**SAS code**

**[Link between 2010 examination data and 2010 cancer questionnaire data]**

**proc** **sql**;

create table g1eq\_2010\_CST as

select \*

from raw.g1eq\_2010

where INDI\_DSCM\_No in (select INDI\_DSCM\_No from raw.cst\_cq\_rst\_2010);

**quit**;

**[Exclusion condition 1: Cancer development within 1 year]**

**data** d.T20\_C;

set raw.t20\_201001 raw.t20\_201002 raw.t20\_201003 raw.t20\_201004 raw.t20\_201005 raw.t20\_201006 raw.t20\_201007 raw.t20\_201008 raw.t20\_201009 raw.t20\_201010 raw.t20\_201011

**.** **.** **.** raw.t20\_202011 raw.t20\_202012 raw.t20\_202101 raw.t20\_202102 raw.t20\_202103 raw.t20\_202104 raw.t20\_202105 raw.t20\_202106 raw.t20\_202107 raw.t20\_202108 raw.t20\_202109 raw.t20\_202110 raw.t20\_202111 raw.t20\_202112;

where upcase(substr(SICK\_SYM1,**1**,**1**))="C";

recu\_date=input(MDCARE\_STRT\_DT,yymmdd8.);

format recu\_date yymmdd10.;

drop MDCARE\_STRT\_DT;

**run**;

**proc** **sql**;

create table A\_ex1 as

select a.\*,input(b.HME\_DT,yymmdd8.) as INDEX\_DATE format yymmdd10.

from d.T20\_C as a

left join g1eq\_2010\_CST as b

on a.INDI\_DSCM\_NO=b.INDI\_DSCM\_NO

having INDEX\_DATE<=recu\_date<=INDEX\_DATE+**365**;

**quit**;

**proc** **sql**;

create table g1eq\_2010\_CST\_1 as

select \*

from g1eq\_2010\_CST

where INDI\_DSCM\_NO not in (select INDI\_DSCM\_NO from A\_ex1);

**quit**;

**[Exclusion condition 2: Death within 1 year]**

**proc** **sql**;

create table B as

select a.\*,input(b.DTH\_ASSMD\_DT,yymmdd8.) as DEATH\_DATE format yymmdd10.

from g1eq\_2010\_CST\_1 as a

left join raw.tg\_dth as b

on a.INDI\_DSCM\_NO=b.INDI\_DSCM\_NO;

**quit**;

**data** B1;

set B;

INDEX\_DATE=input(HME\_DT,yymmdd8.);

format INDEX\_DATE yymmdd10.;

if DEATH\_DATE>**0** and DEATH\_DATE-INDEX\_DATE<**365** then delete;

drop HME\_DT;

**run**;

**[Exclusion condition 3: Existence of 2014 examination data]**

**proc** **sql**;

create table C as

select a.\*,a.G1E\_HDL as G1E\_HDL\_2010, b.G1E\_HDL as G1E\_HDL\_2014

from B1 as a

left join raw.g1eq\_2014 as b

on a.INDI\_DSCM\_NO=b.INDI\_DSCM\_NO;

**quit**;

**data** C1;

set C;

if G1E\_HDL\_2010 ne **.** and G1E\_HDL\_2014 ne **.**;

**run**;

**[Exclusion condition 4: Existence of 2010 personal information]**

**proc** **sql**;

create table d.D as

select distinct a.\*,b.SEX\_TYPE,b.BYEAR,b.CALC\_CTRB\_VTILE\_FD

from C1 as a

left join raw.bfc\_2010 as b

on a.INDI\_DSCM\_NO=b.INDI\_DSCM\_NO;

**quit**;

**data** d.D;

set d.D;

if SEX\_TYPE="" then delete;

