8_TOTALSCORE if SEX==1 & sample_final2==1

Failure _d: ad_diag==1
Analysis time _t: Age_AD

Enter on or after: time baselineage

ID variable: **n_eid**

note: **SEX** omitted because of collinearity. Iteration 0: log likelihood = -13859.655 Iteration 1: log likelihood = -13764.847
Iteration 2: log likelihood = -13761.078
Iteration 3: log likelihood = -13761.073 Refining estimates:

Iteration 0: log likelihood = -13761.073

Cox regression with Breslow method for ties

No. of subjects = 162,530 No. of failures = 1,287

Time at risk = 1,999,924.6

Log likelihood = -13761.073

Number of obs = 162,530

LR chi2(6) = 197.17 Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf.	interval]
infectionburdenhospbr	1.915586	.1260332	9.88	0.000	1.68383	2.179241
AGE	.9261185	.01081	-6.58	0.000	.9051718	.94755
SEX	1	(omitted)				
NonWhite	1.073752	.1595631	0.48	0.632	.80244	1.436797
householdsize	.9794617	.0291563	-0.70	0.486	.9239515	1.038307
SES	.7183006	.0295068	-8.05	0.000	.6627352	.7785248
LE8_TOTALSCORE	1.000245	.0003098	0.79	0.429	.9996379	1.000852

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

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

Failure _d: ad_diag==1 Analysis time _t: Age_AD

Enter on or after: time baselineage

ID variable: **n_eid**

note: SEX omitted because of collinearity. Iteration 0: log likelihood = -13859.655 Iteration 1: log likelihood = -13763.484 Iteration 2: log likelihood = -13759.716 Iteration 3: log likelihood = -13759.71 Iteration 4: log likelihood = -13759.71 Refining estimates:

Iteration 0: log likelihood = -13759.71

Cox regression with Breslow method for ties

No. of subjects = 162,530 No. of failures = 1,287

Time at risk = 1,999,924.6

Log likelihood = -13759.71

Number of obs = 162,530

LR chi2(**7**) = 199.89 Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	Z	P> z	[95% conf.	interval]
infectionburdenhospbr LE8_TOTALSCOREtert	1.983166 1.071248	.3326019 .0434601	4.08 1.70	0.000 0.090	1.427584 .9893659	2.754966 1.159906
c.infectionburdenhospbr#c.LE8_TOTALSCOREtert	.9828737	.0808963	-0.21	0.834	.8364478	1.154932
AGE SEX	.9258634 1	.010804 (omitted)	-6.60	0.000	.9049283	.9472828
NonWhite	1.074044	.1596104	0.48	0.631	.8026527	1.437198
householdsize	.9797034	.0291029	-0.69	0.490	.9242915	1.038437
SES	.7143174	.029236	-8.22	0.000	.6592541	.7739799

40

41 . **Stratif SEX==1 by LE8 TERTILES**

42 .

43 . **LOWEST TERTILE**

44 .

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

Failure _d: ad_diag==1
Analysis time _t: Age_AD

Enter on or after: time baselineage

ID variable: **n_eid**

note: SEX omitted because of collinearity.
Iteration 0: log likelihood = -4554.8187
Iteration 1: log likelihood = -4514.0454
Iteration 2: log likelihood = -4512.6484
Iteration 3: log likelihood = -4512.6468

Refining estimates:

Iteration 0: log likelihood = -4512.6468

Cox regression with Breslow method for ties

No. of subjects = 61,810 No. of failures = 467

Time at risk = **753,376.476**

Log likelihood = -4512.6468

Number of obs = 61,810

LR chi2(5) = **84.34** Prob > chi2 = **0.0000**

t	Haz. ratio	Std. err.	z	P> z	[95% conf.	interval]
infectionburdenhospbr	1.937279	. 2035448	6.29	0.000	1.576735	2.380267
AGE	.9146671	.0176382	-4.63	0.000	.880742	.949899
SEX	1	(omitted)				
NonWhite	.8890359	.2286975	-0.46	0.648	.5369754	1.47192
householdsize	.9957842	.047448	-0.09	0.929	.9069983	1.093261
SES	.7150991	.0468272	-5.12	0.000	.6289651	.8130289

46 . **MIDDLE TERTILE**

17

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

Failure _d: ad_diag==1
Analysis time _t: Age_AD

Enter on or after: time baselineage

ID variable: **n_eid**

note: SEX omitted because of collinearity. Iteration 0: log likelihood = -4326.4446 Iteration 1: log likelihood = -4286.2155 Iteration 2: log likelihood = -4284.7151 Iteration 3: log likelihood = -4284.7123 Refining estimates:

