/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

/\* Association of antidepressant type with the risk cardiovascular disease in the Atherosclerosis Risk in Communities (ARIC) study. \*/

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

/\* Programmer: Zakaria Almuwaqqat \*/

libname visit1 'T:\epiprojs\ARIC\data\visit 1'; **run**;

libname visit2 'T:\epiprojs\ARIC\data\visit 2'; **run**;

libname visit3 'T:\epiprojs\ARIC\data\visit 3'; **run**;

libname visit4 'T:\epiprojs\ARIC\data\visit 4'; **run**;

libname visit5 'T:\epiprojs\ARIC\data\visit 5'; **run**;

libname outcm 'T:\epiprojs\ARIC\data\outcomes'; **run**;

libname AD 'T:\epiprojs\ARIC\manuscripts\AD\_type\_CVD'; **run**;

**Data** Exp1;

set visit1.MSRCOD07; /\*

array code $ code1 - code17;

do over code;

if code = '581600' then SSRI1 = **1**;

else if code = '582000' then TCA1 = **1**;

else if code in ('580000' '581000' '583000') then OAD1 = **1**;

end;

if ssri1=**1** or tca1=**1** or oad1=**1** then any\_ad1 = **1**;

Keep ID SSRI1 TCA1 OAD1 any\_ad1;

**run**;

**proc** **freq** data = ad.exp1; table ssri1 tca1 oad1; **run**;

**Data** Exp2;

set visit2.MSRCOD26;

array code $ code1 - code17;

do over code;

if code = '581600' then SSRI2 = **1**;

else if code = '582000' then TCA2 = **1**;

else if code in ('580000' '581000' '583000') then OAD2 = **1**;

end;

if ssri2 or tca2 or oad2 then any\_ad2 = **1**;

Keep ID SSRI2 TCA2 OAD2 any\_ad2;

**run**;

**proc** **freq** data = exp2; table ssri2 tca2 oad2; **run**;

**Data** Exp3;

set visit3.MSRCOD36;

array code $ code1 - code17;

do over code;

if code = '581600' then SSRI3 = **1**;

else if code = '582000' then TCA3 = **1**;

else if code in ('580000' '581000' '583000') then OAD3 = **1**;

end;

if ssri3 or tca3 or oad3 then any\_ad3 = **1**;

Keep ID SSRI3 TCA3 OAD3 any\_ad3;

**run**;

**proc** **freq** data = exp3; table ssri3 tca3 oad3; **run**;

**Data** Exp4;

set visit4.MSRCOD43;

array code $ code1 - code17;

do over code;

if code = '581600' then SSRI4 = **1**;

else if code = '582000' then TCA4 = **1**;

else if code in ('580000' '581000' '583000') then OAD4 = **1**;

end;

if ssri4 or tca4 or oad4 then any\_ad4 = **1**;

Keep ID SSRI4 TCA4 OAD4 any\_ad4;

**run**;

**proc** **freq** data = exp4; table ssri4 tca4 oad4; **run**;

**Data** Exp5;

set visit5.derive51;

array code $ MSRF5A2\_SUB6 -- MSRF29A2\_SUB6;

do over code;

if code = '581600' then SSRI5 = **1**;

else if code = '582000' then TCA5 = **1**;

else if code in ('580000' '581000' '583000') then OAD5 = **1**;

end;

if ssri5 or tca5 or oad5 then any\_ad5 = **1**;

Keep ID SSRI5 TCA5 OAD5 any\_ad5;

**run**;

**proc** **freq** data = exp5; table ssri5 tca5 oad5; **run**;

\* Outcome data;

**data** inc\_by16;

set outcm.inc\_by16;

keep ID C7\_INCHF16 C7\_DATE\_INCHF16 C7\_DATEMI C7\_MI16 C7\_ED16ISC C7\_IN16ISC DEAD16 DATED16 CENSDAT7 ; \*AF/HF/MI/stroke/ Death incidence, date;

**run**;

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*;

**proc** **contents** data= visit2.DERIVE2\_10;

**run**;

**data** DERIVE1;

set visit1.DERIVE13; /\*AA - I would get the RACEGRP variable from baseline rather than visit 4 \*/

keep ID V1AGE01 GENDER RACEGRP V1DATE01 BMI01 DIABTS02 DIABTS03 CIGT01 DRNKR01 MDDXMI02 HYPTMDCODE01 ELEVEL01 CENTER PREVMI05 PREVHF01 LDLSIU02 HDLSIU02 MOMHISTORYSTR DADHISTORYSTR DADHISTORYCHD MOMHISTORYCHD ASPIRINCODE01 STATINCODE01;

\*id, gender, v2date, BMI, diabetes cp126, smoking, drinking, diagnosed MI, antihyper drugs 2w prevMI prevHF prevCHD;