**run**;

**[Make analysis variables]**

**data** d.T20\_SH;

set raw.t20\_201001 raw.t20\_201002 raw.t20\_201003 raw.t20\_201004 raw.t20\_201005 raw.t20\_201006 raw.t20\_201007 raw.t20\_201008 raw.t20\_201009 raw.t20\_201010

raw.t20\_201011 raw.t20\_201012 raw.t20\_201101 raw.t20\_201102 raw.t20\_201103 raw.t20\_201104 raw.t20\_201105 raw.t20\_201106;

where "I05"<=substr(SICK\_SYM1,**1**,**3**)<="I09" or

"I20"<=substr(SICK\_SYM1,**1**,**3**)<="I27" or

"I30"<=substr(SICK\_SYM1,**1**,**3**)<="I52" or

"I60"<=substr(SICK\_SYM1,**1**,**3**)<="I69" ;

if "I60"<=substr(SICK\_SYM1,**1**,**3**)<="I69" then STK\_20=**1**;

if "I05"<=substr(SICK\_SYM1,**1**,**3**)<="I09" or

"I20"<=substr(SICK\_SYM1,**1**,**3**)<="I27" or

"I30"<=substr(SICK\_SYM1,**1**,**3**)<="I52" then HTDZ\_20=**1**;

recu\_date=input(MDCARE\_STRT\_DT,yymmdd8.);

format recu\_date yymmdd10.;

drop MDCARE\_STRT\_DT;

**run**;

**data** d.D;

set d.D;

if index\_date=**.** then index\_date=input(EXMDRST\_JUDG\_DT,yymmdd10.);

**run**;

**proc** **sql**;

create table d.T20\_C\_INDEX as

select a.\*,b.INDEX\_DATE

from d.T20\_C as a

left join d.D as b

on a.INDI\_DSCM\_NO=b.INDI\_DSCM\_NO

having INDEX\_DATE>**0** and INDEX\_DATE<=recu\_date;

**quit**;

**proc** **sql**;

create table d.T20\_SH\_INDEX as

select a.\*,b.INDEX\_DATE

from d.T20\_SH as a

left join d.D as b

on a.INDI\_DSCM\_NO=b.INDI\_DSCM\_NO

having INDEX\_DATE>**0** and INDEX\_DATE<=recu\_date<=INDEX\_DATE+**6**\***30.5**;

**quit**;

**data** T20\_SH\_INDEX;

set d.T20\_SH\_INDEX;

where "I20"<=substr(SICK\_SYM1,**1**,**3**)<="I25" or

"I60"<=substr(SICK\_SYM1,**1**,**3**)<="I64"

or substr(SICK\_SYM1,**1**,**3**)="I69";

**run**;

**proc** **sql**;

create table STK\_20 as

select distinct INDI\_DSCM\_NO, STK\_20 , min(recu\_date) as STK\_20\_DATE format yymmdd10.

from T20\_SH\_INDEX where STK\_20=**1**

group by INDI\_DSCM\_NO;**quit**;

**proc** **sql**;

create table HTDZ\_20 as

select distinct INDI\_DSCM\_NO, HTDZ\_20 , min(recu\_date) as HTDZ\_20\_DATE format yymmdd10.

from T20\_SH\_INDEX where HTDZ\_20=**1**

group by INDI\_DSCM\_NO;**quit**;

**data** d.T20\_C\_NEED;

set d.T20\_C\_INDEX;

where upcase(substr(SICK\_SYM1,**1**,**1**)) in ("C”);

**run**;

**data** CANCER;

set d.T20\_C\_NEED;

if upcase(substr(SICK\_SYM1,**1**,**1**))="C" then AC=**1**; else AC=**0**;

if upcase(substr(SICK\_SYM1,**1**,**3**))="C16" then C16=**1**; else C16=**0**;

if upcase(substr(SICK\_SYM1,**1**,**3**))="C22" then C22=**1**; else C22=**0**;

if upcase(substr(SICK\_SYM1,**1**,**3**))="C23" then C23=**1**; else C23=**0**;

if upcase(substr(SICK\_SYM1,**1**,**3**))="C24" then C24=**1**; else C24=**0**;

if upcase(substr(SICK\_SYM1,**1**,**3**))="C25" then C25=**1**; else C25=**0**;

if upcase(substr(SICK\_SYM1,**1**,**3**))="C18" then C18=**1**; else C18=**0**;

if upcase(substr(SICK\_SYM1,**1**,**3**))="C19" then C19=**1**; else C19=**0**;

if upcase(substr(SICK\_SYM1,**1**,**3**))="C20" then C20=**1**; else C20=**0**;

