libname a "/userdata21/rroom042/data\_source/user\_data/RawData/RAWa";/\*RAWDATA\_LIVER(BFC, DTH, T20, T30, T40, G1E, G2E, CQ)\*/

libname b "/userdata21/rroom042/data\_source/user\_data/RawData/RAWb";/\*DATA\_LIVER(CLV, T60)\_updated"\*/

libname c "/userdata21/rroom042/data\_source/user\_data/03. Add/default";/\*data storage"\*/

|  |
| --- |
| /\*명세서(T20) 합치기\*/  \*ID로 정렬;  **%MACRO** SORT(year);  \*1~9월;  **%MACRO** SORT1(start, stop, incr);  %DO i = &start %TO &stop %BY &incr;  proc sort data= a.t20\_&year.0&i out= b.t20\_&year.0&i.\_sort; by INDI\_DSCM\_NO; run;  %END;  **%MEND**;  %***SORT1***(**1**, **9**, **1**)  \*10~12월;  **%MACRO** SORT2(start, stop, incr);  %DO i = &start %TO &stop %BY &incr;  proc sort data= a.t20\_&year.&i. out= b.t20\_&year.&i.\_sort; by INDI\_DSCM\_NO; run;  %END;  **%MEND**;  %***SORT2***(**10**, **12**, **1**);  **%MEND**;  **%MACRO** ***DOLIST***; %DO j= **2002** %TO **2017** %BY **1**; %***SORT***(&j); %END; **%MEND**; %***DOLIST***;  \*연도별 명세서 합치기;  **%MACRO** SET(year);  data b.t20\_&year;  set b.t20\_&year.01\_sort b.t20\_&year.02\_sort b.t20\_&year.03\_sort b.t20\_&year.04\_sort b.t20\_&year.05\_sort b.t20\_&year.06\_sort  b.t20\_&year.07\_sort b.t20\_&year.08\_sort b.t20\_&year.09\_sort b.t20\_&year.10\_sort b.t20\_&year.11\_sort b.t20\_&year.12\_sort;  by INDI\_DSCM\_NO;  **%MEND**;  **%MACRO** ***DOLIST***; %DO j= **2002** %TO **2017** %BY **1**; %***SET***(&j); %END; **%MEND**; %***DOLIST***;  \*--------------------------------------------------------------------------------------------------------;  /\*2009년 간암검진대상자\*/  **proc** **sort** data= a2.clv\_obj\_rst\_2009 out= b.obj\_2009 (keep= OBJ) nodupkey; by OBJ; **run**; \*532,475;  \*개인식별아이디 변수명 통일;  **data** b.obj\_2009; set b.obj\_2009; INDI\_DSCM\_NO= OBJ; keep INDI\_DSCM\_NO; **run**;  /\*2009년 간암검진대상자+02-17년 명세서\*/  **%MACRO** MERGE(year);  data b.obj\_2009\_t20\_&year;  merge b.obj\_2009 (in=a) b.t20\_&year;  by INDI\_DSCM\_NO;  if a;  run;  **%MEND**;  **%MACRO** ***DOLIST***; %DO j=**2002** %TO **2017** %BY **1**; %***MERGE***(&j); %END; **%MEND**; %***DOLIST***; |

%Macro SET(year);

%MACRO SUB(start, stop, incr);

proc sql;

create table c.t20\_&year as

%DO j= &start %TO &stop %BY &incr;

select \* from c.obj\_2009\_t20\_&year.0&j union all

%END;

select \* from c.obj\_2009\_t20\_&year.09

order by INDI\_DSCM\_NO;

quit;

%MEND; %SUB(1, 8, 1)

%MACRO SUB(start, stop, incr);

proc sql;

create table c.t20\_&year as

%DO j= &start %TO &stop %BY &incr;

select \* from c.obj\_2009\_t20\_&year.&j union all

%END;

select \* from c.obj\_2009\_t20\_&year.12

order by INDI\_DSCM\_NO;

quit;

%MEND; %SUB(10, 11, 1)

%MEND;

%MACRO DOLIST; %DO j= 2002 %TO 2017 %BY 1; %SET(&j); %END; %MEND; %DOLIST;

/\*2009년 간암검진대상자\*/

proc sql; create table c.obj\_2009 as select distinct OBJ from b.clv\_obj\_rst\_2009 order by OBJ;quit;

\*개인식별아이디 변수명 통일;

proc sql; create table c.obj\_2009 as select OBJ as INDI\_DSCM\_NO from c.obj\_2009;quit;

/\*2009년 간암검진대상자 + 02-17년 명세서\*/

%MACRO MERGE(year);

proc sql;

create table c.obj\_2009\_t20\_&year as

select \*

from c.obj\_2009 as a left join c.t20\_&year as b

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

quit;

run;

%MEND;

%MACRO DOLIST; %DO j=2002 %TO 2017 %BY 1; %MERGE(&j); %END; %MEND;

%DOLIST;

data c.obj\_2009\_t20;

set c.obj\_2009\_t20\_2002 c.obj\_2009\_t20\_2003 c.obj\_2009\_t20\_2004 c.obj\_2009\_t20\_2005 c.obj\_2009\_t20\_2006 c.obj\_2009\_t20\_2007

c.obj\_2009\_t20\_2008 c.obj\_2009\_t20\_2009 c.obj\_2009\_t20\_2010 c.obj\_2009\_t20\_2011 c.obj\_2009\_t20\_2012 c.obj\_2009\_t20\_2013

c.obj\_2009\_t20\_2014 c.obj\_2009\_t20\_2015 c.obj\_2009\_t20\_2016 c.obj\_2009\_t20\_2017;

by INDI\_DSCM\_NO;

run;

\*청구번호 없는 건 삭제;

proc sql;

create table c.obj\_2009\_t20 as

select \* from c.obj\_2009\_t20

where CMN\_KEY is not null;

run;

/\*간암확진 여부 ( “2002-2017년 주상병(입원외래) or 1-4부상병(입원외래)” and “산정특례” \*/

data c.obj\_2009\_t20; set c.obj\_2009\_t20;

if ((substr(SICK\_SYM1,1,3)= 'C22' or

substr(SICK\_SYM2,1,3)= 'C22' or

substr(SICK\_SYM3,1,3)= 'C22' or

substr(SICK\_SYM4,1,3)= 'C22' or

substr(SICK\_SYM5,1,3)= 'C22')) and

SPCF\_SYM\_TYPE in ('V193','V194') and

substr(form\_cd,1,2) in ('02','03')

then LVC= 1;

else LVC= 0;

run;

\*2002~2009년 간암확진자 제외;

proc sql;

create table c.exclusion1 as

select distinct(INDI\_DSCM\_NO), min(MDCARE\_STRT\_DT) as LVC\_diagnosis,

from c.obj\_2009\_t20

where LVC= 1 and substr(MDCARE\_STRT\_DT,1,4) in ('2002','2003','2004','2005','2006','2007','2008','2009');

run;

\*2002~2009년 간암확진자 제외 간암검진대상자;

data c.cat1;

merge c.exclusion1(in=a) c.obj\_2009\_t20;

by INDI\_DSCM\_NO;

if not a;

run;

proc sort data= c.cat1 out= c.obj(keep= INDI\_DSCM\_NO) nodupkey; by INDI\_DSCM\_NO; run; \*,;

\*생년월일 (2009년 자격정보);

proc sort data= a.bfc\_2009 out= c.bfc\_2009\_sort; by INDI\_DSCM\_NO; run;

data c.obj\_info;

merge c.obj(in=a) c.bfc\_2009\_sort(in=b);

by INDI\_DSCM\_NO;

if a and b;

keep INDI\_DSCM\_NO SEX\_TYPE BYEAR YEND\_STD\_AGE ;

run;

\*사망일;

proc sort data= a.dth out= c.dth\_sort; by INDI\_DSCM\_NO; run;

data c.obj\_info;

merge c.obj\_info(in=a) c.dth\_sort;

by INDI\_DSCM\_NO;

if a;

run;

\*42명 사망년일 오류제외;

data c.obj\_info2; set c.obj\_info;

if DTH\_ASSMD\_DT ^= ' ' and DTH\_ASSMD\_DT < '20090101' then delete;

run;

\*최종연구대상자 ID 514,095명;

proc sort data= c.obj\_info2 out= c.sub\_id(keep= INDI\_DSCM\_NO) nodupkey; by INDI\_DSCM\_NO; run; \* 514,095;

\*최종연구대상자 ID remapping;

%MACRO MERGE(year);

proc sql;

create table c.sub\_2009\_t20\_&year as

select \*

from c.sub\_id as a left join c.t20\_&year as b

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

quit;

run;

%MEND;

%MACRO DOLIST; %DO j=2002 %TO 2017 %BY 1; %MERGE(&j); %END; %MEND;

%DOLIST;

data c.sub\_2009\_t20;

set c.sub\_2009\_t20\_2002 c.sub\_2009\_t20\_2003 c.sub\_2009\_t20\_2004 c.sub\_2009\_t20\_2005 c.sub\_2009\_t20\_2006 c.sub\_2009\_t20\_2007

c.sub\_2009\_t20\_2008 c.sub\_2009\_t20\_2009 c.sub\_2009\_t20\_2010 c.sub\_2009\_t20\_2011 c.sub\_2009\_t20\_2012 c.sub\_2009\_t20\_2013

c.sub\_2009\_t20\_2014 c.sub\_2009\_t20\_2015 c.sub\_2009\_t20\_2016 c.sub\_2009\_t20\_2017;

by INDI\_DSCM\_NO;

run;

proc sql;

create table c.sub\_2009\_t20 as

select \* from c.sub\_2009\_t20

where CMN\_KEY is not null;

run;

/\*간암확진 여부\*/

data c.sub\_2009\_t20; set c.sub\_2009\_t20;

if ((substr(SICK\_SYM1,1,3)= 'C22' or

substr(SICK\_SYM2,1,3)= 'C22' or

substr(SICK\_SYM3,1,3)= 'C22' or

substr(SICK\_SYM4,1,3)= 'C22' or

substr(SICK\_SYM5,1,3)= 'C22')) and

SPCF\_SYM\_TYPE in ('V193','V194')and

substr(form\_cd,1,2) in ('02','03')

then LVC= 1;

else LVC= 0;

run;

data c.cat1; set c.sub\_2009\_t20; run;

