



```

1 .
2 . use "E:\16GBBACKUPUSB\BACKUP_USB_SEPTEMBER2014\May Baydoun_folder\UK_BIOBANK_PROJECT\UKB_PAPER3_LE8INFECTDEM\DATA\
3 .
4 .
5 . *****STSET FOR AD*****
6 . stset Age_AD if sample_final==1, 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
      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
2,665 failures in single-failure-per-subject data
4,364,749 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

```

```

7 .
8 .
9 .
10 . *****OVERALL*****
11 .
12 . **Model 1**
13 .
14 . stcox infectionburdenhospbr AGE SEX NonWhite householdsize SES LE8_TOTALSCORE if sample_final==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 = -30701.579
Iteration 1: log likelihood = -30517.592
Iteration 2: log likelihood = -30509.016
Iteration 3: log likelihood = -30509.002
Refining estimates:
Iteration 0: log likelihood = -30509.002

```

Cox regression with Breslow method for ties

```

No. of subjects = 355,046      Number of obs = 355,046
No. of failures = 2,665
Time at risk = 4,364,749.2

LR chi2(7) = 385.15
Prob > chi2 = 0.0000
Log likelihood = -30509.002

```



```

19 . **Stratified analysis by LE8 TERTILES**
20 .
21 . **LOWEST TERTILE**
22 .
23 . stcox infectionburdenhospbr AGE SEX NonWhite householdsize SES if sample_final==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 = -10231.783
Iteration 1: log likelihood = -10150.115
Iteration 2: log likelihood = -10147.402
Iteration 3: log likelihood = -10147.399
Refining estimates:
Iteration 0: log likelihood = -10147.399

```

Cox regression with Breslow method for ties

```

No. of subjects = 124,912
No. of failures = 977
Time at risk = 1,516,657.3

```

Number of obs = 124,912

Log likelihood = -10147.399

```

LR chi2(6) = 168.77
Prob > chi2 = 0.0000

```

	_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]	
infectionburdenhospbr		1.904713	.1372978	8.94	0.000	1.653759	2.193749
AGE		.9311761	.012332	-5.38	0.000	.9073168	.9556629
SEX		.963862	.0619156	-0.57	0.567	.8498383	1.093185
NonWhite		1.074015	.1733589	0.44	0.658	.7827377	1.473685
householdsize		.9925262	.0302646	-0.25	0.806	.9349465	1.053652
SES		.6934705	.0322813	-7.86	0.000	.6330008	.7597168

```

24 .
25 . **MIDDLE TERTILE**
26 .
27 . stcox infectionburdenhospbr AGE SEX NonWhite householdsize SES if sample_final==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 = -9607.1716
Iteration 1: log likelihood = -9547.3135
Iteration 2: log likelihood = -9544.9826
Iteration 3: log likelihood = -9544.9789
Refining estimates:
Iteration 0: log likelihood = -9544.9789

```

Cox regression with Breslow method for ties

```

No. of subjects = 120,827
No. of failures = 915
Time at risk = 1,489,440.1

```

Number of obs = 120,827

Log likelihood = -9544.9789

```

LR chi2(6) = 124.39
Prob > chi2 = 0.0000

```

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]	
infectionburdenhospbr	1.87842	.1489786	7.95	0.000	1.607991	2.194331
AGE	.9368145	.012909	-4.74	0.000	.9118519	.9624604
SEX	.9812151	.0653085	-0.28	0.776	.8612104	1.117942
NonWhite	.7906207	.1646047	-1.13	0.259	.5257154	1.18901
householdsize	.993174	.032921	-0.21	0.836	.9307014	1.05984
SES	.7091054	.0359205	-6.79	0.000	.6420846	.7831219

```

28 .
29 . **HIGHEST TERTILE**
30 . stcox infectionburdenhospbr AGE SEX NonWhite householdsize SES if sample_final==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 = -7944.0623
Iteration 1: log likelihood = -7896.9797
Iteration 2: log likelihood = -7893.3738
Iteration 3: log likelihood = -7893.3631
Refining estimates:
Iteration 0: log likelihood = -7893.3631

```

Cox regression with Breslow method for ties

```

No. of subjects =    109,307          Number of obs = 109,307
No. of failures =      773
Time at risk    = 1,358,651.8

LR chi2(6)      = 101.40
Prob > chi2     = 0.0000

Log likelihood = -7893.3631