**run**;

**data** DERIVE2;

set visit2.DERIVE2\_10;

keep ID V2AGE22 V2DATE21 BMI21 DIABTS23 CIGT21 DRNKR21 HYPTMDCODE21 HDLSIU21 LDLSIU22 ASPIRINCODE21 STATINCODE21 ;

\*id, gender, v2date, BMI, diabetes cp126, smoking, drinking, diagnosed MI, antihyper drugs 2w;

**run**;

**data** DERIVE3;

set visit3.DERIVE37;

keep ID V3AGE31 V3DATE31 BMI32 DIABTS34 CIGT31 DRNKR31 HYPTMDCODE31 HDLSIU31 LDLSIU32 ASPIRINCODE31 STATINCODE31 ;

\*id, gender, v2date, BMI, diabetes cp126, smoking, drinking, diagnosed MI, antihyper drugs 2w;

**run**;

**data** DERIVE4;

set visit4.DERIVE46;

keep ID V4AGE41 V4DATE41 BMI41 DIABTS42 CIGT41 DRNKR41 MDDXMI41 HYPTMDCODE41 ASPIRINCODE41 STATINCODE41 CLVH41 HDLSIU41 LDLSIU41 ASPIRINCODE41 STATINCODE41;

\*id, ageV4, race, v4date, BMI,diabetes cp 126, smoking, drinking, diagnosed MI, antihyper drugs 2w, Aspirin use, Stain use, if participated visit4 & LVH per cornell's criteria;

**run**;

**data** DERIVE5;

set visit5.DERIVE51;

keep ID V5AGE52 V5DATE51 BMI51 DIABTS55 CIGT52 DRNKR51 MDDXMI52 HYPTMDCODE51 LASTFUINTERVIEW\_DATE51 HDLSIU51 LDLSIU51 ASPIRINCODE51 STATINCODE51;

\*id, gender, v2date, BMI, diabetes cp126, smoking, drinking, diagnosed MI, antihyper drugs 2w;

**run**;

**data** SBPDBP1;

set visit1.SBPA;

keep ID SBPA21 SBPA22; \*V1 2nd and 3rd SBP,DBP average;

**run**;

**data** SBPDBP2;

set visit2.SBPB;

keep ID SBPB21 SBPB22; \*V2 2nd and 3rd SBP,DBP average;

**run**;

**data** SBPDBP3;

set visit3.SBPC04;

keep ID SBPC22 SBPC23; \*V3 2nd and 3rd SBP,DBP average;

**run**;

**data** SBPDBP4;

set visit4.SBPD04;

keep ID SBPD19 SBPD20; \*V4 1st and 2nd SBP,DBP average;

**run**;

**data** ECGPWAVE2;

set visit2.v2ecg;

keep ID v2ecg313 v2ecg314;\*ECG p wave terminal force V1 amplitude,duration;

**run**;

**data** ECGPWAVE4;

set visit4.v4ecg;

keep ID v4ecg313 v4ecg314; \*ECG p wave terminal force V1 amplitude,duration;

**run**;

**data** AF\_INC16; /\*AA - we have data through 2016 AF\_INC16 \*/

set outcm.AF\_INC16;

keep ID afinc dateafinc ; \*AF incidence, date;

**run**;

\*sort and merge;

**proc** **sort** data=exp1; by id;**run**;

**proc** **sort** data=exp2; by id;**run**;

**proc** **sort** data=exp3; by id;**run**;

**proc** **sort** data=exp4; by id;**run**;

**proc** **sort** data=exp5; by id;**run**;

**proc** **sort** data=inc\_by16; by id;**run**;

**proc** **sort** data=derive1; by id;**run**;

**proc** **sort** data=derive2; by id;**run**;

**proc** **sort** data=derive3; by id;**run**;

**proc** **sort** data=derive4; by id;**run**;

**proc** **sort** data=derive5; by id;**run**;

**proc** **sort** data=SBPDBP1; by id; **run**;

**proc** **sort** data=SBPDBP2; by id; **run**;

**proc** **sort** data=SBPDBP3; by id; **run**;

**proc** **sort** data=SBPDBP4; by id; **run**;

**proc** **sort** data=ECGPWAVE2; by id; **run**;

**proc** **sort** data=ECGPWAVE4; by id; **run**;

**proc** **sort** data=AF\_INC16; by id; **run**;

\*Merge all datasets by ID;

**data** mrg0;

merge exp1 exp2 exp3 exp4 exp5 derive1 derive2 derive3 derive4 derive5 SBPDBP1 ECGPWAVE2 SBPDBP2 SBPDBP3 SBPDBP4 ECGPWAVE4 inc\_by16 AF\_INC16 ;

by id;

**run**;

**proc** **sort** data=mrg0;

by id;