/\*Covariate 하위코드 미포함\*/

data c.cat1; set c.cat1;

if (SICK\_SYM1 in ('K74','K741','K742','K746','K76','K702','K703','K709') or

SICK\_SYM2 in ('K74','K741','K742','K746','K76','K702','K703','K709') or

SICK\_SYM3 in ('K74','K741','K742','K746','K76','K702','K703','K709') or

SICK\_SYM4 in ('K74','K741','K742','K746','K76','K702','K703','K709') or

SICK\_SYM5 in ('K74','K741','K742','K746','K76','K702','K703','K709')) and

substr(FORM\_CD,1,2) in ('02','03')

then Cirrhosis= 1;

else Cirrhosis= 0;

if (SICK\_SYM1 in ('B18','B180','B181','B182','Z225') or

SICK\_SYM2 in ('B18','B180','B181','B182','Z225') or

SICK\_SYM3 in ('B18','B180','B181','B182','Z225') or

SICK\_SYM4 in ('B18','B180','B181','B182','Z225') or

SICK\_SYM5 in ('B18','B180','B181','B182','Z225')) and

substr(FORM\_CD,1,2) in ('02','03')

then Hepatitis= 1;

else Hepatitis= 0;

if (SICK\_SYM1 in ('B180','B181') or

SICK\_SYM2 in ('B180','B181') or

SICK\_SYM3 in ('B180','B181') or

SICK\_SYM4 in ('B180','B181') or

SICK\_SYM5 in ('B180','B181')) and

substr(FORM\_CD,1,2) in ('02','03')

then

Hepatitis\_B= 1;

else Hepatitis\_B= 0;

if (SICK\_SYM1 in ('B182') or

SICK\_SYM2 in ('B182') or

SICK\_SYM3 in ('B182') or

SICK\_SYM4 in ('B182') or

SICK\_SYM5 in ('B182')) and

substr(FORM\_CD,1,2) in ('02','03')

then

Hepatitis\_C= 1;

else Hepatitis\_C= 0;

if Hepatitis\_B = 1 and Hepatitis\_C and substr(FORM\_CD,1,2) in ('02','03') then Coinfection =1; else Coinfection =0;

if (SICK\_SYM1 in ('K73','K731','K732','K738','K739','B19') or

SICK\_SYM2 in ('K73','K731','K732','K738','K739','B19') or

SICK\_SYM3 in ('K73','K731','K732','K738','K739','B19') or

SICK\_SYM4 in ('K73','K731','K732','K738','K739','B19') or

SICK\_SYM5 in ('K73','K731','K732','K738','K739','B19')) and

substr(FORM\_CD,1,2) in ('02','03')

then Others= 1;

else Others= 0;

run;

/\*판정기준\*/

proc sql;

create table d.cirrhosis as

select distinct(INDI\_DSCM\_NO), Cirrhosis

from c.cat1

where substr(MDCARE\_STRT\_DT,1,4) in ('2002','2003','2004','2005','2006','2007','2008','2009') and Cirrhosis = 1;

run; /\* 184,722\*/

/\* 2002-2017 cirrhosis exist\*/

proc sql;

create table d.cirrhosis\_dt as

select INDI\_DSCM\_NO, MDCARE\_STRT\_DT as CIR\_EXM

from c.cat1

where MDCARE\_STRT\_DT is not null and Cirrhosis=1

order by INDI\_DSCM\_NO, MDCARE\_STRT\_DT;

run;

data d.cirrhosis\_dt ; set d.cirrhosis\_dt; keep = INDI\_DSCM\_NO CIR\_EXM; if first.INDI\_DSCM\_NO; by INDI\_DSCM\_NO;run;

/\* 2002-2009 cirrhosis exist\*/

proc sql;

create table d.cirrhosis\_dt\_bf as

select INDI\_DSCM\_NO, MDCARE\_STRT\_DT as CIR\_EXM

from c.cat1

where substr(MDCARE\_STRT\_DT,1,4) in ('2002','2003','2004','2005','2006','2007','2008','2009') and Cirrhosis=1

order by INDI\_DSCM\_NO, MDCARE\_STRT\_DT;

run;

data d.cirrhosis\_dt\_bf ; set d.cirrhosis\_dt\_bf; keep = INDI\_DSCM\_NO CIR\_EXM; if first.INDI\_DSCM\_NO; by INDI\_DSCM\_NO;run;

/\* 2010-2017 LVC exist\*/

proc sql;

create table d.lvc\_dt as

select distinct(INDI\_DSCM\_NO), MDCARE\_STRT\_DT as LVC\_EXM

from c.cat1

where LVC is not null and LVC=1

order by INDI\_DSCM\_NO, MDCARE\_STRT\_DT;

run;

data d.lvc\_dt ; set d.lvc\_dt; keep = INDI\_DSCM\_NO LVC\_EXM; if first.INDI\_DSCM\_NO; by INDI\_DSCM\_NO;run;

proc sql;

create table d.hepatitis as

select distinct(INDI\_DSCM\_NO), Hepatitis

from d.cat1\_except\_subcode

where substr(MDCARE\_STRT\_DT,1,4) in ('2002','2003','2004','2005','2006','2007','2008','2009') and Hepatitis = 1;

run; /\* 230,812\*/

proc sql;

create table d.hepatitis\_b as

select distinct(INDI\_DSCM\_NO), Hepatitis\_B

from d.cat1\_except\_subcode

where substr(MDCARE\_STRT\_DT,1,4) in ('2002','2003','2004','2005','2006','2007','2008','2009') and Hepatitis\_B = 1;

run; /\* 183315\*/

proc sql;

create table d.hepatitis\_c as

select distinct(INDI\_DSCM\_NO), Hepatitis\_C

from d.cat1\_except\_subcode

where substr(MDCARE\_STRT\_DT,1,4) in ('2002','2003','2004','2005','2006','2007','2008','2009') and Hepatitis\_C = 1;

run; /\* 45936\*/

proc sql;

create table d.hepatitis\_co as

select distinct(INDI\_DSCM\_NO), Coinfection

from d.cat1\_except\_subcode

where substr(MDCARE\_STRT\_DT,1,4) in ('2002','2003','2004','2005','2006','2007','2008','2009') and Coinfection = 1;

run; /\* 7483\*/

proc sql;

create table d.others as

select distinct(INDI\_DSCM\_NO), Others

from d.cat1\_except\_subcode

where substr(MDCARE\_STRT\_DT,1,4) in ('2002','2003','2004','2005','2006','2007','2008','2009') and Others = 1;

run;

/\*----------------------------------------------------------------------\*/

/\* 성별 \*/

proc sort data= c.obj\_info2 out=c.id\_sex(keep= INDI\_DSCM\_NO SEX\_TYPE); by INDI\_DSCM\_NO;run;

/\*---------------------------------------------------------------------\*/

\* Diabetes Mellitus 분리 1. 검진일 이전 2. 간암 이전

\*1. Diabetes Mellitus;

data d.cov\_dm\_1; set d.cat1\_except\_subcode;/\*2002-2017.12.31\*/

if (substr(SICK\_SYM1,1,3) in ('E10','E11','E12','E13','E14') or

substr(SICK\_SYM2,1,3) in ('E10','E11','E12','E13','E14') or

substr(SICK\_SYM3,1,3) in ('E10','E11','E12','E13','E14') or

substr(SICK\_SYM4,1,3) in ('E10','E11','E12','E13','E14') or

substr(SICK\_SYM5,1,3) in ('E10','E11','E12','E13','E14')) and

substr(FORM\_CD,1,2) in ("02","03")

then DM= 1;

else DM= 0;

MDCARE\_YR= substr(MDCARE\_STRT\_DT,1,4);

run;

\*1. ~2009.12.31일 이전 YES;

proc sort data= d.cov\_dm\_1 out=d.dm\_bf\_exam; by INDI\_DSCM\_NO MDCARE\_STRT\_DT;

where MDCARE\_YR in ('2002','2003','2004','2005','2006','2007','2008','2009') and DM =1; run;

data d.dm\_bf\_exam (drop=dm); set d.dm\_bf\_exam; if first.INDI\_DSCM\_NO; by INDI\_DSCM\_NO; bf\_exam=DM; run;

proc sort data=d.dm\_bf\_exam out=d.dm\_bf\_exam\_id (keep=INDI\_DSCM\_NO) nodupkey;by INDI\_DSCM\_NO; run;

\*2. 검진일 이후-간암 이전 23,063;

proc sql;

create table d.lvc as

select INDI\_DSCM\_NO, MDCARE\_STRT\_DT, LVC, MDCARE\_STRT\_DT as LVC\_diagnosis

from d.cat1\_except\_subcode

where LVC= 1 and substr(MDCARE\_STRT\_DT,1,4) in ('2010','2011','2012','2013','2014','2015','2016','2017');

run;

data d.lvc(drop=MDCARE\_STRT\_DT); set d.lvc; if first.INDI\_DSCM\_NO; by INDI\_DSCM\_NO;run; /\* LVC\_diagnosis, LVC\*/

data d.cov\_dm\_1; merge d.cov\_dm\_1(in=a) d.lvc; by INDI\_DSCM\_NO; if a;run;

proc sort data= d.cov\_dm\_1 out=d.dm\_bf\_lvc; by INDI\_DSCM\_NO MDCARE\_STRT\_DT;

where MDCARE\_YR in ('2010','2011','2012','2013','2014','2015','2016','2017') and DM =1; run;

data d.dm\_bf\_lvc (drop=dm); set d.dm\_bf\_lvc;if first.INDI\_DSCM\_NO; by INDI\_DSCM\_NO; bf\_lvc=DM; run;

\*3. 간암 이후-EOS(2017.12.31) 이전 ;

data d.dth\_sort; set c.dth\_sort; dth=1;run;

proc sort data=d.cov\_dm\_1;by INDI\_DSCM\_NO;run;

proc sort data=d.dth\_sort;by INDI\_DSCM\_NO;run; /\* LVC\_diagnosis, LVC\*/

data d.cov\_dm\_1; merge d.cov\_dm\_1(in=a) d.dth\_sort;by INDI\_DSCM\_NO;if a;run;

data d.cov\_dm\_1; set d.cov\_dm\_1; eos\_ymd=min(DTH\_ASSMD\_DT, "20171231");run;

data d.cov\_dm\_LVC; set d.cov\_dm\_1; where LVC=1 and (MDCARE\_STRT\_DT>=LVC\_diagnosis) and (MDCARE\_STRT\_DT<=DTH\_ASSMD\_DT); run;

/\*LVC ~ EOS/Death\*/

data d.cov\_dm\_noLVC; set d.cov\_dm\_1; where LVC=0 and (MDCARE\_STRT\_DT =< eos\_ymd); run; /\*2010-01-01 ~ EOS/Death\*/

proc sort data= d.cov\_dm\_LVC out=d.dm\_af\_lvc; by INDI\_DSCM\_NO MDCARE\_STRT\_DT; where DM =1;run;

data d.dm\_af\_lvc (drop=dm); set d.dm\_af\_lvc;if first.INDI\_DSCM\_NO; by INDI\_DSCM\_NO;af\_lvc=DM; run;

proc sort data= d.cov\_dm\_noLVC out=d.dm\_af\_nolvc; by INDI\_DSCM\_NO MDCARE\_STRT\_DT; where DM =1;run;

data d.dm\_af\_nolvc (drop=dm); set d.dm\_af\_nolvc;if first.INDI\_DSCM\_NO; by INDI\_DSCM\_NO;af\_nolvc=DM; run;

data d.dm\_af\_lvc;set d.dm\_af\_lvc d.dm\_af\_nolvc;run;