```

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]	
infectionburdenhospbr	2.029352	.1778853	8.07	0.000	1.709009	2.409742
AGE	.9533063	.0144181	-3.16	0.002	.9254622	.9819882
SEX	.7984688	.0581126	-3.09	0.002	.6923209	.9208915
NonWhite	1.382662	.2636049	1.70	0.089	.9515559	2.009083
householdsize	.9824838	.0390619	-0.44	0.657	.9088309	1.062106
SES	.7638637	.0435261	-4.73	0.000	.6831455	.8541194

```

31 .
32 . *****AMONG MEN*****
33 .
34 . **Model 1**
35 .
36 . stcox infectionburdenhospbr AGE SEX NonWhite householdsize SES LE8_TOTALSCORE if SEX==1 & sample_final==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 = **-14222.856**
 Iteration 1: log likelihood = **-14130.075**
 Iteration 2: log likelihood = **-14126.128**
 Iteration 3: log likelihood = **-14126.122**
 Refining estimates:
 Iteration 0: log likelihood = **-14126.122**

Cox regression with Breslow method for ties

No. of subjects = **164,922**
 No. of failures = **1,319**
 Time at risk = **2,004,595.1**

Number of obs = **164,922**

Log likelihood = **-14126.122**

LR chi2(6) = **193.47**
 Prob > chi2 = **0.0000**

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]	
infectionburdenhospbr	1.910867	.1241533	9.97	0.000	1.682387	2.170375
AGE	.9395252	.0107068	-5.47	0.000	.9187729	.9607461
SEX	1	(omitted)				
NonWhite	1.107279	.1598311	0.71	0.480	.8344296	1.469347
householdsize	.9776538	.0290095	-0.76	0.446	.922418	1.036197
SES	.7128291	.028918	-8.34	0.000	.6583456	.7718214
LE8_TOTALSCORE	1.00031	.000306	1.01	0.311	.9997101	1.00091

37 .

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

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

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 = **-14222.856**
 Iteration 1: log likelihood = **-14128.493**
 Iteration 2: log likelihood = **-14124.554**
 Iteration 3: log likelihood = **-14124.548**
 Refining estimates:
 Iteration 0: log likelihood = **-14124.548**

Cox regression with Breslow method for ties

No. of subjects = **164,922**
 No. of failures = **1,319**
 Time at risk = **2,004,595.1**

Number of obs = **164,922**

Log likelihood = **-14124.548**

LR chi2(7) = **196.61**
 Prob > chi2 = **0.0000**

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]	
infectionburdenhospbr	1.945052	.3226484	4.01	0.000	1.405182	2.69234
LE8_TOTALSCOREtert	1.076468	.0431378	1.84	0.066	.9951549	1.164426
c.infectionburdenhospbr#c.LE8_TOTALSCOREtert	.991729	.0805065	-0.10	0.919	.8458518	1.162764
AGE	.9392831	.0107011	-5.50	0.000	.9185418	.9604927
SEX	1	(omitted)				
NonWhite	1.107221	.1598254	0.71	0.480	.8343823	1.469278
householdsize	.9778908	.0289527	-0.76	0.450	.9227596	1.036316

SES	.7090157	.0286584	-8.51	0.000	.6550136	.7674699
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```

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_final==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 = **-4680.1601**
Iteration 1: log likelihood = **-4640.7043**
Iteration 2: log likelihood = **-4639.2909**
Iteration 3: log likelihood = **-4639.2893**
Refining estimates:
Iteration 0: log likelihood = **-4639.2893**

Cox regression with Breslow method for ties

No. of subjects = **62,999**
No. of failures = **479**
Time at risk = **755,635.849**

Number of obs = **62,999**

Log likelihood = **-4639.2893**

LR chi2(5) = **81.74**
Prob > chi2 = **0.0000**

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]	
infectionburdenhospbr	1.922342	.1995595	6.30	0.000	1.568437	2.356104
AGE	.9279475	.0174236	-3.98	0.000	.8944186	.9627333
SEX	1	(omitted)				
NonWhite	.9102523	.2272653	-0.38	0.706	.5580072	1.484854
householdsize	1.003202	.044778	0.07	0.943	.9191679	1.094918
SES	.7082309	.0456934	-5.35	0.000	.6241044	.8036972