**run**;

**proc** **sql**;

create table C as

select distinct INDI\_DSCM\_NO, AC, min(recu\_date) as AC\_DATE format yymmdd10.

from CANCER where AC=**1**

group by INDI\_DSCM\_NO;**quit**;

**proc** **sql**;

create table C16 as

select distinct INDI\_DSCM\_NO, C16, min(recu\_date) as C16\_DATE format yymmdd10.

from CANCER where C16=**1**

group by INDI\_DSCM\_NO;**quit**;

**proc** **sql**;

create table C22 as

select distinct INDI\_DSCM\_NO, C22, min(recu\_date) as C22\_DATE format yymmdd10.

from CANCER where C22=**1**

group by INDI\_DSCM\_NO;**quit**;

**proc** **sql**;

create table C23 as

select distinct INDI\_DSCM\_NO, C23, min(recu\_date) as C23\_DATE format yymmdd10.

from CANCER where C23=**1**

group by INDI\_DSCM\_NO;**quit**;

**proc** **sql**;

create table C24 as

select distinct INDI\_DSCM\_NO, C24, min(recu\_date) as C24\_DATE format yymmdd10.

from CANCER where C24=**1**

group by INDI\_DSCM\_NO;**quit**;

**proc** **sql**;

create table C25 as

select distinct INDI\_DSCM\_NO, C25, min(recu\_date) as C25\_DATE format yymmdd10.

from CANCER where C25=**1**

group by INDI\_DSCM\_NO;**quit**;

**proc** **sql**;

create table C18 as

select distinct INDI\_DSCM\_NO, C18, min(recu\_date) as C18\_DATE format yymmdd10.

from CANCER where C18=**1**

group by INDI\_DSCM\_NO;**quit**;

**proc** **sql**;

create table C19 as

select distinct INDI\_DSCM\_NO, C19, min(recu\_date) as C19\_DATE format yymmdd10.

from CANCER where C19=**1**

group by INDI\_DSCM\_NO;**quit**;

**proc** **sql**;

create table C20 as

select distinct INDI\_DSCM\_NO, C20, min(recu\_date) as C20\_DATE format yymmdd10.

from CANCER where C20=**1**

group by INDI\_DSCM\_NO;**quit**;

**proc** **sql**;

create table D1 as

select a.\*,b.\*,c.\*,d.\*,e.\*,f.\*,g.\*,h.\*,i.\*,j.\*,k.\*,l.\*

from d.D as a

left join C16 as b on a.INDI\_DSCM\_NO=b.INDI\_DSCM\_NO

left join C22 as c on a.INDI\_DSCM\_NO=c.INDI\_DSCM\_NO

left join C23 as d on a.INDI\_DSCM\_NO=d.INDI\_DSCM\_NO

left join C24 as e on a.INDI\_DSCM\_NO=e.INDI\_DSCM\_NO

left join C25 as f on a.INDI\_DSCM\_NO=f.INDI\_DSCM\_NO

left join C18 as g on a.INDI\_DSCM\_NO=g.INDI\_DSCM\_NO

left join C19 as h on a.INDI\_DSCM\_NO=h.INDI\_DSCM\_NO

left join C20 as i on a.INDI\_DSCM\_NO=i.INDI\_DSCM\_NO

left join STK\_20 as j on a.INDI\_DSCM\_NO=j.INDI\_DSCM\_NO

left join HTDZ\_20 as k on a.INDI\_DSCM\_NO=k.INDI\_DSCM\_NO

left join AC as l on a.INDI\_DSCM\_NO=l.INDI\_DSCM\_NO;

**quit**;

**data** D2;

set D1;

if DEATH\_DATE ne **.** then DEATH=**1**; else DEATH=**0**;