**run**;

**data** mrg00;

set mrg0;

if DIABTS03='T' or DIABTS03='.' then DMV1=**0**; else DMV1=DIABTS03;

\*gender, race, visit center as numerical variables;

if gender="M" then sex=**0**;

else if gender="F" then sex=**1**;

if racegrp="W" then race=**0**;

else if racegrp="B" then race=**1**;

else if racegrp="I" then race=**0**;

else if racegrp="A" then race=**0**;

if center="F" then center1=**1**;

else center1=**0**;

if center="M" then center2=**1**;

else center2=**0**;

if center="W" then center3=**1**;

else center3=**0**;

\*exclusion by race and visit center;

if racegrp in ("B" "I" "A") and center in ("M" "W") then delete;

if racegrp in ("I" "A") and center="F" then delete;

\* excluding events by visit date;

if Afinc=**1** and dateafinc <= V1Date01 then PrevAF1=**1**; else PrevAF1=**0**;

if Afinc=**1** and dateafinc <= V2Date21 then PrevAF2=**1**; else PrevAF2=**0**;

if Afinc=**1** and dateafinc <= V3Date31 then PrevAF3=**1**; else PrevAF3=**0**;

if Afinc=**1** and dateafinc <= V4Date41 then PrevAF4=**1**; else PrevAF4=**0**;

if Afinc=**1** and dateafinc <= V5Date51 then PrevAF5=**1**; else PrevAF5=**0**;

if C7\_MI16=**1** and C7\_DATE\_INCHF16 <= V1Date01 then PrevHF1=**1**; else PrevHF1=**0**;

if C7\_MI16=**1** and C7\_DATE\_INCHF16 <= V2Date21 then PrevHF2=**1**; else PrevHF2=**0**;

if C7\_MI16=**1** and C7\_DATE\_INCHF16 <= V3Date31 then PrevHF3=**1**; else PrevHF3=**0**;

if C7\_MI16=**1** and C7\_DATE\_INCHF16 <= V4Date41 then PrevHF4=**1**; else PrevHF4=**0**;

if C7\_MI16=**1** and C7\_DATE\_INCHF16 <= V5Date51 then PrevHF5=**1**; else PrevHF5=**0**;

if C7\_INCHF16= **1** and C7\_DATEMI <= V1Date01 then PrevMI1=**1**; else PrevMI1=**0**;

if C7\_INCHF16= **1** and C7\_DATEMI <= V2Date21 then PrevMI2=**1**; else PrevMI2=**0**;

if C7\_INCHF16= **1** and C7\_DATEMI <= V3Date31 then PrevMI3=**1**; else PrevMI3=**0**;

if C7\_INCHF16= **1** and C7\_DATEMI <= V4Date41 then PrevMI4=**1**; else PrevMI4=**0**;

if C7\_INCHF16= **1** and C7\_DATEMI <= V5Date51 then PrevMI5=**1**; else PrevMI5=**0**;

if C7\_IN16ISC=**1** and C7\_ED16ISC <= V1Date01 then PrevIS1=**1**; else PrevIS1=**0**;

if C7\_IN16ISC=**1** and C7\_ED16ISC <= V2Date21 then PrevIS2=**1**; else PrevIS2=**0**;

if C7\_IN16ISC=**1** and C7\_ED16ISC <= V3Date31 then PrevIS3=**1**; else PrevIS3=**0**;

if C7\_IN16ISC=**1** and C7\_ED16ISC <= V4Date41 then PrevIS4=**1**; else PrevIS4=**0**;

if C7\_IN16ISC=**1** and C7\_ED16ISC <= V5Date51 then PrevIS5=**1**; else PrevIS5=**0**;

**run**;

**proc** **univariate** date=mrg\_f;

var stime\_hf;

**run**;

**data** mrg\_f;

set mrg00;

if tca1 = **1** or oad1 = **1** or ssri1 = **1** then do;

if v1date01 < dateafinc then stime\_AF = dateafinc - v1date01;

if v1date01 < C7\_DATE\_INCHF16 then stime\_HF = C7\_DATE\_INCHF16 - v1date01;

if v1date01 < C7\_DATEMI then stime\_MI = C7\_DATEMI - v1date01;

if v1date01 < C7\_ED16ISC then stime\_IS = C7\_ED16ISC - v1date01;

if Dead16=**1** then stime = DATED16 - v1date01; else stime= CENSDAT7-v1date01;

\* Define Stime for CIF plots;

if dead16=**.** or dead16=**0** then eventAF= afinc AND survtime= dateafinc - v1date01 ;

if dead16=**1** and afinc= **1** then survtime= dateafinc - v1date01 and eventAF=**1**;

if dead16=**1** and afinc= **0** then EventAF= **2** and survtime= DATED16-v1date01 ;

age = v1age01;

BMI= BMI01;

DM= DMV1;

CTG=CIGT01;