```

46 . **MIDDLE TERTILE**
47 .
48 . stcox infectionburdenhospbr AGE SEX NonWhite householdsize SES if SEX==1 & sample_final==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 = **-4386.4545**
Iteration 1: log likelihood = **-4346.405**
Iteration 2: log likelihood = **-4344.911**
Iteration 3: log likelihood = **-4344.9083**
Refining estimates:
Iteration 0: log likelihood = **-4344.9083**

Cox regression with Breslow method for ties

No. of subjects = **58,075**
 No. of failures = **449**
 Time at risk = **709,399.763**

Number of obs = **58,075**

Log likelihood = **-4344.9083**

LR chi2(5) = **83.09**
 Prob > chi2 = **0.0000**

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]	
infectionburdenhospbr	1.929979	.2166685	5.86	0.000	1.548791	2.404986
AGE	.9273322	.0181684	-3.85	0.000	.8923978	.9636342
SEX	1	(omitted)				
NonWhite	.75726	.2230723	-0.94	0.345	.4251082	1.348933
householdsize	.9870501	.0450984	-0.29	0.775	.902501	1.07952
SES	.6530328	.0451657	-6.16	0.000	.5702475	.7478365

49 .

50 . ****HIGHEST TERTILE****

51 . stcox infectionburdenhospbr AGE SEX NonWhite householdsize SES if SEX==1 & sample_final==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 = **-3710.2087**

Iteration 1: log likelihood = **-3690.2944**

Iteration 2: log likelihood = **-3688.3157**

Iteration 3: log likelihood = **-3688.3009**

Iteration 4: log likelihood = **-3688.3009**

Refining estimates:

Iteration 0: log likelihood = **-3688.3009**

Cox regression with Breslow method for ties

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

Number of obs = **43,848**

No. of failures = **391**

Time at risk = **539,559.488**

LR chi2(5) = **43.82**

Log likelihood = **-3688.3009**

Prob > chi2 = **0.0000**

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]	
infectionburdenhospbr	1.862204	.231807	4.99	0.000	1.459049	2.376757
AGE	.9675188	.0204305	-1.56	0.118	.9282931	1.008402
SEX	1	(omitted)				
NonWhite	1.873093	.4170343	2.82	0.005	1.21072	2.897843
householdsize	.9279745	.0634508	-1.09	0.274	.8115862	1.061054
SES	.7919738	.0622058	-2.97	0.003	.6789737	.9237802

```

52 .
53 .
54 .
55 . *****AMONG WOMEN*****
56 .
57 .
58 .
59 .
60 . **Model 1**
61 .
62 . stcox infectionburdenhospbr AGE SEX NonWhite householdsize SES LE8_TOTALSCORE if SEX==2 & sample_final==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 = -14628.876
Iteration 1: log likelihood = -14537.459
Iteration 2: log likelihood = -14532.815
Iteration 3: log likelihood = -14532.807
Refining estimates:
Iteration 0: log likelihood = -14532.807

```

Cox regression with Breslow method for ties

```

No. of subjects = 190,124
No. of failures = 1,346
Time at risk = 2,360,154.1

```

Number of obs = 190,124

Log likelihood = -14532.807

```

LR chi2(6) = 192.14
Prob > chi2 = 0.0000

```

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]	
infectionburdenhospbr	1.947195	.1246765	10.41	0.000	1.717545	2.207551
AGE	.9390487	.0107404	-5.50	0.000	.9182321	.9603372
SEX	1	(omitted)				
NonWhite	1.009204	.1576799	0.06	0.953	.7429943	1.370794
householdsize	.9998843	.0255433	-0.00	0.996	.9510531	1.051223
SES	.7263223	.0311593	-7.45	0.000	.6677481	.7900345
LE8_TOTALSCORE	.9997493	.0002944	-0.85	0.395	.9991725	1.000326

```

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_final=

```

```

      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 = -14628.876
Iteration 1: log likelihood = -14537.088
Iteration 2: log likelihood = -14532.469
Iteration 3: log likelihood = -14532.46
Iteration 4: log likelihood = -14532.46
Refining estimates:
Iteration 0: log likelihood = -14532.46