CRC=max(C18,C19,C20);

if CRC=**1** then CRC\_DATE=min(C18\_DATE,C19\_DATE,C20\_DATE);

format CRC\_DATE yymmdd10.;

drop C18 C19 C20 C18\_DATE C19\_DATE C20\_DATE;

if AC=**.** then do;

AC=**0**; AC\_DATE=input("2021-12-31",yymmdd10.);

if DEATH=**1** and DEATH\_DATE<AC\_DATE then AC\_DATE=DEATH\_DATE;end;

if C16=**.** then do;

C16=**0**; C16\_DATE=input("2021-12-31",yymmdd10.);

if DEATH=**1** and DEATH\_DATE<C16\_DATE then C16\_DATE=DEATH\_DATE;end;

if C22=**.** then do;

C22=**0**; C22\_DATE=input("2021-12-31",yymmdd10.);

if DEATH=**1** and DEATH\_DATE<C22\_DATE then C22\_DATE=DEATH\_DATE;end;

if C23=**.** then do;

C23=**0**; C23\_DATE=input("2021-12-31",yymmdd10.);

if DEATH=**1** and DEATH\_DATE<C23\_DATE then C23\_DATE=DEATH\_DATE;end;

if C24=**.** then do;

C24=**0**; C24\_DATE=input("2021-12-31",yymmdd10.);

if DEATH=**1** and DEATH\_DATE<C24\_DATE then C24\_DATE=DEATH\_DATE;end;

if C25=**.** then do;

C25=**0**; C25\_DATE=input("2021-12-31",yymmdd10.);

if DEATH=**1** and DEATH\_DATE<C25\_DATE then C25\_DATE=DEATH\_DATE;end;

if CRC=**.** then do;

CRC=**0**; CRC\_DATE=input("2021-12-31",yymmdd10.);

if DEATH=**1** and DEATH\_DATE<CRC\_DATE then CRC\_DATE=DEATH\_DATE;end;

**run**;

**data** cst\_cq\_rst\_2010;

set raw.cst\_cq\_rst\_2010;

date=input(HME\_DT,yymmdd8.);

format date yymmdd10.;

**run**;

**proc** **sql**;

create table cst\_cq\_rst\_2010\_1 as

select distinct indi\_dscm\_no, date ,QC\_PHX\_LV\_YN, QC\_PHX\_CHB\_YN, QC\_PHX\_CHC\_YN ,QC\_PHX\_LC\_YN ,QC\_PFHX\_CST\_YN

from cst\_cq\_rst\_2010 ;

**quit**;

**proc** **sql**;

create table cst\_cq\_rst\_2010\_2 as

select distinct a.\*,b.index\_date

from cst\_cq\_rst\_2010\_1 as a

left join D2 as b

on a.indi\_dscm\_no=b.indi\_dscm\_no

having index\_date>**0**;

**quit**;

**data** cst\_cq\_rst\_2010\_3;

set cst\_cq\_rst\_2010\_2;

dist=abs(index\_date-date);

a=**1**;

**run**;

**proc** **sort** data=cst\_cq\_rst\_2010\_3;

by indi\_dscm\_no dist;

**run**;

**proc** **sort** data=cst\_cq\_rst\_2010\_3 out=cst\_cq\_rst\_2010\_4 nodupkey;

by indi\_dscm\_no; **run**;

**proc** **sql**;

create table D3 as

select distinct a.\*,b.QC\_PHX\_LV\_YN,b.QC\_PHX\_CHB\_YN,b.QC\_PHX\_CHC\_YN,b.QC\_PHX\_LC\_YN,b.QC\_PFHX\_CST\_YN,b.a

from D2 as a

left join cst\_cq\_rst\_2010\_4 as b

on a.indi\_dscm\_no=b.indi\_dscm\_no;

**quit**;

**data** D4;

set D3;

drop a;

AC\_DAY=AC\_DATE-INDEX\_DATE;

C16\_DAY=C16\_DATE-INDEX\_DATE;

C22\_DAY=C22\_DATE-INDEX\_DATE;

C23\_DAY=C23\_DATE-INDEX\_DATE;

C24\_DAY=C24\_DATE-INDEX\_DATE;