/\*4. merge \*/

proc sql; create table d.id\_2009 as select distinct INDI\_DSCM\_NO from d.cov\_dm\_1;run;

proc sort data=d.dm\_bf\_exam (keep=INDI\_DSCM\_NO bf\_exam);by INDI\_DSCM\_NO;run;

proc sort data=d.dm\_bf\_lvc (keep=INDI\_DSCM\_NO bf\_lvc);by INDI\_DSCM\_NO;run;

proc sort data=d.dm\_af\_lvc (keep=INDI\_DSCM\_NO af\_lvc af\_nolvc dth lvc DTH\_ASSMD\_DT LVC\_diagnosis);by INDI\_DSCM\_NO;run;

data d.dm\_trajectory; merge d.id\_2009 (in=a) d.dm\_bf\_exam d.dm\_bf\_lvc d.dm\_af\_lvc; by INDI\_DSCM\_NO;if a;run;

proc freq data= d.dm\_trajectory; tables bf\_exam bf\_lvc af\_lvc af\_nolvc; run;

proc sort data=a.g1eq\_2009 out=c.g1eq\_2009\_sort; by INDI\_DSCM\_NO; run;

proc sort data=a.g1eq\_2008 out=c.g1eq\_2008\_sort; by INDI\_DSCM\_NO; run;

proc sort data=a.g1eq\_2007 out=c.g1eq\_2007\_sort; by INDI\_DSCM\_NO; run;

proc sort data=a.g1eq\_2006 out=c.g1eq\_2006\_sort; by INDI\_DSCM\_NO; run;

/\*2009년 간암 검진대상자 + 2009년 일반 1차 문진\*/

data c.id\_sex\_g1e\_2009; merge c.id\_sex(in=a) c.g1eq\_2009\_sort;by INDI\_DSCM\_NO; if a and HME\_DT ^='';run;

proc sort data= c.id\_sex\_g1e\_2009 out= c.id\_sex\_g1e\_2009\_id(KEEP= INDI\_DSCM\_NO) nodupkey; by INDI\_DSCM\_NO; run;\*340,025;

/\*대상자 중 2009년 미검진자\*/

data c.id\_2008\_2006;merge c.id\_sex\_g1e\_2009\_id(in=a) c.id\_sex;by INDI\_DSCM\_NO; if not a;run;

/\*대상자 중 2009년 미검진자의 2008년 검진\*/

data c.id\_sex\_g1e\_2008;merge c.id\_2008\_2006(in=a) c.g1eq\_2008\_sort;by INDI\_DSCM\_NO; if a and HME\_DT ^='';run;

proc sort data= c.id\_sex\_g1e\_2008 out= c.id\_sex\_g1e\_2008\_id(KEEP= INDI\_DSCM\_NO) nodupkey; by INDI\_DSCM\_NO; run;\*24,237;

/\*대상자 중 2008,2009년 미검진자\*/

data c.id\_2007\_2006;merge c.id\_sex\_g1e\_2008(in=a) c.id\_2008\_2006;by INDI\_DSCM\_NO; if not a;run;

/\* 대상자 중 2008,2009년 미검진자의 2007년 검진\*/

data c.id\_sex\_g1e\_2007; merge c.id\_2007\_2006(in=a) c.g1eq\_2007\_sort;by INDI\_DSCM\_NO; if a and HME\_DT ^='';run;

proc sort data= c.id\_sex\_g1e\_2007 out= c.id\_sex\_g1e\_2007\_id(KEEP= INDI\_DSCM\_NO) nodupkey; by INDI\_DSCM\_NO; run;\*36.099;

/\*대상자 중 2007,2008,2009년 미검진자\*/

data c.id\_2006;merge c.id\_sex\_g1e\_2007(in=a) c.id\_2007\_2006;by INDI\_DSCM\_NO;if not a;run;

/\* 대상자 중 2007,2008,2009년 미검진자의 2006년 검진\*/

data c.id\_sex\_g1e\_2006; merge c.id\_2006(in=a) c.g1eq\_2006\_sort;by INDI\_DSCM\_NO; if a and HME\_DT ^='';run;

proc sort data= c.id\_sex\_g1e\_2006 out= c.id\_sex\_g1e\_2006\_id(KEEP= INDI\_DSCM\_NO) nodupkey; by INDI\_DSCM\_NO; run;\*8285;

data c.id\_sex\_g1e\_id; set

c.id\_sex\_g1e\_2009\_id

c.id\_sex\_g1e\_2008\_id

c.id\_sex\_g1e\_2007\_id

c.id\_sex\_g1e\_2006\_id; run; \*408,646;

data c.id\_sex\_g1e; set

c.id\_sex\_g1e\_2009

c.id\_sex\_g1e\_2008

c.id\_sex\_g1e\_2007

c.id\_sex\_g1e\_2006; run; \*408,646;

proc sort data=c.id\_sex\_g1e\_id; by INDI\_DSCM\_NO;run;

/\*나머지 사람\*/

data c.id\_sex\_g1e\_except; merge c.id\_sex\_g1e\_id(in=a) c.obj\_info2; by INDI\_DSCM\_NO; if not a ;run;

data c.id\_sex\_g1e\_alc\_obe; set c.id\_sex\_g1e;

\*Alcohol;

if Q\_DRK\_FRQ\_V09N > 0 or Q\_DRK\_AMT\_V09N > 0 then ALC= 2;

if Q\_DRK\_FRQ\_V09N = 0 or Q\_DRK\_AMT\_V09N = 0 then ALC= 1;

else if Q\_DRK\_FRQ\_V09N = . or Q\_DRK\_AMT\_V09N = . then OBE= 0;

\*Obesity;

if G1E\_BMI <23 then OBE = 1;

if G1E\_BMI >= 23 and G1E\_BMI <25 then OBE = 2;

if G1E\_BMI >= 25 then OBE= 3;

else if G1E\_BMI = . then OBE= 0;

HME\_YR= substr(HME\_DT,1,4);

run;

proc freq data= c.id\_sex\_g1e\_alc\_obe; tables SEX\_TYPE; run;

proc freq data= c.id\_sex\_g1e\_alc\_obe; tables ALC\*SEX\_TYPE/missing; run;

proc freq data= c.id\_sex\_g1e\_alc\_obe; tables OBE\*SEX\_TYPE/missing; run;

\*ALC= 2;

data c.alcohol\_2; set c.id\_sex\_g1e\_alc\_obe;

if HME\_YR in ('2002','2003','2004','2005','2006','2007','2008','2009') and ALC=2; run;

proc sort data= c.alcohol\_2(keep= INDI\_DSCM\_NO HME\_YR ALC) nodupkey; by INDI\_DSCM\_NO; run;

data c.alcohol\_1\_0;

merge c.id\_sex\_g1e\_alc\_obe(in=a) c.alcohol\_2(in=b); by INDI\_DSCM\_NO;

if not b and HME\_YR in ('2002','2003','2004','2005','2006','2007','2008','2009');

run;

\*ALC= 1;

data c.alcohol\_1;

set c.alcohol\_1\_0;if ALC=1;run;

proc sort data= c.alcohol\_1(keep= INDI\_DSCM\_NO HME\_YR ALC) nodupkey; by INDI\_DSCM\_NO; run;

\*ALC= 0;

data c.alcohol\_0;

merge c.alcohol\_1\_0(in=a) c.alcohol\_1(in=b);

by INDI\_DSCM\_NO; if not b; run;

proc sort data= c.alcohol\_0 (keep= INDI\_DSCM\_NO HME\_YR ALC) nodupkey; by INDI\_DSCM\_NO; run;

data c.alcohol;

merge c.alcohol\_2 c.alcohol\_1 c.alcohol\_0;

by INDI\_DSCM\_NO;

run;

\*OBE= 3;

data c.obe\_3; set c.id\_sex\_g1e\_alc\_obe;

if HME\_YR in ('2002','2003','2004','2005','2006','2007','2008','2009') and OBE=3;run;

proc sort data= c.obe\_3(keep= INDI\_DSCM\_NO HME\_YR OBE) nodupkey; by INDI\_DSCM\_NO; run;

data c.obe\_2\_1\_0;

merge c.id\_sex\_g1e\_alc\_obe(in=a) c.obe\_3(in=b);

by INDI\_DSCM\_NO;

if not b and HME\_YR in ('2002','2003','2004','2005','2006','2007','2008','2009');run;

\*OBE= 2;

data c.obe\_2; set c.obe\_2\_1\_0;if OBE=2;run;

proc sort data= c.obe\_2(keep= INDI\_DSCM\_NO HME\_YR OBE) nodupkey; by INDI\_DSCM\_NO; run;

data c.obe\_1\_0;

merge c.obe\_2\_1\_0(in=a) c.obe\_2(in=b);

by INDI\_DSCM\_NO;

if not b;run;

\*OBE= 1;

data c.obe\_1; set c.obe\_1\_0;if OBE=1;run;

proc sort data= c.obe\_1(keep= INDI\_DSCM\_NO HME\_YR OBE) nodupkey; by INDI\_DSCM\_NO; run;

\*OBE= 0;

data c.obe\_0;

merge c.obe\_1\_0(in=a) c.obe\_1(in=b);

by INDI\_DSCM\_NO;

if not b;

run;

proc sort data= c.obe\_0(keep= INDI\_DSCM\_NO HME\_YR OBE) nodupkey; by INDI\_DSCM\_NO; run;

data c.obe;

merge c.obe\_3 c.obe\_2 c.obe\_1 c.obe\_0;

by INDI\_DSCM\_NO;

run;

/\* SMOKING \*/

data c.id\_sex\_g1e\_smk; set c.id\_sex\_g1e;

\*Smoking;

if Q\_SMK\_YN = 1 then SMK = 1;

if Q\_SMK\_YN = 2 then SMK = 2;

if Q\_SMK\_YN = 3 then SMK= 3;

else if Q\_SMK\_YN = . then SMK= 0;

HME\_YR= substr(HME\_DT,1,4);

run;

proc freq data= c.id\_sex\_g1e\_smk; tables SMK\*SEX\_TYPE/missing; run;