DRNK=DRNKR01;

MI= MDDXMI02;

HTN=HYPTMDCODE01;

PrevMI=PREVMI1;

PREVHF=PREVHF1;

PREVAF=PREVAF1;

PREVIS=PREVIS1;

yr= year(v1date01);

SBP= SBPA21;

DBP= SBPA22;

LDL= LDLSIU02;

HDL= HDLSIU02;

Visit=**1**;

Date=v1date01;

if aspirincode01=**.** then aspirin = **0**; else Aspirin= aspirincode01;

if aspirincode01=**.** then statin = **0**; else statin= statincode01;

if tca1 = **1** or oad1 = **1** then ssri = **0**; else ssri = **1**;

end;

else if tca2 = **1** or oad2 = **1** or ssri2 = **1** then do;

if v2date21 < dateafinc then stime\_AF = dateafinc - v2date21;

if v2date21 < C7\_DATE\_INCHF16 then stime\_HF = C7\_DATE\_INCHF16 - v2date21;

if v2date21 < C7\_DATEMI then stime\_MI = C7\_DATEMI - v2date21;

if v2date21 < C7\_ED16ISC then stime\_IS = C7\_ED16ISC - v2date21;

if Dead16=**1** then stime = DATED16 - v2date21; else stime= CENSDAT7-v2date21;

\* Define Stime for CIF plots;

if dead16=**.** or dead16=**0** then eventAF= afinc AND survtime= dateafinc - v2date21 ;

if dead16=**1** and afinc= **1** then survtime= dateafinc - v2date21 and eventAF=**1**;

if dead16=**1** and afinc= **0** then EventAF= **2** and survtime= DATED16-v2date21 ;

age = v2age22;

if BMI21=**.** then BMI=BMI01 ; else BMI= BMI21;

if DIABTS23=**.** then DM=DMV1 ; else DM=DIABTS23;

if CIGT21=**.** then CTG=CIGT01 ; else CTG=CIGT21;

if DRNKR21=**.** then DRNK=DRNKR01 ; else DRNK=DRNKR21;

if HYPTMDCODE21=**.** then HTN= HYPTMDCODE01; else HTN= HYPTMDCODE21;

if SBPB21 =**.** then sbp=SBPA21 ; else sbp= SBPB21 ;

if SBPB21 =**.** then dbp=SBPA22 ; else dbp= SBPB22 ;

PrevMI=PREVMI2;

PREVHF=PREVHF2;

PREVAF=PREVAF2;

PREVIS=PREVIS2;

yr= year(v2date21);

Visit=**2**;

Date= v2date21;

if LDLSIU22 =**.** then LDL=LDLSIU22 ; else LDL= LDLSIU02 ;

if HDLSIU21 =**.** then HDL=HDLSIU21 ; else HDL= HDLSIU02 ;

if aspirincode21=**.** then aspirin = **0**; else Aspirin= aspirincode21;

if statincode21=**.** then statin = **0**; else statin= statincode21;

if tca2 = **1** or oad2 = **1** then ssri = **0**; else ssri = **1**;

end;

else if tca3 = **1** or oad3 = **1** or ssri3 = **1** then do;

if v3date31 < dateafinc then stime\_AF = dateafinc - v3date31;

if v3date31 < C7\_DATE\_INCHF16 then stime\_HF = C7\_DATE\_INCHF16 - v3date31;

if v3date31 < C7\_DATEMI then stime\_MI = C7\_DATEMI - v3date31;

if v3date31 < C7\_ED16ISC then stime\_IS = C7\_ED16ISC - v3date31;

if Dead16=**1** then stime = DATED16 - v3date31; else stime= CENSDAT7-v3date31;

age = v3age31;

if BMI32=**.** then BMI=BMI01 ; else BMI= BMI32;

if DIABTS34=**.** then DM=DMV1 ; else DM=DIABTS34;

if CIGT31=**.** then CTG=CIGT01 ; else CTG=CIGT31;

if DRNKR31=**.** then DRNK=DRNKR01 ; else DRNK=DRNKR31;

if HYPTMDCODE31=**.** then HTN= HYPTMDCODE01; else HTN= HYPTMDCODE31;

if SBPB21 =**.** then sbp=SBPA21 ; else sbp= SBPC22 ;

if SBPB21 =**.** then dbp=SBPA22 ; else dbp= SBPC23 ;

PrevMI=PREVMI3;

PREVHF=PREVHF3;

PREVAF=PREVAF3;

PREVIS=PREVIS3;

yr= year(v3date31);