C25\_DAY=C25\_DATE-INDEX\_DATE;

CRC\_DAY=CRC\_DATE-INDEX\_DATE;

Age= **2010**-byear;

if SEX\_TYPE='1' and G1E\_HDL\_2010<**40** then HDL\_10=**1**;

else if SEX\_TYPE='1' and G1E\_HDL\_2010>=**40** then HDL\_10=**2**;

else if SEX\_TYPE='2' and G1E\_HDL\_2010<**50** then HDL\_10=**1**;

else if SEX\_TYPE='2' and G1E\_HDL\_2010>=**50** then HDL\_10=**2**;

if SEX\_TYPE='1' and G1E\_HDL\_2014<**40** then HDL\_14=**1**;

else if SEX\_TYPE='1' and G1E\_HDL\_2014>=**40** then HDL\_14=**2**;

else if SEX\_TYPE='2' and G1E\_HDL\_2014<**50** then HDL\_14=**1**;

else if SEX\_TYPE='2' and G1E\_HDL\_2014>=**50** then HDL\_14=**2**;

if HDL\_10=**1** and HDL\_14=**1** then HDL\_C='1LL';

if HDL\_10=**1** and HDL\_14=**2** then HDL\_C='2LN';

if HDL\_10=**2** and HDL\_14=**1** then HDL\_C='3NL';

if HDL\_10=**2** and HDL\_14=**2** then HDL\_C='4NN';

**run**;

**data** D.DATASET1;

set D4;

if Q\_PHX\_DX\_STK=**1** then STK=**1**;

else if Q\_PHX\_DX\_STK ne **1** and STK\_20=**1** then STK=**1**;

else STK=**0**;

if Q\_PHX\_DX\_HTDZ=**1** then HTDZ=**1**;

else if Q\_PHX\_DX\_HTDZ ne **1** and HTDZ\_20=**1** then HTDZ=**1**;

else HTDZ=**0**;

if Q\_PHX\_DX\_HTN=**1** then HTN=**1**;

else if Q\_PHX\_DX\_HTN ne **1** and (G1E\_BP\_SYS>=**140** or G1E\_BP\_DIA>=**90**) then HTN=**1**;

else HTN=**0**;

if Q\_PHX\_DX\_DM=**1** then DM=**1**;

else if Q\_PHX\_DX\_DM ne **1** and (G1E\_FBS>=**126** ) then DM=**1**;

else DM=**0**;

if Q\_PHX\_DX\_DLD=**1** then DLD=**1**;

else DLD=**0**;

if Q\_DRK\_FRQ\_V09N=**0** then DRK=**0**;

else if Q\_DRK\_FRQ\_V09N=**1** then DRK=**1**;

else if Q\_DRK\_FRQ\_V09N in (**2**,**3**) then DRK=**2**;

else if Q\_DRK\_FRQ\_V09N in (**4**,**5**) then DRK=**3**;

else if Q\_DRK\_FRQ\_V09N in (**6**,**7**) then DRK=**4**;

if Q\_PA\_MD=**0** then MD=**0**;

else if Q\_PA\_MD in (**1**,**2**) then MD=**1**;

else if Q\_PA\_MD in (**3**,**4**,**5**) then MD=**2**;

else if Q\_PA\_MD in (**6**,**7**) then MD=**3**;

**run**;

**data** D.DATASET2;

set D4;

if AC=**1** and AC\_DATE<input("2015-01-01",yymmdd10.) then delete;

if Q\_PHX\_DX\_STK=**1** then STK=**1**;

else if Q\_PHX\_DX\_STK ne **1** and STK\_20=**1** then STK=**1**;

else STK=**0**;

if Q\_PHX\_DX\_HTDZ=**1** then HTDZ=**1**;

else if Q\_PHX\_DX\_HTDZ ne **1** and HTDZ\_20=**1** then HTDZ=**1**;

else HTDZ=**0**;

if Q\_PHX\_DX\_HTN=**1** then HTN=**1**;

else if Q\_PHX\_DX\_HTN ne **1** and (G1E\_BP\_SYS>=**140** or G1E\_BP\_DIA>=**90**) then HTN=**1**;