\*SMK= 3;

data c.smk\_3; set c.id\_sex\_g1e\_alc\_obe;if HME\_YR in ('2002','2003','2004','2005','2006','2007','2008','2009') and SMK=3;run;

proc sort data= c.smk\_3(keep= INDI\_DSCM\_NO HME\_YR SMK) nodupkey; by INDI\_DSCM\_NO; run;

data c.smk\_2\_1\_0;

merge c.id\_sex\_g1e\_alc\_obe(in=a) c.smk\_3(in=b);

by INDI\_DSCM\_NO;

if not b and HME\_YR in ('2002','2003','2004','2005','2006','2007','2008','2009');

run;

\*SMK= 2;

data c.smk\_2; set c.smk\_2\_1\_0;if SMK=2;run;

proc sort data= c.smk\_2(keep= INDI\_DSCM\_NO HME\_YR SMK) nodupkey; by INDI\_DSCM\_NO; run;

data c.smk\_1\_0;

merge c.smk\_2\_1\_0(in=a) c.smk\_2(in=b);

by INDI\_DSCM\_NO;

if not b;

run;

\*SMK= 1;

data c.smk\_1; set c.smk\_1\_0;if SMK=1;run;

proc sort data= c.smk\_1(keep= INDI\_DSCM\_NO HME\_YR SMK) nodupkey; by INDI\_DSCM\_NO; run;

\*SMK= 0;

data c.smk\_0;

merge c.smk\_1\_0(in=a) c.smk\_1(in=b);

by INDI\_DSCM\_NO;

if not b;

run;

proc sort data= c.smk\_0(keep= INDI\_DSCM\_NO HME\_YR SMK) nodupkey; by INDI\_DSCM\_NO; run;

data c.smk;

merge c.smk\_3 c.smk\_2 c.smk\_1 c.smk\_0;

by INDI\_DSCM\_NO;

run;

/\* FLD FLD에 포함되어 있는 모든 요소들이 2009년부터 존재\*/

data c.id\_sex\_g1e\_fld; set c.id\_sex\_g1e;

if 100/(1+EXP(-(0.953 \* log(G1E\_TG) + 0.139 \* G1E\_BMI + 0.718 \* log(G1E\_GGT) + 0.053 \* G1E\_WSTC -15.745))) >=60 then FLD = 3;

if 100/(1+EXP(-(0.953 \* log(G1E\_TG) + 0.139 \* G1E\_BMI + 0.718 \* log(G1E\_GGT) + 0.053 \* G1E\_WSTC -15.745)))<60 and

100/(1+EXP(-(0.953 \* log(G1E\_TG) + 0.139 \* G1E\_BMI + 0.718 \* log(G1E\_GGT) + 0.053 \* G1E\_WSTC -15.745)))>=30 then FLD = 2;

if 100/(1+EXP(-(0.953 \* log(G1E\_TG) + 0.139 \* G1E\_BMI + 0.718 \* log(G1E\_GGT) + 0.053 \* G1E\_WSTC -15.745)))< 30 then FLD = 1;

if substr(HME\_DT,1,4) = 2009;

HME\_YR= substr(HME\_DT,1,4);

run;

\*FLD= 3;

data c.fld\_3; set c.id\_sex\_g1e\_fld;if HME\_YR in ('2002','2003','2004','2005','2006','2007','2008','2009') and FLD=3;run;

proc sort data= c.fld\_3(keep= INDI\_DSCM\_NO HME\_YR FLD) nodupkey; by INDI\_DSCM\_NO; run;

data c.fld\_2\_1\_0;

merge c.id\_sex\_g1e\_fld(in=a) c.fld\_3(in=b);

by INDI\_DSCM\_NO;

if not b and HME\_YR in ('2002','2003','2004','2005','2006','2007','2008','2009');

run;

\*FLD= 2;

data c.fld\_2; set c.fld\_2\_1\_0;if FLD=2;run;

proc sort data= c.fld\_2(keep= INDI\_DSCM\_NO HME\_YR FLD) nodupkey; by INDI\_DSCM\_NO; run;

data c.fld\_1\_0;

merge c.fld\_2\_1\_0(in=a) c.fld\_2(in=b);

by INDI\_DSCM\_NO;

if not b;

run;

\*FLD= 1;

data c.fld\_1; set c.fld\_1\_0;if FLD=1;run;

proc sort data= c.obe\_1(keep= INDI\_DSCM\_NO HME\_YR FLD) nodupkey; by INDI\_DSCM\_NO; run;

\*FLD= 0;

data c.fld\_0;

merge c.fld\_1\_0(in=a) c.fld\_1(in=b);

by INDI\_DSCM\_NO;

if not b;

run;

proc sort data= c.fld\_0(keep= INDI\_DSCM\_NO HME\_YR FLD) nodupkey; by INDI\_DSCM\_NO; run;

data c.fld;

merge c.fld\_3 c.fld\_2 c.fld\_1 c.fld\_0;

by INDI\_DSCM\_NO;

run;

\*2009년 간암 검진대상자 + 가족력 암비교;

data c.sub\_id\_cq\_rst\_2009;

merge c.sub\_id(in=a) c.cq\_rst\_2009\_sort;

by INDI\_DSCM\_NO;

if a and HME\_DT ^='';

run;

/\*간암검진대상자 중 간암검진을 받은 환자 267,031/514095=51.9%\*/

proc sort data= c.sub\_id\_cq\_rst\_2009 out= c.sub\_id\_cq\_rst\_2009\_id(KEEP= INDI\_DSCM\_NO) nodupkey; by INDI\_DSCM\_NO; run; \*267,031;

proc freq data=c.sub\_id\_cq\_rst\_2009; table QC\_PFHX\_CST\_PRT;run;

data c.sub\_id\_cq\_rst\_family; set c.sub\_id\_cq\_rst\_2009;

/\*위암\*/

if (QC\_PFHX\_CST\_PRT^="" and QC\_PFHX\_CST\_PRT in ("2")) then CST\_PRT=1;

else QC\_PFHX\_CST\_PRT^="" then CST\_PRT=1;

else CST\_PRT=9;

if (QC\_PFHX\_CST\_BRT^="" and QC\_PFHX\_CST\_BRT in ("2")) then CST\_BRT=1;

else QC\_PFHX\_CST\_BRT^="" then CST\_BRT=1;

else CST\_BRT=9;

if (QC\_PFHX\_CST\_SST^="" and QC\_PFHX\_CST\_SST in ("2")) then CST\_SST=1;

else QC\_PFHX\_CST\_SST^="" then CST\_SST=1;

else CST\_SST=9;

/\*대장\*/

if (QC\_PFHX\_CCR\_PRT^="" and QC\_PFHX\_CCR\_PRT in ("2")) then CCR\_PRT=1;

else if QC\_PFHX\_CCR\_PRT^="" then CCR\_PRT=0;

else CCR\_PRT=9;

if (QC\_PFHX\_CCR\_BRT^="" and QC\_PFHX\_CCR\_BRT in ("2")) then CCR\_BRT=1;

else if QC\_PFHX\_CCR\_BRT^="" then CCR\_BRT=0;

else CCR\_BRT=9;

if (QC\_PFHX\_CCR\_SST^="" and QC\_PFHX\_CCR\_SST in ("2")) then CCR\_SST=1;

else if QC\_PFHX\_CCR\_SST^="" then CCR\_SST=0;

else CCR\_SST=9;

/\*간암\*/

if (QC\_PFHX\_CLV\_PRT^="" and QC\_PFHX\_CLV\_PRT in ("2")) then CLV\_PRT=1;

else if QC\_PFHX\_CLV\_PRT^="" then CLV\_PRT=0;

else CLV\_PRT=9;

if (QC\_PFHX\_CLV\_BRT^="" and QC\_PFHX\_CLV\_BRT in ("2")) then CLV\_BRT=1;

else if QC\_PFHX\_CLV\_BRT^="" then CLV\_BRT=0;

else CLV\_BRT=9;

if (QC\_PFHX\_CLV\_SST^="" and QC\_PFHX\_CLV\_SST in ("2")) then CLV\_SST=1;

else if QC\_PFHX\_CLV\_SST^="" then CLV\_SST=0

;else CLV\_SST=9;

/\*유방\*/

if (QC\_PFHX\_CBR\_PRT^="" and QC\_PFHX\_CBR\_PRT in ("2")) then CBR\_PRT=1;

else if QC\_PFHX\_CBR\_PRT^="" then CBR\_PRT=1;

else CBR\_PRT=9;

if (QC\_PFHX\_CBR\_BRT^="" and QC\_PFHX\_CBR\_BRT in ("2")) then CBR\_BRT=1;

else if QC\_PFHX\_CBR\_BRT^="" then CBR\_BRT=0;

else CBR\_BRT=9;

if (QC\_PFHX\_CBR\_SST^="" and QC\_PFHX\_CBR\_SST in ("2")) then CBR\_SST=1;

else if QC\_PFHX\_CBR\_SST^="" then CBR\_SST=0;

else CBR\_SST=9;

/\*자궁경부\*/

if (QC\_PFHX\_CCX\_PRT^="" and QC\_PFHX\_CCX\_PRT in ("2")) then CCX\_PRT=1;

else QC\_PFHX\_CCX\_PRT^="" then CCX\_PRT=0;

else CCX\_PRT=9;

if (QC\_PFHX\_CCX\_BRT^="" and QC\_PFHX\_CCX\_BRT in ("2")) then CCX\_BRT=1;

else QC\_PFHX\_CCX\_BRT^="" then CCX\_BRT=0;

else CCX\_BRT=9;

if (QC\_PFHX\_CCX\_SST^="" and QC\_PFHX\_CCX\_SST in ("2"))then CCX\_SST=1;

else QC\_PFHX\_CCX\_SST^="" then CCX\_SST=0;

else CCX\_SST=9;

if CBR\_PRT=1 or CCX\_PRT=1 then ETC\_PRT=1;

else if CBR\_PRT=9 or CCX\_PRT=9 then ETC\_PRT=9;

else ETC\_PRT=2;

if CBR\_BRT=1 or CCX\_BRT=1 then ETC\_BRT=1;

else if CBR\_BRT=9 or CCX\_BRT=9 then ETC\_BRT=9;

else ETC\_BRT=2;

if CBR\_SST=1 or CCX\_SST=1 then ETC\_SST=1;

else if CBR\_SST=9 or CCX\_SST=9 then ETC\_SST=9;

else ETC\_SST=2;

if CST\_PRT=1 or CST\_BRT=1 or CST\_SST=1 then CST=1;

else if CST\_PRT=9 or CST\_BRT=9 or CST\_SST=9 then CST=9;

else CST=2;

if CCR\_PRT=1 or CCR\_BRT=1 or CCR\_SST=1 then CCR=1;

else if CCR\_PRT=9 or CCR\_BRT=9 or CCR\_SST=9 then CCR=9;

else CCR=2;

if CLV\_PRT=1 or CLV\_BRT=1 or CLV\_SST=1 then CLV=1;

else if CLV\_PRT=9 or CLV\_BRT=9 or CLV\_SST=9 then CLV=9;

else CLV=2;

if ETC\_PRT=1 or ETC\_BRT=1 or ETC\_SST=1 then ETC=1;

else if ETC\_PRT=9 or ETC\_BRT=9 or ETC\_SST=9 then ETC=9;

else ETC=2;

if CST=1 or CCR=1 or CLV=1 or ETC=1 then family\_hist=1;

else if CST=9 or CCR=9 or CLV=9 or ETC=9 then family\_hist=9;

else family\_hist=2;