Visit=**3**;

dat= v3date31;

if LDLSIU32 =**.** then LDL=LDLSIU32 ; else LDL= LDLSIU02 ;

if HDLSIU31 =**.** then HDL=HDLSIU31 ; else HDL= HDLSIU02 ;

if aspirincode31=**.** then aspirin = **0**; else Aspirin= aspirincode31;

if statincode31=**.** then statin = **0**; else statin= statincode31;

if tca3 = **1** or oad3 = **1** then ssri = **0**; else ssri = **1**;

end;

else if tca4 = **1** or oad4 = **1** or ssri4 = **1** then do;

if v4date41 < dateafinc then stime\_AF = dateafinc - v4date41;

if v4date41 < C7\_DATE\_INCHF16 then stime\_HF = C7\_DATE\_INCHF16 - v4date41;

if v4date41 < C7\_DATEMI then stime\_MI = C7\_DATEMI - v4date41;

if v4date41 < C7\_ED16ISC then stime\_IS = C7\_ED16ISC - v4date41;

if Dead16=**1** then stime = DATED16 - v4date41; else stime= CENSDAT7-v4date41;

age = v4age41;

if BMI41=**.** then BMI=BMI01 ; else BMI= BMI41;

if DIABTS42=**.** then DM=DMV1 ; else DM=DIABTS42;

if CIGT41=**.** then CTG=CIGT01 ; else CTG=CIGT41;

if DRNKR41=**.** then DRNK=DRNKR01 ; else DRNK=DRNKR41;

if HYPTMDCODE41=**.** then HTN= HYPTMDCODE01; else HTN= HYPTMDCODE41;

if SBPB21 =**.** then sbp=SBPA21 ; else sbp= SBPD19 ;

if SBPB21 =**.** then dbp=SBPA22 ; else dbp= SBPD20 ;

PrevMI=PREVMI4;

PREVHF=PREVHF4;

PREVAF=PREVAF4;

PREVIS=PREVIS4;

yr= year(v4date41);

Visit=**4**;

date= v4date41;

if LDLSIU41 =**.** then LDL=LDLSIU41 ; else LDL= LDLSIU02 ;

if HDLSIU41 =**.** then HDL=HDLSIU41 ; else HDL= HDLSIU02 ;

if aspirincode41=**.** then aspirin = **0**; else Aspirin= aspirincode41;

if statincode41=**.** then statin = **0**; else statin= statincode41;

if tca4 = **1** or oad4 = **1** then ssri = **0**; else ssri = **1**;

end;

else if tca5 = **1** or oad5 = **1** or ssri5 = **1** then do;

if v5date51 < dateafinc then stime\_AF = dateafinc - v5date51;

if v5date51 < C7\_DATE\_INCHF16 then stime\_HF = C7\_DATE\_INCHF16 - v5date51;

if v5date51 < C7\_DATEMI then stime\_MI = C7\_DATEMI - v5date51;

if v5date51 < C7\_ED16ISC then stime\_IS = C7\_ED16ISC - v5date51;

if Dead16=**1** then stime = DATED16 - v5date51; else stime= CENSDAT7-v1date51;

age = v5age52;

if BMI51=**.** then BMI=BMI01 ; else BMI= BMI51;

if DIABTS55=**.** then DM=DMV1 ; else DM=DIABTS55;

if CIGT52=**.** then CTG=CIGT01 ; else CTG=CIGT52;

if DRNKR41=**.** then DRNK=DRNKR01 ; else DRNK=DRNKR41;

if HYPTMDCODE51=**.** then HTN= HYPTMDCODE01; else HTN= HYPTMDCODE51;

if SBPB21 =**.** then sbp=SBPA21 ; else sbp= SBPD19 ;

if SBPB21 =**.** then dbp=SBPA22 ; else dbp= SBPD20 ;

PrevMI=PREVMI5;

PREVHF=PREVHF5;

PREVAF=PREVAF5;

PREVIS=PREVIS5;

yr= year(v5date51);

Visit=**5**;

date=v5date51;

if LDLSIU51 =**.** then LDL=LDLSIU51 ; else LDL= LDLSIU02 ;

if HDLSIU51 =**.** then HDL=HDLSIU51 ; else HDL= HDLSIU02 ;

if aspirincode51=**.** then aspirin = **0**; else Aspirin= aspirincode51;

if statincode51=**.** then statin = **0**; else statin= statincode51;

if tca5 = **1** or oad5 = **1** then ssri = **0**; else ssri = **1**;

end;

if DM=**.** or DM= 'T' then DM1=**0**; else DM1=DM;

if age GE **62** then age\_cat=**1**; else if age LT **62** then age\_cat=**0**;

if yr GE **1994** then yr\_cat=**1**; else if yr LT **1994** then yr\_cat=**0**;

**run**;

**proc** **freq** data= mrg\_f;

tables SSRI \* (race Center CIGT01 DRNKR01 HYPTMDCODE01 ELEVEL01 Gender race CTG DRNK HTN dm1 prevMI prevAF PrevHF yr\_cat)/ chisq;