Iteration 0: log likelihood = -4284.7123

Cox regression with Breslow method for ties

No. of subjects = 57,334 No. of failures = 57,334 No. of failures = 443

Time at risk = 707,942.525

LR chi2(5) = 83.46Log likelihood = -4284.7123 Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	Z	P> z	[95% conf.	interval]
infectionburdenhospbr AGE	1.943236 .9207652	.2193281 .0182542	5.89 -4.16	0.000	1.557588 .8856737	2.424368
SEX NonWhite householdsize	1 .7064944 .9918443	(omitted) .2169809 .0440187	-1.13 -0.18	0.258 0.854	.3869767 .9092151	1.28983 1.081983
SES	.6585825	.0458702	-6.00	0.000	.574545	.7549119

49 .

50 . **HIGHEST TERTILE**

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

Failure _d: ad_diag==1
Analysis time _t: Age_AD

Enter on or after: time baselineage

ID variable: **n_eid**

note: SEX omitted because of collinearity. Iteration 0: log likelihood = -3568.6989 Iteration 1: log likelihood = -3548.8593 Iteration 2: log likelihood = -3547.166 Iteration 3: log likelihood = -3547.1538 Iteration 4: log likelihood = -3547.1538 Refining estimates:

Iteration 0: log likelihood = -3547.1538

Cox regression with Breslow method for ties

No. of subjects = 43,386 No. of failures = 377 Time at risk = 538,605.649

LR chi2(5) = 43.09 Log likelihood = -3547.1538 Prob > chi2 = 0.0000

t	Haz. ratio	Std. err.	z	P> z	[95% conf.	interval]
infectionburdenhospbr AGE	1.842089	.2346232	4.80	0.000 0.011	1.435141 .9063343	2.36443
SEX NonWhite	1.861703	(omitted) .4240032	2.73	0.006	1.191376	2.909187
householdsize	.9409106	.063484	-0.90	0.367	.8243603	1.073939
SES	.7949506	.0635479	-2.87	0.004	.6796661	.9297895

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53 .
54 .
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57 . 58 .

59 . 60 . **Model 1**

62 . stcox infectionburdenhospbr AGE SEX NonWhite householdsize SES LE8_TOTALSCORE if SEX==2 & sample_final2==1

Failure _d: ad_diag==1 Analysis time _t: Age_AD

Enter on or after: time baselineage

ID variable: **n_eid**

note: **SEX** omitted because of collinearity. Iteration 0: log likelihood = -14188.718 Iteration 1: log likelihood = -14091.502 Iteration 2: log likelihood = -14087.09 Iteration 3: log likelihood = -14087.082 Refining estimates:

Iteration 0: log likelihood = -14087.082

Cox regression with Breslow method for ties

No. of subjects = 188,807 Number of obs = 188,807No. of failures = 1,308

Time at risk = 2,357,403.1

LR chi2(**6**) = 203.27 Log likelihood = -14087.082 Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf.	interval]
infectionburdenhospbr	1.950823	.1268028	10.28	0.000	1.717474	2.215877
AGE	.9205901	.0108828	-7.00	0.000	.8995055	.942169
SEX	1	(omitted)				
NonWhite	1.049864	.1641865	0.31	0.756	.772707	1.426432
householdsize	.9918818	.0276091	-0.29	0.770	.9392184	1.047498
SES	.7282762	.031729	-7.28	0.000	.6686696	.7931963
LE8_TOTALSCORE	.9997855	.0002987	-0.72	0.473	.9992002	1.000371

63 .

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

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

Failure _d: ad_diag==1
Analysis time _t: Age_AD

Enter on or after: time baselineage

ID variable: n_eid

note: SEX omitted because of collinearity. Iteration 0: log likelihood = -14188.718 Iteration 1: log likelihood = -14090.838 Iteration 2: log likelihood = -14086.526 Iteration 3: log likelihood = -14086.519

Refining estimates:

Iteration 0: log likelihood = -14086.519

Cox regression with Breslow method for ties

No. of subjects = 188,807 No. of failures = 1,308 Number of obs = **188,807**

No. of failures = 1,308 Time at risk = 2,357,403.1

LR chi2(7) = 204.40 Prob > chi2 = 0.0000

Log likelihood = -14086.519

_t	Haz. ratio	Std. err.	z	P> z	[95% conf.	interval]
infectionburdenhospbr LE8_TOTALSCOREtert	1.669609 .9551743	.2725209 .0380867	3.14 -1.15	0.002 0.250	1.21249 .8833681	2.299067 1.032817
c.infectionburdenhospbr#c.LE8_TOTALSCOREtert	1.087832	.0871922	1.05	0.294	.9296851	1.27288
AGE SEX	.9205181 1	.0108828 (omitted)	-7.01	0.000	.8994333	.9420971
NonWhite	1.048716	.1640135	0.30	0.761	.7718529	1.42489
householdsize	.9918196	.0276341	-0.29	0.768	.9391101	1.047488
SES	.7274135	.0315307	-7.34	0.000	.6681668	.7919137

```
56
```

67 . **Stratif SEX==2 by LE8 TERTILES**

68

69 . **LOWEST TERTILE**

70 .