HME\_YR= substr(HME\_DT,1,4);

run;

\*family\_hist= 2;

data c.family\_2; set c.sub\_id\_cq\_rst\_family;if family\_hist=2;run;

proc sort data= c.alcohol\_2(keep= INDI\_DSCM\_NO HME\_YR family\_hist) nodupkey; by INDI\_DSCM\_NO; run;

data c.family\_1\_9;

merge c.sub\_id\_cq\_rst\_family(in=a) c.family\_2(in=b);

by INDI\_DSCM\_NO;

if not b;

run;

\*family\_hist= 1;

data c.family\_1; set c.alcohol\_1\_9;if family\_hist=1;run;

proc sort data= c.family\_1(keep= INDI\_DSCM\_NO HME\_YR family\_hist) nodupkey; by INDI\_DSCM\_NO; run;

\*family\_hist= 9;

data c.family\_9;

merge c.family\_1\_9(in=a) c.family\_1(in=b);

by INDI\_DSCM\_NO;

if not b;

run;

proc sort data= c.family\_0(keep= INDI\_DSCM\_NO HME\_YR family\_hist) nodupkey; by INDI\_DSCM\_NO; run;

data c.family;

merge c.family\_2 c.family\_1 c.family\_9;

by INDI\_DSCM\_NO;

run;

\*-----------------------------------------------;

/\*상병내역(T40) 합치기\*/

\*ID로 정렬;

%MACRO SORT(year);

\*1~9월;

%MACRO SORT1(start, stop, incr);

%DO i = &start %TO &stop %BY &incr;

proc sort data= a.t40\_&year.0&i out= c.t40\_&year.0&i.\_sort; by CMN\_KEY; run;

%END;

%MEND;

%SORT1(1, 9, 1)

\*10~12월;

%MACRO SORT2(start, stop, incr);

%DO i = &start %TO &stop %BY &incr;

proc sort data= a.t40\_&year.&i. out= c.t40\_&year.&i.\_sort; by CMN\_KEY; run;

%END;

%MEND;

%SORT2(10, 12, 1);

%MEND;

%MACRO DOLIST; %DO j= 2002 %TO 2009 %BY 1; %SORT(&j); %END; %MEND; %DOLIST;

\*연도별 상병내역 합치기;

%MACRO SET(year);

data c.t40\_&year;

set c.t40\_&year.01\_sort c.t40\_&year.02\_sort c.t40\_&year.03\_sort c.t40\_&year.04\_sort c.t40\_&year.05\_sort c.t40\_&year.06\_sort

c.t40\_&year.07\_sort c.t40\_&year.08\_sort c.t40\_&year.09\_sort c.t40\_&year.10\_sort c.t40\_&year.11\_sort c.t40\_&year.12\_sort;

by CMN\_KEY;

run;

%MEND;

%MACRO DOLIST; %DO j= 2002 %TO 2009 %BY 1; %SET(&j); %END; %MEND; %DOLIST;

\*-----------------------------------------------;

proc sort data= c.sub\_id\_bfc\_2009 out=id(keep=INDI\_DSCM\_NO sex\_type); by INDI\_DSCM\_NO; run;

data id\_M; set id; where sex\_type="1";run;/\*n=320856\*/

data id\_F; set id; where sex\_type="2";run;/\*n=193239\*/

%MACRO SET(year);

proc sort data= c.sub\_2009\_t20\_&year; by INDI\_DSCM\_NO; run;

%MEND;

%MACRO DOLIST; %DO j= 2007 %TO 2009 %BY 1; %SET(&j); %END; %MEND; %DOLIST;

%MACRO SET(year);

data c.sub\_m\_2009\_t20\_&year;

merge id\_M (in=a) c.sub\_2009\_t20\_&year (in=b);

by INDI\_DSCM\_NO;

if a and b;

run;

%MEND;

%MACRO DOLIST; %DO j= 2007 %TO 2009 %BY 1; %SET(&j); %END; %MEND; %DOLIST;

%MACRO SET(year);

data c.sub\_f\_2009\_t20\_&year;

merge id\_f (in=a) c.sub\_2009\_t20\_&year (in=b);

by INDI\_DSCM\_NO;

if a and b;

run;

%MEND;

%MACRO DOLIST; %DO j= 2007 %TO 2009 %BY 1; %SET(&j); %END; %MEND; %DOLIST;

%MACRO SET(year); proc sort data= c.sub\_m\_2009\_t20\_&year; by CMN\_KEY; run; %MEND;

%MACRO DOLIST; %DO j= 2007 %TO 2009 %BY 1; %SET(&j); %END; %MEND; %DOLIST;

%MACRO SET(year); proc sort data= c.sub\_f\_2009\_t20\_&year; by CMN\_KEY; run; %MEND;

%MACRO DOLIST; %DO j= 2007 %TO 2009 %BY 1; %SET(&j); %END; %MEND; %DOLIST;

%MACRO SET(year); proc sort data= c.t40\_&year; by CMN\_KEY; run;%MEND;

%MACRO DOLIST; %DO j= 2007 %TO 2009 %BY 1; %SET(&j); %END; %MEND; %DOLIST;

\*연도별 상병내역 + 명세서 합치기;

%MACRO SET(year);

data c.sub\_m\_2009\_t20\_t40&year;

merge c.sub\_m\_2009\_t20\_&year (in=a) c.t40\_&year (in=b);

by CMN\_KEY;

if a and b;

run;

%MEND;

%MACRO DOLIST; %DO j= 2007 %TO 2009 %BY 1; %SET(&j); %END; %MEND; %DOLIST;

\*연도별 상병내역 + 명세서 합치기;

%MACRO SET(year);

data c.sub\_f\_2009\_t20\_t40&year;

merge c.sub\_f\_2009\_t20\_&year (in=a) c.t40\_&year (in=b);

by CMN\_KEY;

if a and b;

run;

%MEND;

%MACRO DOLIST; %DO j= 2007 %TO 2009 %BY 1; %SET(&j); %END; %MEND; %DOLIST;

\* 최종;

data c.sub\_m\_2009\_t20\_t40;

set c.sub\_m\_2009\_t20\_t402007 c.sub\_m\_2009\_t20\_t402008 c.sub\_m\_2009\_t20\_t402009;

by CMN\_KEY;

run;

\* 최종;

data c.sub\_f\_2009\_t20\_t40;

set c.sub\_f\_2009\_t20\_t402007 c.sub\_f\_2009\_t20\_t402008 c.sub\_f\_2009\_t20\_t402009;

by CMN\_KEY;

run;

proc sql; create table id\_hme\_dt as select indi\_dscm\_no, hme\_dt from b.clv\_2009\_sort where hme\_dt^=" ";quit;

proc sort data=id\_hme\_dt ; by indi\_dscm\_no hme\_dt;run; /\*212688\*/

data id\_hme\_dt ;set id\_hme\_dt; if first.indi\_dscm\_no;by indi\_dscm\_no;run; /\*211840, 848 (0.4%)\*/

proc sort data=c.sub\_m\_2009\_t20\_t40; by indi\_dscm\_no;run;

proc sort data=c.sub\_f\_2009\_t20\_t40; by indi\_dscm\_no;run;

data c.sub\_m\_2009\_t20\_t40; merge c.sub\_m\_2009\_t20\_t40 (in=a) id\_hme\_dt; by indi\_dscm\_no; if a;run;

data c.sub\_f\_2009\_t20\_t40; merge c.sub\_f\_2009\_t20\_t40 (in=a) id\_hme\_dt; by indi\_dscm\_no; if a;run;

\*-----------------------------------------------;

/\*\*\*\*\*Step9. 2009년 암환자의 모든 상병기록 (T20)\*\*\*\*\*/

%MACRO CCI(db);

DATA c..CCI\_&db;

SEt c..&db;

WHERE hme\_dt -CCI\_DATE >=0 AND hme\_dt - CCI\_DATE <= 365;

IF SUBSTR(MCEX\_SICK\_SYM,1,3) IN ('I21','I22') OR SUBSTR(MCEX\_SICK\_SYM,1,4)='I252' THEN CCI\_1=1; /\*심근경색: Maycardial infraction\*/

IF SUBSTR(MCEX\_SICK\_SYM,1,3) IN ('I43','I50') OR SUBSTR(MCEX\_SICK\_SYM,1,4) IN ('I099','I110', 'I130','I132','I255','I420')

OR 'I425' <= SUBSTR(MCEX\_SICK\_SYM,1,4) <= 'I429' THEN CCI\_2=1; /\*심부전: Congestive heart failure\*/

IF SUBSTR(MCEX\_SICK\_SYM,1,3) IN ('I70','I71') OR SUBSTR(MCEX\_SICK\_SYM,1,4) IN ('I731','I738', 'I739','I771','I790','I792','K551','K558', 'K559','Z958','Z959')

THEN CCI\_3=1; /\*말초혈관질환: Periopheral vascular disorders\*/

IF SUBSTR(MCEX\_SICK\_SYM,1,3) IN ('G45','G46') OR 'I60' <= SUBSTR(MCEX\_SICK\_SYM,1,3) <= 'I69' OR

SUBSTR(MCEX\_SICK\_SYM,1,4) IN ('H340') THEN CCI\_4=1; /\*뇌혈관질환 : Cerebrovascular disease\*/

IF SUBSTR(MCEX\_SICK\_SYM,1,3) IN ('F00','F01','F02','F03','G30') OR SUBSTR(MCEX\_SICK\_SYM,1,4) IN ('F051','G311') THEN CCI\_5=1; /\*치매 :Dementia\*/

IF 'J40' <= SUBSTR(MCEX\_SICK\_SYM,1,3) <= 'J47' OR 'J60' <= SUBSTR(MCEX\_SICK\_SYM,1,3) <= 'J67'

OR SUBSTR(MCEX\_SICK\_SYM,1,4) IN ('I278','I279', 'J684','J701','J703') THEN CCI\_6=1; /\*만성폐질환 : Chronic pulmonary disease\*/

IF SUBSTR(MCEX\_SICK\_SYM,1,3) IN ('M05','M06','M32','M33','M34') OR SUBSTR(MCEX\_SICK\_SYM,1,4) IN ('M315','M351', 'M353','M360')