else HTN=**0**;

if Q\_PHX\_DX\_DM=**1** then DM=**1**;

else if Q\_PHX\_DX\_DM ne **1** and (G1E\_FBS>=**126** ) then DM=**1**;

else DM=**0**;

if Q\_PHX\_DX\_DLD=**1** then DLD=**1**;

else DLD=**0**;

if Q\_DRK\_FRQ\_V09N=**0** then DRK=**0**;

else if Q\_DRK\_FRQ\_V09N=**1** then DRK=**1**;

else if Q\_DRK\_FRQ\_V09N in (**2**,**3**) then DRK=**2**;

else if Q\_DRK\_FRQ\_V09N in (**4**,**5**) then DRK=**3**;

else if Q\_DRK\_FRQ\_V09N in (**6**,**7**) then DRK=**4**;

if Q\_PA\_MD=**0** then MD=**0**;

else if Q\_PA\_MD in (**1**,**2**) then MD=**1**;

else if Q\_PA\_MD in (**3**,**4**,**5**) then MD=**2**;

else if Q\_PA\_MD in (**6**,**7**) then MD=**3**;

**run**;

**data** DATASET1;

set D.DATASET1;

AC\_YEAR=AC\_DAY/**365**;

if g1e\_ldl>=**130** then LDL=**1**; else LDL=**0**;

if g1e\_tg>=**150** then TG=**1**; else TG=**0**;

**run**;

**data** DATASET2;

set DATASET1;

if AC=**1** and AC\_DATE<input("2015-01-01",yymmdd10.) then delete;

**run**;

**[Data analysis: Descriprtive statistics]**

**proc** **means** data=DATASET1 sum;

class HDL\_C;

var AC\_YEAR;**run**;

**proc** **means** data=DATASET1 median q1 q3;

class HDL\_C;

var age calc\_ctrb\_vtile\_fd g1e\_bmi g1e\_hdl;

**run**;

**proc** **freq** data=DATASET1;

table SEX\_TYPE HTN HTDZ STK DM DLD

DRK Q\_SMK\_YN QC\_PFHX\_CST\_YN MD

QC\_PHX\_LV\_YN QC\_PHX\_CHB\_YN QC\_PHX\_CHC\_YN QC\_PHX\_LC\_YN/norow nopercent nocol;

**run**;

**proc** **means** data=DATASET2 sum;

class HDL\_C;

var AC\_YEAR;**run**;

**proc** **means** data=DATASET2 median q1 q3;

class HDL\_C;

var age calc\_ctrb\_vtile\_fd g1e\_bmi g1e\_hdl;

**run**;

**proc** **freq** data=DATASET2;

table SEX\_TYPE HTN HTDZ STK DM DLD

DRK Q\_SMK\_YN QC\_PFHX\_CST\_YN MD

QC\_PHX\_LV\_YN QC\_PHX\_CHB\_YN QC\_PHX\_CHC\_YN QC\_PHX\_LC\_YN/norow nopercent nocol;

**run**;

**[Data analysis: survival analysis – Main results]**

**proc** **freq** data=DATASET1;

table HDL\_C\*(AC C16 CRC C22 C25 C23 C24)/norow nocol nopercent;

**run**;

**proc** **phreg** data=DATASET1;

class HDL\_C(ref="4NN");

model AC\_DAY\*AC(**0**)=HDL\_C/rl;**run**;

**proc** **phreg** data=DATASET1;

class HDL\_C(ref="4NN") SEX\_TYPE HTN HTDZ STK DM Q\_SMK\_YN DRK MD DLD /param=ref ref=first;

model AC\_DAY\*AC(**0**)=HDL\_C age calc\_ctrb\_vtile\_fd g1e\_bmi SEX\_TYPE HTN HTDZ STK DM Q\_SMK\_YN DRK MD DLD /rl;**run**;