**run**;

**proc** **means** data= mrg\_f min max mean median std;

var BMI age sbp dbp;

class ssri;

**run**;

**proc** **mi** data= mrg\_f;

var elevel01 age BMI CTG DRNK HTN ssri dm1 yr;

**run**;

**proc** **univariate** data=mrg\_f;Where prevAF=**0**;

var stime\_af;

**run**;

**proc** **freq** data=mrg\_f;

tables (ssri1 ssri2 ssri3 ssri4 ssri5 tca1 tca2 tca3 tca4 tca5)\* ssri;

**run**;

\* Evaluating AF as the outcome;

\*\*\*\*\*\*\* checking PH assumption for AF;

**proc** **phreg** data=mrg\_f;

class center ELEVEL01 GENDER DRNK CTG yr;

model stime\_AF \* afinc (**0**) = elevel01 center Gender age race BMI CTG DRNK HTN ssri dm1 yr;

output out=results ressch= relevel01 rcenter rGender rage rrace rBMI rCTG rDRNK rHTN rssri rdm1 ryr ; **run**;

**data** events;

set results;

if afinc=**1**;

**run**;

\*create rank variable;

**proc** **rank** data=events out=ranked

ties=mean;

var stime\_AF;

ranks timerank;

**run**;

\*correlate rank variable and

Schoenfeld residuals;

**proc** **corr** data=ranked nosimple;

var relevel01 rcenter rGender rage rrace rBMI rCTG rDRNK rHTN rssri rdm1 ryr;

with timerank;

**run**;

\* Minimally adjusted model for AF;

**proc** **means** data=mrg\_f median; where afinc=**0**;

var stime\_AF;

**run**;

**proc** **phreg** data = mrg\_f; ;

class center ELEVEL01 GENDER;

model stime\_AF \* afinc (**0**) = elevel01 Gender age race ssri/ rl ties = efron;

strata center;

**run**;

\* Fully adjusted model for AF;

**proc** **phreg** data = mrg\_f;

class center ELEVEL01 GENDER DRNK CTG yr dm1;

model stime\_AF \* afinc (**0**) = elevel01 Gender age race BMI CTG DRNK HTN ssri dm1 yr statin aspirin prevHF prevMI / rl ties = efron;

strata center;

**run**;

\* Adjusted model for AF- stratify by sex\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*;

\* minimal;

**proc** **sort** data=mrg\_f; by sex; **run**;

**proc** **phreg** data = mrg\_f;

class center ELEVEL01 GENDER;

model stime\_AF \* afinc (**0**) = elevel01 Gender age race ssri/ rl ties = efron;

strata center;

by sex;

**run**;

\* Fully;

**proc** **phreg** data = mrg\_f;

class center ELEVEL01 GENDER DRNK CTG yr dm1;

model stime\_AF \* afinc (**0**) = elevel01 Gender age race BMI CTG DRNK HTN ssri dm1 yr aspirin statin prevHF prevMI/ rl ties = efron;

strata center;

by sex;

**run**;

\* Adjusted model for AF- stratify by race\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*;

\* minimal;

**proc** **sort** data=mrg\_f; by race; **run**;

**proc** **phreg** data = mrg\_f;

class center ELEVEL01 GENDER;

model stime\_AF \* afinc (**0**) = elevel01 Gender age ssri/ rl ties = efron;

strata center;

by race;

**run**;

\* Fully;

**proc** **phreg** data = mrg\_f;

class center ELEVEL01 GENDER DRNK CTG yr dm1;

model stime\_AF \* afinc (**0**) = elevel01 Gender age BMI CTG DRNK HTN ssri dm1 yr aspirin statin prevHF prevMI/ rl ties = efron;

strata center;

by race;

**run**;

\* Evaluating HF as the outcome;

\*\*\*\*\*\*\*\*\*\* Checking PH assumption for HF;

**proc** **phreg** data=mrg\_f;

class center ELEVEL01 GENDER DRNK CTG yr;

model stime\_HF \* C7\_INCHF16 (**0**) = elevel01 center Gender age race BMI CTG DRNK HTN ssri dm1 yr;

output out=results ressch= relevel01 rcenter rGender rage rrace rBMI rCTG rDRNK rHTN rssri rdm1 ryr ; **run**;

**data** events;

set results;

if C7\_INCHF16=**1**;

**run**;

\*create rank variable;

**proc** **rank** data=events out=ranked

ties=mean;

var stime\_HF;

ranks timerank;

**run**;

\*correlate rank variable and

Schoenfeld residuals;

**proc** **corr** data=ranked nosimple;

var relevel01 rcenter rGender rage rrace rBMI rCTG rDRNK rHTN rssri rdm1 ryr;

with timerank;

**run**;

\* miniamlly adjusted model for HF;

**proc** **means** data=mrg\_f median; where C7\_INCHF16=**0**;

var stime\_HF;