THEN CCI\_7=1; /\*류마티스성 질환 : Rheumatic disease\*/

IF SUBSTR(MCEX\_SICK\_SYM,1,3) IN ('K25','K26','K27','K28') THEN CCI\_8=1; /\*소화성 궤양증 : Peptic ulcer disease\*/

IF SUBSTR(MCEX\_SICK\_SYM,1,3) IN ('B18','K73','K74') OR

SUBSTR(MCEX\_SICK\_SYM,1,4) IN ('K700','K701', 'K702','K703','K709','K713', 'K714','K715','K717','K760', 'K762','K763','K764','K768', 'K769','Z944')

THEN CCI\_9=1; /\*가벼운 간질환 : Mild liver disease\*/

IF SUBSTR(MCEX\_SICK\_SYM,1,4) IN ('E100','E101', 'E106','E108','E109','E110','E111', 'E116','E118','E119','E120', 'E121','E126','E128','E129', 'E130','E131', 'E136','E138','E139','E140', 'E141','E146', 'E148','E149')

THEN CCI\_10=1; /\*당뇨(만성합병증외) : Diabetes without chrnoic complication\*/

IF SUBSTR(MCEX\_SICK\_SYM,1,4) IN ('E102','E103', 'E104','E105','E107','E112', 'E113','E114','E115','E117', 'E122','E123','E124','E125', 'E127','E132', 'E133','E134','E135','E137', 'E142','E143', 'E144','E145','E147')

THEN CCI\_11=1; /\*당뇨(만성합병증) : Diabetes with chrnoic complication\*/

IF SUBSTR(MCEX\_SICK\_SYM,1,3) IN ('G81','G82') OR SUBSTR(MCEX\_SICK\_SYM,1,4) IN ('G041','G114', 'G801','G802','G830','G831', 'G832','G833','G834', 'G839')

THEN CCI\_12=1; /\*편마비 : Hemiplegia or paraplegia\*/

IF SUBSTR(MCEX\_SICK\_SYM,1,3) IN ('N18','N19') OR SUBSTR(MCEX\_SICK\_SYM,1,4) IN ('I120','I131', 'N250','Z940','Z992')

OR 'N032' <= SUBSTR(MCEX\_SICK\_SYM,1,4) <= 'N037' OR 'N052' <= SUBSTR(MCEX\_SICK\_SYM,1,4) <= 'N057' OR 'Z490' <= SUBSTR(MCEX\_SICK\_SYM,1,4) <= 'Z492'

THEN CCI\_13=1; /\*신장질환 : Renal disease\*/

IF 'C00' <= SUBSTR(MCEX\_SICK\_SYM,1,3) <= 'C26' OR 'C30' <= SUBSTR(MCEX\_SICK\_SYM,1,3) <= 'C34' OR 'C37' <= SUBSTR(MCEX\_SICK\_SYM,1,3) <= 'C41' OR 'C45' <= SUBSTR(MCEX\_SICK\_SYM,1,3) <= 'C58'

OR 'C60' <= SUBSTR(MCEX\_SICK\_SYM,1,3) <= 'C76' OR 'C81' <= SUBSTR(MCEX\_SICK\_SYM,1,3) <= 'C85' OR 'C90' <= SUBSTR(MCEX\_SICK\_SYM,1,3) <= 'C97'

OR SUBSTR(MCEX\_SICK\_SYM,1,3) IN ('C43','C88') THEN CCI\_14=1; /\*악성종양 : Any malignancy\*/

IF SUBSTR(MCEX\_SICK\_SYM,1,4) IN ('I850','I859', 'I864','I982','K704','K711', 'K721','K729','K765','K766','K767')

THEN CCI\_15=1; /\*심각한 간질환 : Moderate or severe liver disease\*/

IF SUBSTR(MCEX\_SICK\_SYM,1,3) IN ('C77','C78', 'C79','C80')

THEN CCI\_16=1; /\*전이성고형종양 : Moderate or severe liver disease\*/

IF SUBSTR(MCEX\_SICK\_SYM,1,3) IN ('B20','B21', 'B22','B24')

THEN CCI\_17=1; /\*에이즈 : AIDS/HIV\*/

RUN;

%MEND;

%CCI(&WP,&LB);

%MACRO CCI2(WINDOW, LOOKBACK,N);

DATA CCI\_&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N (KEEP=INDI\_DSCM\_NO CCI\_DATE FORM\_CD CCI\_&N);

SET c..CCI\_&db; WHERE CCI\_&N=1 AND FORM\_CD IN ('02','03'); RUN;

PROC SORT DATA=CCI\_&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N NODUP; BY INDI\_DSCM\_NO CCI\_DATE FORM\_CD; RUN;

PROC SQL; CREATE TABLE CCI&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N AS SELECT INDI\_DSCM\_NO, FORM\_CD, SUM(CCI\_&N) AS N

FROM CCI\_&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N GROUP BY INDI\_DSCM\_NO, FORM\_CD; QUIT;

DATA CCI02\_&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N; SET CCI&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N; WHERE FORM\_CD='02'; RENAME N=N\_02; RUN;

DATA CCI03\_&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N; SET CCI&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N; WHERE FORM\_CD='03'; RENAME N=N\_03; RUN;

%MEND;

%MACRO DO\_LIST; %DO I=1 %TO 15; %CCI2(&WP,&LB,&I);%END; %MEND DO\_LIST; %DO\_LIST;

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

Klabunde's Rule out 1 : (1) 입원 0회,& 외래 1회 제외 (RO1&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N)

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

%MACRO CCI3(WINDOW, LOOKBACK,N);

DATA RO1\_&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N;

MERGE CCI02\_&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N CCI03\_&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N; BY INDI\_DSCM\_NO; RUN;

DATA RO1&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N; SET RO1\_&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N; WHERE N\_02=. AND N\_03<2;RUN;

%MEND;

%MACRO DO\_LIST; %DO I=1 %TO 15; %CCI3(&WP,&LB,&I);%END; %MEND DO\_LIST; %DO\_LIST;

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

Klabunde's Rule out 2 : (2-1) 방문 2회 이상 시 방문 간 간격 30일 초과만 포함 (RO2\_M\_&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N)

(3) 입원 1회 이상 시 포함 (RO2\_02\_&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N)

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

%MACRO CCI4(WINDOW, LOOKBACK,N);

DATA RO2\_&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N (DROP=VISIT\_DIFF); SET CCI\_&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N; BY INDI\_DSCM\_NO CCI\_DATE;

RETAIN VISIT\_DIFF;

IF FIRST.INDI\_DSCM\_NO THEN DO; VISIT\_DIFF=CCI\_DATE; END;

ELSE DO; IF NMISS(VISIT\_DIFF,CCI\_DATE)=0 THEN VISITDIFF=CCI\_DATE-VISIT\_DIFF;

ELSE VISITDIFF=.; VISIT\_DIFF=CCI\_DATE; END; RUN;

DATA RO2\_M\_&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N (KEEP=INDI\_DSCM\_NO); SET RO2\_&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N; WHERE VISITDIFF >30; RUN;

PROC SORT DATA= RO2\_M\_&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N NODUP; BY INDI\_DSCM\_NO; RUN;

DATA RO2\_02\_&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N (KEEP=INDI\_DSCM\_NO); SET RO2\_&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N; WHERE FORM\_CD='02'; RUN;

PROC SORT DATA=RO2\_02\_&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N NODUP; BY INDI\_DSCM\_NO; RUN;

DATA RO2\_30\_&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N;

SET RO2\_&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N (IN=A)

RO2\_M\_&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N (IN=B)

RO2\_02\_&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N (IN=C);

BY INDI\_DSCM\_NO; IF A=1 AND (B^=1 OR C^=1); RUN;

%MEND;

%MACRO DO\_LIST; %DO I=1 %TO 15; %CCI4(&WP,&LB,&I);%END; %MEND DO\_LIST; %DO\_LIST;

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

Klabunde's Rule out 3 : (2-1) 방문 3회 이상 시 방문 간 간격 30일 초과만 포함 (RO3&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N)

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

%MACRO CCI5(WINDOW, LOOKBACK,N);

PROC SQL; CREATE TABLE RO3\_&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N AS SELECT INDI\_DSCM\_NO, SUM(VISITDIFF) AS DAYS

FROM RO2\_30\_&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N GROUP BY INDI\_DSCM\_NO; QUIT;

DATA RO3&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N(KEEP=INDI\_DSCM\_NO); SET RO3\_&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N; WHERE DAYS>30;RUN;

DATA &C\_ICD..RO\_&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N;

MERGE

RO2\_M\_&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N (IN=A)

RO2\_02\_&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N(IN=B)

RO3&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N(IN=C)

RO2\_&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N;

BY INDI\_DSCM\_NO; IF A=1 OR B=1 OR C=1; RUN;

%MEND;

%MACRO DO\_LIST; %DO I=1 %TO 15; %CCI5(&WP,&LB,&I);%END; %MEND DO\_LIST; %DO\_LIST;

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

CCI DB SET

전체 청구 : RO&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N

입원 청구: RO02&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N

외래 청구: RO03&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N

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

%MACRO CCI6(WINDOW,LOOKBACK,N);

DATA RO\_&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N; SET &C\_ICD..RO\_&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N;

RENAME CCI\_DATE=DATE\_&N FORM\_CD=FORM\_&N; RUN;

PROC SORT DATA=RO\_&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N; BY INDI\_DSCM\_NO DATE\_&N; RUN;

DATA RO&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N; SET RO\_&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N; BY INDI\_DSCM\_NO DATE\_&N; IF FIRST.INDI\_DSCM\_NO; RUN;

DATA RO02\_&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N; SET RO\_&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N; WHERE FORM\_&N="02";

RENAME DATE\_&N=DATE02\_&N CCI\_&N=CCI02\_&N; RUN;

DATA RO03\_&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N; SET RO\_&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N; WHERE FORM\_&N="03";

RENAME DATE\_&N=DATE03\_&N CCI\_&N=CCI03\_&N;RUN;

DATA RO02&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N; SET RO02\_&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N; BY INDI\_DSCM\_NO DATE02\_&N; IF FIRST.INDI\_DSCM\_NO; RUN;

DATA RO03&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N; SET RO03\_&WINDOW.\_&LOOKBACK.\_&YEAR.\_&N; BY INDI\_DSCM\_NO DATE03\_&N; IF FIRST.INDI\_DSCM\_NO; RUN;

%MEND;

%MACRO DO\_LIST; %DO I=1 %TO 15; %CCI6(&WP,&LB,&I);%END; %MEND DO\_LIST; %DO\_LIST;

DATA &C\_ICD..RO&WINDOW.\_&LOOKBACK.\_&YEAR (DROP=VISITDIFF);