**proc** **phreg** data=DATASET1;

class HDL\_C(ref="4NN") SEX\_TYPE HTN HTDZ STK DM Q\_SMK\_YN DRK MD DLD LDL TG /param=ref ref=first;

model AC\_DAY\*AC(**0**)=HDL\_C age calc\_ctrb\_vtile\_fd g1e\_bmi SEX\_TYPE HTN HTDZ STK DM Q\_SMK\_YN DRK MD DLD LDL TG/rl;**run**;

**proc** **phreg** data=DATASET1(where=(C16=**1** or AC=**0**));

class HDL\_C(ref="4NN");

model C16\_DAY\*C16(**0**)=HDL\_C/rl;**run**;

**proc** **phreg** data=DATASET1(where=(C16=**1** or AC=**0**));

class HDL\_C(ref="4NN") SEX\_TYPE HTN HTDZ STK DM Q\_SMK\_YN DRK MD DLD /param=ref ref=first;

model C16\_DAY\*C16(**0**)=HDL\_C age calc\_ctrb\_vtile\_fd g1e\_bmi SEX\_TYPE HTN HTDZ STK DM Q\_SMK\_YN DRK MD DLD /rl;**run**;

**proc** **phreg** data=DATASET1(where=(C16=**1** or AC=**0**));

class HDL\_C(ref="4NN") SEX\_TYPE HTN HTDZ STK DM Q\_SMK\_YN DRK MD DLD LDL TG/param=ref ref=first;

model C16\_DAY\*C16(**0**)=HDL\_C age calc\_ctrb\_vtile\_fd g1e\_bmi SEX\_TYPE HTN HTDZ STK DM Q\_SMK\_YN DRK MD DLD LDL TG/rl;**run**;

**proc** **phreg** data=DATASET1(where=(CRC=**1** or AC=**0**));

class HDL\_C(ref="4NN");

model CRC\_DAY\*CRC(**0**)=HDL\_C/rl;**run**;

**proc** **phreg** data=DATASET1(where=(CRC=**1** or AC=**0**));

class HDL\_C(ref="4NN") SEX\_TYPE HTN HTDZ STK DM Q\_SMK\_YN DRK MD DLD /param=ref ref=first;

model CRC\_DAY\*CRC(**0**)=HDL\_C age calc\_ctrb\_vtile\_fd g1e\_bmi SEX\_TYPE HTN HTDZ STK DM Q\_SMK\_YN DRK MD DLD /rl;**run**;

**proc** **phreg** data=DATASET1(where=(CRC=**1** or AC=**0**));

class HDL\_C(ref="4NN") SEX\_TYPE HTN HTDZ STK DM Q\_SMK\_YN DRK MD DLD LDL TG/param=ref ref=first;

model CRC\_DAY\*CRC(**0**)=HDL\_C age calc\_ctrb\_vtile\_fd g1e\_bmi SEX\_TYPE HTN HTDZ STK DM Q\_SMK\_YN DRK MD DLD LDL TG/rl;**run**;

**proc** **phreg** data=DATASET1(where=(C22=**1** or AC=**0**));

class HDL\_C(ref="4NN");

model C22\_DAY\*C22(**0**)=HDL\_C/rl;**run**;

**proc** **phreg** data=DATASET1(where=(C22=**1** or AC=**0**));

class HDL\_C(ref="4NN") SEX\_TYPE HTN HTDZ STK DM Q\_SMK\_YN DRK MD DLD /param=ref ref=first;

model C22\_DAY\*C22(**0**)=HDL\_C age calc\_ctrb\_vtile\_fd g1e\_bmi SEX\_TYPE HTN HTDZ STK DM Q\_SMK\_YN DRK MD DLD QC\_PHX\_LV\_YN QC\_PHX\_CHB\_YN QC\_PHX\_CHC\_YN QC\_PHX\_LC\_YN/rl;**run**;

**proc** **phreg** data=DATASET1(where=(C22=**1** or AC=**0**));

class HDL\_C(ref="4NN") SEX\_TYPE HTN HTDZ STK DM Q\_SMK\_YN DRK MD DLD LDL TG/param=ref ref=first;

model C22\_DAY\*C22(**0**)=HDL\_C age calc\_ctrb\_vtile\_fd g1e\_bmi SEX\_TYPE HTN HTDZ STK DM Q\_SMK\_YN DRK MD DLD LDL TG QC\_PHX\_LV\_YN QC\_PHX\_CHB\_YN QC\_PHX\_CHC\_YN QC\_PHX\_LC\_YN/rl;**run**;