**run**;

**proc** **phreg** data = mrg\_f;

class center ELEVEL01 GENDER ;

model stime\_HF \* C7\_INCHF16 (**0**) = elevel01 center race Gender ssri age / rl ties = efron;

**run**;

\* Fully adjusted model for HF;

**proc** **phreg** data = mrg\_f; ;

class center ELEVEL01 GENDER DRNK CTG yr;

model stime\_HF \* C7\_INCHF16 (**0**) = elevel01 center Gender age race BMI CTG DRNK HTN ssri yr aspirin statin prevHF prevMI / rl ties = efron;

strata dm1;

**run**;

\* Adjusted model for HF- stratify by sex\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*;

**proc** **sort** data=mrg\_f; by gender; **run**;

\*minimal adjustment;

**proc** **phreg** data = mrg\_f;

class center ELEVEL01 GENDER ;

model stime\_HF \* C7\_INCHF16 (**0**) = elevel01 center race ssri age / rl ties = efron;

strata dm1;

by gender;

**run**;

\*Full adjustment;

**proc** **phreg** data = mrg\_f; ;

class center ELEVEL01 GENDER DRNK CTG yr;

model stime\_HF \* C7\_INCHF16 (**0**) = elevel01 center age race BMI CTG DRNK HTN ssri yr aspirin statin prevMI / rl ties = efron;

strata dm1;

by gender;

**run**;

\* Adjusted model for HF- stratify by race\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*;

**proc** **sort** data=mrg\_f; by race; **run**;

\*minimal adjustment;

**proc** **phreg** data = mrg\_f;

class center ELEVEL01 GENDER ;

model stime\_HF \* C7\_INCHF16 (**0**) = elevel01 center gender ssri age / rl ties = efron;

strata dm1;

by race;

**run**;

\*Full adjustment;

**proc** **phreg** data = mrg\_f; ;

class center ELEVEL01 GENDER DRNK CTG yr;

model stime\_HF \* C7\_INCHF16 (**0**) = elevel01 center age gender BMI CTG DRNK HTN ssri yr aspirin statin prevMI / rl ties = efron;

strata dm1;

by race;

**run**;

\* Evaluating MI as the outcome;

\*\*\*\*\*\*\*\*\*\* Checking PH assumption for MI;

**proc** **phreg** data=mrg\_f;

class center ELEVEL01 GENDER DRNK CTG yr;

model stime\_MI \* C7\_MI16 (**0**) = elevel01 center Gender age race BMI CTG DRNK HTN ssri dm1 yr;

output out=results ressch= relevel01 rcenter rGender rage rrace rBMI rCTG rDRNK rHTN rssri rdm1 ryr ; **run**;

**data** events;

set results;

if C7\_MI16=**1**;

**run**;

\*create rank variable;

**proc** **rank** data=events out=ranked

ties=mean;

var stime\_MI;

ranks timerank;

**run**;

\*correlate rank variable and

Schoenfeld residuals;

**proc** **corr** data=ranked nosimple;

var relevel01 rcenter rGender rage rrace rBMI rCTG rDRNK rHTN rssri rdm1 ryr;

with timerank;

**run**;

\* miniamlly adjusted model for MI;

**proc** **means** data=mrg\_f median; where C7\_MI16=**0**;

var stime\_MI;

**run**;

**proc** **phreg** data = mrg\_f; ;

class center ELEVEL01 GENDER ;

model stime\_MI \* C7\_MI16 (**0**) = elevel01 center race Gender ssri age / rl ties = efron;

**run**;

\* Fully adjusted model for MI;

**proc** **phreg** data = mrg\_f;

class center ELEVEL01 GENDER DRNK CTG yr;

model stime\_MI \* C7\_MI16 (**0**) = elevel01 Gender age race BMI CTG DRNK HTN ssri dm1 yr HDL LDL DADHISTORYCHD MOMHISTORYCHD statin aspirin / rl ties = efron;

**run**;

\* Adjusted model for MI- stratify by sex\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*;

**proc** **sort** data=mrg\_f; by gender; **run**;

\* miniamlly adjusted model for MI;

**proc** **phreg** data = mrg\_f; ;

class center ELEVEL01 GENDER ;

model stime\_MI \* C7\_MI16 (**0**) = elevel01 center race ssri age / rl ties = efron;

by gender;

**run**;

\* Fully adjusted model for MI;

**proc** **phreg** data = mrg\_f;

class center ELEVEL01 GENDER DRNK CTG yr;

model stime\_MI \* C7\_MI16 (**0**) = elevel01 age race BMI CTG DRNK HTN ssri dm1 yr ldl hdl aspirin statin / rl ties = efron;

by gender;

**run**;

\* Adjusted model for MI- stratify by race\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*;