```

Cox regression with Breslow method for ties

No. of subjects = **190,124**
 No. of failures = **1,346**
 Time at risk = **2,360,154.1**

Number of obs = **190,124**

Log likelihood = **-14532.46**

LR chi2(7) = **192.83**
 Prob > chi2 = **0.0000**

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]	
infectionburdenhospbr	1.730304	.277329	3.42	0.001	1.263845	2.368923
LE8_TOTALSCOREtert	.9556129	.0375768	-1.15	0.248	.8847303	1.032174
c.infectionburdenhospbr#c.LE8_TOTALSCOREtert	1.066326	.0843391	0.81	0.417	.9131999	1.245129
AGE	.938987	.0107407	-5.50	0.000	.9181699	.9602761
SEX	1	(omitted)				
NonWhite	1.008316	.1575484	0.05	0.958	.7423302	1.369607
householdsize	.999842	.0255654	-0.01	0.995	.9509695	1.051226
SES	.7254452	.0309641	-7.52	0.000	.6672258	.7887446

```

66 .
67 . **Stratif SEX==2 by LE8 TERTILES**
68 .
69 . **LOWEST TERTILE**
70 .
71 . stcox infectionburdenhospbr AGE SEX NonWhite householdsize SES if SEX==2 & sample_final==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 = **-4875.2137**
 Iteration 1: log likelihood = **-4832.4106**
 Iteration 2: log likelihood = **-4831.0632**
 Iteration 3: log likelihood = **-4831.062**
 Refining estimates:
 Iteration 0: log likelihood = **-4831.062**

Cox regression with Breslow method for ties

No. of subjects = **61,913**
 No. of failures = **498**
 Time at risk = **761,021.438**

Number of obs = **61,913**

Log likelihood = **-4831.062**

LR chi2(5) = **88.30**
 Prob > chi2 = **0.0000**

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]	
infectionburdenhospbr	1.893959	.1897553	6.37	0.000	1.556284	2.304901
AGE	.9349201	.0174745	-3.60	0.000	.9012905	.9698045
SEX	1	(omitted)				
NonWhite	1.231039	.2609024	0.98	0.327	.8125887	1.864973
householdsize	.9842772	.0422272	-0.37	0.712	.9048975	1.07062
SES	.6778282	.0456255	-5.78	0.000	.5940516	.7734194

```

72 .
73 . **MIDDLE TERTILE**
74 .
75 . stcox infectionburdenhospbr AGE SEX NonWhite households size SES if SEX==2 & sample_final==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 = -4585.9404
Iteration 1: log likelihood = -4564.3589
Iteration 2: log likelihood = -4563.4488
Iteration 3: log likelihood = -4563.4476
Refining estimates:
Iteration 0: log likelihood = -4563.4476

```

Cox regression with Breslow method for ties

```

No. of subjects =      62,752      Number of obs = 62,752
No. of failures =       466
Time at risk    = 780,040.34

LR chi2(5)      = 44.99
Prob > chi2     = 0.0000
Log likelihood = -4563.4476

```

_t	Haz. ratio	Std. err.	z	P> z	[95% conf. interval]	
infectionburdenhospbr	1.83035	.2052131	5.39	0.000	1.469265	2.280175
AGE	.9465147	.0183393	-2.84	0.005	.9112444	.9831503
SEX	1 (omitted)					
NonWhite	.8408249	.2476108	-0.59	0.556	.4721054	1.497518
households size	1.002077	.0483875	0.04	0.966	.9115885	1.101547
SES	.7787256	.0580011	-3.36	0.001	.6729538	.9011222

```

76 .
77 . **HIGHEST TERTILE**
78 . stcox infectionburdenhospbr AGE SEX NonWhite households size SES if SEX==2 & sample_final==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 = -3693.7989
Iteration 1: log likelihood = -3667.5625
Iteration 2: log likelihood = -3664.8988
Iteration 3: log likelihood = -3664.8883
Iteration 4: log likelihood = -3664.8883
Refining estimates:
Iteration 0: log likelihood = -3664.8883

```

Cox regression with Breslow method for ties

```

No. of subjects =      65,459      Number of obs = 65,459
No. of failures =       382
Time at risk    = 819,092.295

LR chi2(5)      = 57.82
Prob > chi2     = 0.0000
Log likelihood = -3664.8883

```