MERGE RO&WINDOW.\_&LOOKBACK.\_&YEAR.\_1-RO&WINDOW.\_&LOOKBACK.\_&YEAR.\_15; BY INDI\_DSCM\_NO;RUN;

DATA &C\_ICD..RO02&WINDOW.\_&LOOKBACK.\_&YEAR (DROP=VISITDIFF);

MERGE RO02&WINDOW.\_&LOOKBACK.\_&YEAR.\_1-RO02&WINDOW.\_&LOOKBACK.\_&YEAR.\_15; BY INDI\_DSCM\_NO;RUN;

DATA &C\_ICD..RO03&WINDOW.\_&LOOKBACK.\_&YEAR (DROP=VISITDIFF);

MERGE RO03&WINDOW.\_&LOOKBACK.\_&YEAR.\_1-RO03&WINDOW.\_&LOOKBACK.\_&YEAR.\_15; BY INDI\_DSCM\_NO;RUN;

PROC SORT DATA=&C\_ICD..&C\_ICD.FIRST\_&YEAR; BY INDI\_DSCM\_NO;RUN;

PROC SORT DATA=&C\_ICD..RO&WINDOW.\_&LOOKBACK.\_&YEAR; BY INDI\_DSCM\_NO;RUN;

PROC SORT DATA=&C\_ICD..RO02&WINDOW.\_&LOOKBACK.\_&YEAR; BY INDI\_DSCM\_NO;RUN;

PROC SORT DATA=&C\_ICD..RO03&WINDOW.\_&LOOKBACK.\_&YEAR; BY INDI\_DSCM\_NO;RUN;

DATA &C\_ICD..&C\_ICD.\_CCI&YEAR;

MERGE &C\_ICD..&C\_ICD.FIRST\_&YEAR(IN=A)

&C\_ICD..RO&WINDOW.\_&LOOKBACK.\_&YEAR

&C\_ICD..RO02&WINDOW.\_&LOOKBACK.\_&YEAR

&C\_ICD..RO03&WINDOW.\_&LOOKBACK.\_&YEAR;

BY INDI\_DSCM\_NO; IF A; RUN;

PROC FREQ DATA=&C\_ICD..&C\_ICD.\_CCI&YEAR; TABLE AGE\_GRP SIDO\_NM SEX\_TYPE;RUN;

DATA &C\_ICD..&C\_ICD.\_CCI&YEAR;

SET &C\_ICD..&C\_ICD.\_CCI&YEAR; WHERE AGE\_GRP^=" " AND SIDO\_NM^=" " AND SEX\_TYPE^=" " ; RUN;

%MACRO CCI7(N);

DATA &C\_ICD..&C\_ICD.\_CCI&YEAR; SET &C\_ICD..&C\_ICD.\_CCI&YEAR;

IF CCI\_&N=. THEN CCI\_&N=0;

IF CCI02\_&N=. THEN CCI02\_&N=0;

IF CCI03\_&N=. THEN CCI03\_&N=0;

RUN;

%MEND;

%MACRO DO\_LIST; %DO I=1 %TO 15; %CCI7(&I);%END; %MEND DO\_LIST; %DO\_LIST;

DATA &C\_ICD..&C\_ICD.\_CCI&YEAR; SET &C\_ICD..&C\_ICD.\_CCI&YEAR;

LENGTH CCI\_ID $15.;

CCI\_N=CCI\_1+CCI\_2+CCI\_3+CCI\_4+CCI\_5+CCI\_6+CCI\_7+CCI\_8+CCI\_9+CCI\_10+CCI\_11+CCI\_12+CCI\_13+CCI\_14+CCI\_15;

CCI\_ID=CAT(CCI\_1,CCI\_2,CCI\_3,CCI\_4,CCI\_5,CCI\_6,CCI\_7,CCI\_8,CCI\_9,CCI\_10,CCI\_11,CCI\_12,CCI\_13,CCI\_14,CCI\_15);

IF YEND\_STD\_AGE>=65 THEN AGE65=1; ELSE AGE65=0;

IF SURVTIME^=. AND SURVTIME>=0 AND SURVTIME<=365 AND DEATH=1 THEN SURV\_1YR=1; ELSE SURV\_1YR=0;

IF SURVTIME^=. AND SURVTIME>=0 AND SURVTIME<=365\*3 AND DEATH=1 THEN SURV\_3YR=1; ELSE SURV\_3YR=0;

IF SURVTIME^=. AND SURVTIME>=0 AND SURVTIME<=365\*5 AND DEATH=1 THEN SURV\_5YR=1; ELSE SURV\_5YR=0;

IF SURVTIME^=. AND SURVTIME>=0 AND SURVTIME<=365\*7 AND DEATH=1 THEN SURV\_7YR=1; ELSE SURV\_7YR=0;

RUN;

\*-----------------------------------------------;

/\*처방전교부상세(T60) 합치기\*/

\*ID로 정렬;

%MACRO SORT(year);

\*1~9월;

%MACRO SORT1(start, stop, incr);

%DO i = &start %TO &stop %BY &incr;

proc sort data= b.t60\_&year.0&i out= c.t60\_&year.0&i.\_sort; by CMN\_KEY; run;

%END;

%MEND;

%SORT1(1, 9, 1)

\*10~12월;

%MACRO SORT2(start, stop, incr);

%DO i = &start %TO &stop %BY &incr;

proc sort data= b.t60\_&year.&i. out= c.t60\_&year.&i.\_sort; by CMN\_KEY; run;

%END;

%MEND;

%SORT2(10, 12, 1);

%MEND;

%MACRO DOLIST; %DO j= 2002 %TO 2017 %BY 1; %SORT(&j); %END; %MEND; %DOLIST;

\*연도별 명세서 합치기;

%MACRO SET(year);

data c.t60\_&year;

set c.t60\_&year.01\_sort c.t60\_&year.02\_sort c.t60\_&year.03\_sort c.t60\_&year.04\_sort c.t60\_&year.05\_sort c.t60\_&year.06\_sort

c.t60\_&year.07\_sort c.t60\_&year.08\_sort c.t60\_&year.09\_sort c.t60\_&year.10\_sort c.t60\_&year.11\_sort c.t60\_&year.12\_sort;

by CMN\_KEY;

%MEND;

%MACRO DOLIST; %DO j= 2002 %TO 2017 %BY 1; %SET(&j); %END; %MEND; %DOLIST;

\*2017년 누락됨;

data c.t60\_2017;

set c.t60\_201701\_sort c.t60\_201702\_sort c.t60\_201703\_sort c.t60\_201704\_sort c.t60\_201705\_sort c.t60\_201706\_sort

c.t60\_201707\_sort c.t60\_201708\_sort c.t60\_201709\_sort c.t60\_201710\_sort c.t60\_201711\_sort c.t60\_201712\_sort;

by CMN\_KEY;

run;

data c.sub\_2009\_t20\_drug ;set c.sub\_2009\_t20;

keep INDI\_DSCM\_NO MDCARE\_STRT\_DT CMN\_KEY;

run;

proc sort data=c.sub\_2009\_t20\_drug; by CMN\_KEY; run;

%MACRO SET(j);

data c.sub\_id\_t60\_&j;merge c.sub\_2009\_t20\_drug (in=a) c.t60\_&j;by CMN\_KEY;if a;run;

%MEND;

%MACRO DOLIST; %DO j= 2002 %TO 2017 %BY 1; %SET(&j); %END; %MEND;

%DOLIST;

data c.sub\_id\_t60\_2002\_2009;

set c.sub\_id\_t60\_2002 c.sub\_id\_t60\_2003 c.sub\_id\_t60\_2004 c.sub\_id\_t60\_2005 c.sub\_id\_t60\_2006 c.sub\_id\_t60\_2007

c.sub\_id\_t60\_2008 c.sub\_id\_t60\_2009;

by CMN\_KEY;

run;

\*-----------------------------------------------;

\*--------------Antidiabetic Drug----------------;

\*-----------------------------------------------;

/\* 약제 관련 코드는 새로 5/11일 부로 새로 갱신, 하단 약제 코든는 5/9일용 \*/

data c.; set c.;

if MCARE\_DIV\_Cd\_ADJ in(

/\*Insulin\*/

'170431BIJ', '170430BIJ','441332BIJ','441330BIJ','441331BIJ','626830BIJ','488730BIJ','461832BIJ','461830BIJ','461831BIJ','484930BIJ','484931BIJ',

'175331BIJ','175330BIJ','175303BIJ','175304BIJ','175301BIJ','175302BIJ','175332BIJ','175333BIJ', '626700BIJ','626830BIJ','E21800BIJ') then Insulin = 1

if MCARE\_DIV\_Cd\_ADJ in(

/\*Sulfonylurea\*/

'132001ATB','165401ATB','165402ATB','421100ATB','443400ATB','443500ATB','471900ATB','165603ATR','165604ATR','165601ACS','165602ACS','165602ATB','497200ATB',

'165701ATB','165702ATB','165703ATB','165704ATB','165801ATB','165901ATB','165501ATB') then Sulfonylurea = 1

if MCARE\_DIV\_Cd\_ADJ in(

/\*metformin\*/

'191501ATB','191502AGR','191502ATB','191502ATR','191503ATB','191504ATB','191504ATR','191505ATR','452700ATB','452900ATB','461200ATB',

'469100ATB','498100ATB','502200ATB','502300ATB','502900ATB','507000ATB','507100ATB',

'486101ATB','430203ATB','430202ATB','430201ATB','379501ATB','379502ATB','379503ATB','525901ATB','431901ATB','431902ATB') then metformin = 1

if MCARE\_DIV\_Cd\_ADJ in(

/\*alpha glucosidase inhibitors\*/

'624202ATB','624203ATB','639601ATB','645301ATB','619101ATB','616401ATB','613301ATB','613302ATB','501103ATB','501101ATB','501102ATB','627301ATB','500801ATB',

'100601ATB','100602ATB','406201ATB','249001ATB','249002ATB') then a\_glucosidase\_inhibitors = 1

if MCARE\_DIV\_Cd\_ADJ in(

/\*dpp-4\*/

'486101ATB','430203ATB','130201ATB','430202ATB','379501ATB','379502ATB','379503ATB') then DPP\_4 =1

if Insulin = 1 or Sulfonylurea = 1 or metformin = 1 or a\_glucosidase\_inhibitors = 1 or DPP\_4 =1 then DM\_DRUG ='1';

run;

\*-----------------------------------------------;

\*---------------------ARV-----------------------;

\*-----------------------------------------------;

data c.; set c.;

if MCARE\_DIV\_Cd\_ADJ in('665401ATB','180901ATB','493901ATB','457501ATB','487203ATB','506001ATB','487802ACH','665301ATB','452602BIJ',