**proc** **sort** data=mrg\_f; by race; **run**;

\* miniamlly adjusted model for MI;

**proc** **phreg** data = mrg\_f; ;

class center ELEVEL01 GENDER ;

model stime\_MI \* C7\_MI16 (**0**) = elevel01 center gender ssri age / rl ties = efron;

by race;

**run**;

\* Fully adjusted model for MI;

**proc** **phreg** data = mrg\_f;

class center ELEVEL01 GENDER DRNK CTG yr;

model stime\_MI \* C7\_MI16 (**0**) = elevel01 age gender BMI CTG DRNK HTN ssri dm1 yr ldl hdl aspirin statin / rl ties = efron;

by race;

**run**;

\* Evaluating stroke as the outcome;

\*\*\*\*\*\*\*\*\*\* Checking PH assumption for Stroke;

**proc** **phreg** data=mrg\_f;

class center ELEVEL01 GENDER DRNK CTG yr;

model stime\_IS \* C7\_IN16ISC (**0**) = elevel01 center Gender age race BMI CTG DRNK HTN ssri dm1 yr;

output out=results ressch= relevel01 rcenter rGender rage rrace rBMI rCTG rDRNK rHTN rssri rdm1 ryr ; **run**;

**data** events;

set results;

if C7\_IN16ISC=**1**;

**run**;

\*create rank variable;

**proc** **rank** data=events out=ranked

ties=mean;

var stime\_IS;

ranks timerank;

**run**;

\*correlate rank variable and

Schoenfeld residuals;

**proc** **corr** data=ranked nosimple;

var relevel01 rcenter rGender rage rrace rBMI rCTG rDRNK rHTN rssri rdm1 ryr;

with timerank;

**run**;

\* miniamlly adjusted model for stroke;

**proc** **means** data=mrg\_f median; where C7\_IN16ISC=**0**;

var stime\_IS;

**run**;

**proc** **phreg** data = mrg\_f;

class center ELEVEL01 GENDER age\_cat;

model stime\_IS \* C7\_IN16ISC (**0**) = elevel01 center Gender race ssri / rl ties = efron;

strata age\_cat;

**run**;

\* Fully adjusted model for stroke;

**proc** **phreg** data = mrg\_f;

class center ELEVEL01 GENDER DRNK CTG yr;

model stime\_IS \* C7\_IN16ISC (**0**) = elevel01 center Gender race BMI CTG DRNK HTN ssri dm1 yr / rl ties = efron;

strata age\_cat;

**run**;

\* Adjusted model for MI- stratify by race\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*;

**proc** **sort** data=mrg\_f; by gender; **run**;

**proc** **phreg** data = mrg\_f;

class center ELEVEL01 GENDER age\_cat;

model stime\_IS \* C7\_IN16ISC (**0**) = elevel01 center race ssri / rl ties = efron;

strata age\_cat;

by gender;

**run**;

\* Fully adjusted model for stroke;

**proc** **phreg** data = mrg\_f;

class center ELEVEL01 GENDER DRNK CTG yr;

model stime\_IS \* C7\_IN16ISC (**0**) = elevel01 center Gender race BMI CTG DRNK HTN ssri dm1 yr aspirin statin hdl ldl / rl ties = efron;

strata age\_cat;

by gender;

**run**;

\* Adjusted model for MI- stratify by sex\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*;

**proc** **sort** data=mrg\_f; by gender; **run**;

**proc** **phreg** data = mrg\_f;

class center ELEVEL01 GENDER age\_cat;

model stime\_IS \* C7\_IN16ISC (**0**) = elevel01 center race ssri / rl ties = efron;

strata age\_cat;

by gender;

**run**;

\* Fully adjusted model for stroke;

**proc** **phreg** data = mrg\_f;

class center ELEVEL01 GENDER DRNK CTG yr;

model stime\_IS \* C7\_IN16ISC (**0**) = elevel01 center Gender race BMI CTG DRNK HTN ssri dm1 yr aspirin statin hdl ldl / rl ties = efron;

strata age\_cat;

by gender;

**run**;

\* Adjusted model for MI- stratify by race\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*;

**proc** **sort** data=mrg\_f; by race; **run**;

**proc** **phreg** data = mrg\_f;

class center ELEVEL01 GENDER age\_cat;

model stime\_IS \* C7\_IN16ISC (**0**) = elevel01 center gender ssri / rl ties = efron;

strata age\_cat;

by race;

**run**;

\* Fully adjusted model for stroke;

**proc** **phreg** data = mrg\_f;

class center ELEVEL01 GENDER DRNK CTG yr;

model stime\_IS \* C7\_IN16ISC (**0**) = elevel01 center Gender gender BMI CTG DRNK HTN ssri dm1 yr aspirin statin hdl ldl / rl ties = efron;

strata age\_cat;

by race;

**run**;