**proc** **phreg** data=DATASET1(where=(C25=**1** or AC=**0**));

class HDL\_C(ref="4NN");

model C25\_DAY\*C25(**0**)=HDL\_C/rl;**run**;

**proc** **phreg** data=DATASET1(where=(C25=**1** or AC=**0**));

class HDL\_C(ref="4NN") SEX\_TYPE HTN HTDZ STK DM Q\_SMK\_YN DRK MD DLD /param=ref ref=first;

model C25\_DAY\*C25(**0**)=HDL\_C age calc\_ctrb\_vtile\_fd g1e\_bmi SEX\_TYPE HTN HTDZ STK DM Q\_SMK\_YN DRK MD DLD /rl;**run**;

**proc** **phreg** data=DATASET1(where=(C25=**1** or AC=**0**));

class HDL\_C(ref="4NN") SEX\_TYPE HTN HTDZ STK DM Q\_SMK\_YN DRK MD DLD LDL TG/param=ref ref=first;

model C25\_DAY\*C25(**0**)=HDL\_C age calc\_ctrb\_vtile\_fd g1e\_bmi SEX\_TYPE HTN HTDZ STK DM Q\_SMK\_YN DRK MD DLD LDL TG/rl;**run**;

**proc** **phreg** data=DATASET1(where=(C23=**1** or AC=**0**));

class HDL\_C(ref="4NN");

model C23\_DAY\*C23(**0**)=HDL\_C/rl;**run**;

**proc** **phreg** data=DATASET1(where=(C23=**1** or AC=**0**));

class HDL\_C(ref="4NN") SEX\_TYPE HTN HTDZ STK DM Q\_SMK\_YN DRK MD DLD /param=ref ref=first;

model C23\_DAY\*C23(**0**)=HDL\_C age calc\_ctrb\_vtile\_fd g1e\_bmi SEX\_TYPE HTN HTDZ STK DM Q\_SMK\_YN DRK MD DLD /rl;**run**;

**proc** **phreg** data=DATASET1(where=(C23=**1** or AC=**0**));

class HDL\_C(ref="4NN") SEX\_TYPE HTN HTDZ STK DM Q\_SMK\_YN DRK MD DLD LDL TG/param=ref ref=first;

model C23\_DAY\*C23(**0**)=HDL\_C age calc\_ctrb\_vtile\_fd g1e\_bmi SEX\_TYPE HTN HTDZ STK DM Q\_SMK\_YN DRK MD DLD LDL TG/rl;**run**;

**proc** **phreg** data=DATASET1(where=(C24=**1** or AC=**0**));

class HDL\_C(ref="4NN");

model C24\_DAY\*C24(**0**)=HDL\_C/rl;**run**;

**proc** **phreg** data=DATASET1(where=(C24=**1** or AC=**0**));

class HDL\_C(ref="4NN") SEX\_TYPE HTN HTDZ STK DM Q\_SMK\_YN DRK MD DLD /param=ref ref=first;

model C24\_DAY\*C24(**0**)=HDL\_C age calc\_ctrb\_vtile\_fd g1e\_bmi SEX\_TYPE HTN HTDZ STK DM Q\_SMK\_YN DRK MD DLD /rl;**run**;

**proc** **phreg** data=DATASET1(where=(C24=**1** or AC=**0**));

class HDL\_C(ref="4NN") SEX\_TYPE HTN HTDZ STK DM Q\_SMK\_YN DRK MD DLD LDL TG/param=ref ref=first;

model C24\_DAY\*C24(**0**)=HDL\_C age calc\_ctrb\_vtile\_fd g1e\_bmi SEX\_TYPE HTN HTDZ STK DM Q\_SMK\_YN DRK MD DLD LDL TG/rl;**run**;