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

Failure _d: ad_diag==1
Analysis time _t: Age_AD

Enter on or after: time baselineage

ID variable: n_eid

note: SEX omitted because of collinearity. Iteration 0: log likelihood = -4687.9564 Iteration 1: log likelihood = -4642.0163 Iteration 2: log likelihood = -4640.7798 Iteration 3: log likelihood = -4640.7785 Iteration 4: log likelihood = -4640.7785 Refining estimates:

Iteration 0: log likelihood = -4640.7785

Cox regression with Breslow method for ties

No. of subjects = 61,335 Number of obs = 61,335

No. of failures = 480 Time at risk = 759,806.777

LR chi2(5) = 94.36 Log likelihood = -4640.7785 Prob > chi2 = 0.0000

_t	Haz. ratio	Std. err.	z	P> z	[95% conf.	interval]
infectionburdenhospbr	1.865496	.1912028	6.08	0.000	1.525988	2.28054
AGE	.9116718	.0177379	-4.75	0.000	.8775607	.9471087
SEX	1	(omitted)				
NonWhite	1.305735	.2774232	1.26	0.209	.8610028	1.980185
householdsize	.9498437	.0525503	-0.93	0.352	.8522348	1.058632
SES	.6792181	.0468066	-5.61	0.000	.5934044	.7774414

72 .

73 . **MIDDLE TERTILE**

74 .

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

Failure _d: ad_diag==1
Analysis time _t: Age_AD

Enter on or after: time baselineage

ID variable: n_eid

note: SEX omitted because of collinearity.
Iteration 0: log likelihood = -4480.365
Iteration 1: log likelihood = -4457.3995
Iteration 2: log likelihood = -4456.5004
Iteration 3: log likelihood = -4456.4991

Refining estimates:

Iteration 0: log likelihood = -4456.4991

Cox regression with Breslow method for ties

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

No. of failures = 456 Time at risk = 779,285.536

LR chi2(5) = 47.73 Log likelihood = -4456.4991 Prob > chi2 = 0.0000

t	Haz. ratio	Std. err.	Z	P> z	[95% conf.	interval]
infectionburdenhospbr	1.84005	.2083985	5.38	0.000	1.473755	2.297387
AGE	.9337382	.0185188	-3.46	0.001	.8981385	.9707489
SEX	1	(omitted)				
NonWhite	.8642739	. 2546375	-0.50	0.621	.4851381	1.539705
householdsize	1.000631	.0492252	0.01	0.990	.9086572	1.101915
SES	.7812618	.0588225	-3.28	0.001	.6740749	.9054928
	l					

76 .

77 . **HIGHEST TERTILE**

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

Failure _d: ad_diag==1 Analysis time _t: Age_AD

Enter on or after: time baselineage

ID variable: **n_eid**

note: **SEX** omitted because of collinearity. Iteration 0: log likelihood = -3588.0021log likelihood = -3559.0067
log likelihood = -3556.12 Iteration 1: Iteration 2: log likelihood = -3556.1078 Iteration 3: Iteration 4: log likelihood = -3556.1078

Refining estimates:

Iteration 0: log likelihood = -3556.1078

Cox regression with Breslow method for ties

SES

.7401399

No. of subjects = 65,096 No. of failures = 372 Time at risk = 818,310.753

Log likelihood = -3556.1078

Number of obs = 65,096

LR chi2(5) = 63.79 Prob > chi2 = 0.0000

_t Haz. ratio Std. err. z P> | z | [95% conf. interval] infectionburdenhospbr 2.256518 .2809584 6.54 0.000 1.767893 2.880194 AGE .9150102 .0207034 -3.93 0.000 .8753189 .9565013 SEX 1 (omitted) NonWhite -0.53 .8167322 .3123696 0.597 .3859463 1.728353 householdsize 1.026811 .0430425 0.63 0.528 .9458217 1.114735

.0621494

79 .

80 .

81 . save, replace

file E:\16GBBACKUPUSB\BACKUP_USB_SEPTEMBER2014\May Baydoun_folder\UK_BIOBANK_PROJECT\UKB_PAPER3_LE8INFECTDEM\DATA\UK

0.000

.627825

.8725474

-3.58

82 .

end of do-file

84 . exit, clear