'638001ACH', '644401ATB','658701ATB','645800ATB','658600ATB','657000ATB','669700ATB')

then ARV ='1';

else ARV = "0";

run;

\*-----------------------------------------------;

\*------------------Panel data-------------------;

\*-----------------------------------------------;

/\*검진일자\*/

%MACRO MERGE(year);

data c.obj\_&year set b.obj\_clv\_rst\_&year; by INDI\_DSCM\_NO; run;

%MEND;

%MACRO DOLIST; %DO j=2002 %TO 2017 %BY 1; %MERGE(&j); %END; %MEND;

%DOLIST;

%MACRO MERGE(year);

data c.obj\_&year merge c.obj\_info2(in=a) c.obj\_&year; if a; by INDI\_DSCM\_NO; run;

%MEND;

%MACRO DOLIST; %DO j=2002 %TO 2017 %BY 1; %MERGE(&j); %END; %MEND;

%DOLIST;

%MACRO MERGE(year);

data c.obj\_&year set c.obj\_&year; keep INDI\_DSCM\_NO HME\_DT; by INDI\_DSCM\_NO; run;

%MEND;

%MACRO DOLIST; %DO j=2002 %TO 2017 %BY 1; %MERGE(&j); %END; %MEND;

%DOLIST;

data c.obj\_info\_2009\_id; set c.obj\_info\_2009; if.first.INDI\_DSCM\_NO; by INDI\_DSCM\_NO; run;

data c.obj\_info\_2002\_2008; set c.obj\_info\_2002 c.obj\_info\_2003 c.obj\_info\_2004 c.obj\_info\_2005 c.obj\_info\_2006

c.obj\_info\_2007 c.obj\_info\_2008; by INDI\_DSCM\_NO; run;

data c.obj\_info\_2002\_2008\_id; set c.obj\_info\_2002\_2008; if.last.INDI\_DSCM\_NO; by INDI\_DSCM\_NO; run;

data c.obj\_info\_2010\_2017; set c.obj\_info\_2010 c.obj\_info\_2011 c.obj\_info\_2012 c.obj\_info\_2013 c.obj\_info\_2014

c.obj\_info\_2015 c.obj\_info\_2016 c.obj\_info\_2017; by INDI\_DSCM\_NO; run;

data c.obj\_info\_2010\_2017\_id; set c.obj\_info\_2010\_2017; if.first.INDI\_DSCM\_NO; by INDI\_DSCM\_NO; run;

data c.obj\_exm; set c.obj\_info\_2002\_2008\_id c.obj\_info\_2009\_id c.obj\_info\_2010\_2017\_id; by INDI\_DSCM\_NO; run;

data c.obj\_exm; set c.obj\_exm; if.first.INDI\_DSCM\_NO; by INDI\_DSCM\_NO; run;

data c.obj\_exm; merge c.obj\_info2(in=a) c.obj\_exm; if a; by INDI\_DSCM\_NO;run;

%MACRO MERGE(year);

data c.obj\_&year merge obj\_info2(in=a) c.obj\_&year; if a; by INDI\_DSCM\_NO;run;

%MEND;

%MACRO DOLIST; %DO j=2002 %TO 2017 %BY 1; %MERGE(&j); %END; %MEND;

%DOLIST;

data c.first\_study\_data;

merge c.obj\_exm(in=a) c.hepatitis c.hepatitis\_b c.hepatitis\_c c.hepatitis\_co c.others c.dm c.fld\_e c.alc c.obe c.smk c.cirrhosis\_dt\_bf c.lvc\_dt;

by INDI\_DSCM\_NO;

if a;

run;

\*변수정리;

proc contents data= c.first varnum; run;

data c.first ;

retain INDI\_DSCM\_NO YEAR SEX\_TYPE YEND\_STD\_AGE Hepatitis Hepatitis\_B Hepatitis\_C Coinfection Others DM FLD ALC OBE SMK EXM\_DT CIR\_EXM LVC\_EXM DTH\_ASSMD\_DT ;

set c.first ;

rename INDI\_DSCM\_NO= PAT\_ID SEX\_TYPE= SEX YEND\_STD\_AGE= AGE DTH\_ASSMD\_DT= DTH\_DT;

drop BYEAR;

run;

\*transition되는 시점 계산;

data c.first ; set c.first ;

y1= substr(EXM\_DT,1,4);

m1= substr(EXM\_DT,5,2);

d1= substr(EXM\_DT,5,2);

mdy1= mdy(m1,d1,y1);

y2= substr(CIR\_EXM,1,4);

m2= substr(CIR\_EXM,5,2);

d2= substr(CIR\_EXM,7,2);

mdy2= mdy(m2,d2,y2);

y3= substr(LVC\_EXM,1,4);

m3= substr(LVC\_EXM,5,2);

d3= substr(LVC\_EXM,7,2);

mdy3= mdy(m3,d3,y3);

y4= substr(DTH\_DT,1,4);

m4= substr(DTH\_DT,5,2);

d4= substr(DTH\_DT,7,2);

mdy4= mdy(m4,d4,y4);

/\* interval = month \*/

HALF1= 0;

HALF2= 2 \* (mdy2-mdy1)/365.25;

HALF3= 2 \* (mdy3-mdy1)/365.25;

HALF4= 2 \* (mdy4-mdy1)/365.25;

keep PAT\_ID HALF1 HALF2 HALF3 HALF4;

run;

\*panel data 형태로 가공;

proc transpose data= c.half name= State prefix= HALF out= c.half2;

by PAT\_ID;

run;

data c.state; set c.half2;

if State= 'HALF1' then State= 1;

else if State= 'HALF2' then State= 2;

else if State= 'HALF3' then State= 3;

else if State= 'HALF4' then State= 4;

rename HALF1= HALF;

label State= State;

run;

\*transition에 해당하지 않는 행은 삭제;

data c.state;

retain PAT\_ID DATE State;

set c.state;

if DATE= . then delete;

run;

/\*studydata 완성\*/

data c.studydata;

merge c.first c.state;

by PAT\_ID;

run;

\* covariates 결측치 처리;

data c.studydata; set c.studydata;

if Hepatitis= ' ' then Hepatitis= 0;

if Hepatitis\_B= ' ' then Hepatitis\_B= 0;

if Hepatitis\_C= ' ' then Hepatitis\_C= 0;

if Coinfection= ' ' then Coinfection= 0;

if Others= ' ' then Others= 0;

if DM= ' ' then DM= 0;

if FLD= ' ' then FLD= 0;

if ALC= ' ' then ALC= 0;

if OBE= ' ' then OBE= 0;

if SMK= ' ' then SMK= 0;

run;

\*--------------------------------------------------------------------------------------------------------;

\*--------------------------------------------------------------------------------------------------------;

\*2)간암확진일자와 사망일자가 동일한 경우, 간암확진을 30일 이전으로 조정(날짜차이 계산 후 바로 적용);

data c.studydata2; set c.studydata;

if State= 3 and LVC\_EXM ^= ' ' and DTH\_DT ^= ' ' and LVC\_EXM = DTH\_DT then HALF= HALF - (30 \* 2/365.25);

run;

\*3)Transition에 대한 정보가 없는 대상자(계속 State1인 경우);

data state1\_2009; set c.studydata2;

if CIR\_EXM= ' ' and LVC\_EXM= ' ' and DTH\_DT= ' ';

run;

proc sql;

create table state1 as select \* from state1\_2009;

update state1 set HALF= 20;

quit;

\*State2에 계속 머무는 경우;

data state2\_2009; set c.studydata2;

if State= 2 LVC\_EXM= ' ' and DTH\_DT= ' ';

run;

proc sql;

create table state2\_e as select \* from state2\_2009;

update state2 set HALF= 20;

quit;

\*State3에 계속 머무는 경우;

data state3\_2009; set c.studydata2;

if State= 3 and DTH\_DT= ' ';

run;

proc sql;

create table state3 as select \* from state3\_2009;

update state3 set HALF= 20;

quit;

\*Transition이 있는 대상자와 병합;

data c.studydata3;

set c.studydata2 state1 state2 state3;

by PAT\_ID;

run;

\*-----------------------------------------------;

\*---------------기타 연령 및 보험-------------------;

\*-----------------------------------------------;

data c.male; set c.obj\_info2;

if SEX\_TYPE = 1;

run;

data c.female; set c.obj\_info2;

if SEX\_TYPE = 2;

run;

/\*연령 \*/

data c.male\_age; set c.male;

if YEND\_STD\_AGE >= 40 and YEND\_STD\_AGE <45 then AGE = '40-44' ;

if YEND\_STD\_AGE >= 45 and YEND\_STD\_AGE <50 then AGE = '45-49';

if YEND\_STD\_AGE >= 50 and YEND\_STD\_AGE <55 then AGE = '50-54';

if YEND\_STD\_AGE >= 55 and YEND\_STD\_AGE <60 then AGE = '55-59';

if YEND\_STD\_AGE >= 60 and YEND\_STD\_AGE <65 then AGE = '60-64';

if YEND\_STD\_AGE >= 65 and YEND\_STD\_AGE <70 then AGE = '65-69';

if YEND\_STD\_AGE >= 70 and YEND\_STD\_AGE <75 then AGE = '70-74';

if YEND\_STD\_AGE >= 75 and YEND\_STD\_AGE <80 then AGE = '75-79';

if YEND\_STD\_AGE >= 80 and YEND\_STD\_AGE <85 then AGE = '80-84';

if YEND\_STD\_AGE >= 85 then AGE = '85+';

run;

data c.female\_age; set c.female;

if YEND\_STD\_AGE >= 40 and YEND\_STD\_AGE <45 then AGE = '40-44' ;

if YEND\_STD\_AGE >= 45 and YEND\_STD\_AGE <50 then AGE = '45-49';

if YEND\_STD\_AGE >= 50 and YEND\_STD\_AGE <55 then AGE = '50-54';

if YEND\_STD\_AGE >= 55 and YEND\_STD\_AGE <60 then AGE = '55-59';

if YEND\_STD\_AGE >= 60 and YEND\_STD\_AGE <65 then AGE = '60-64';

if YEND\_STD\_AGE >= 65 and YEND\_STD\_AGE <70 then AGE = '65-69';

if YEND\_STD\_AGE >= 70 and YEND\_STD\_AGE <75 then AGE = '70-74';

if YEND\_STD\_AGE >= 75 and YEND\_STD\_AGE <80 then AGE = '75-79';

if YEND\_STD\_AGE >= 80 and YEND\_STD\_AGE <85 then AGE = '80-84';

if YEND\_STD\_AGE >= 85 then AGE = '85+';

run;

proc freq data=c.male\_age;tables count(AGE); run;

proc freq data=c.female\_age;tables count(AGE); run;

/\* 소득분위 \*/

proc sort data= c.male out=c.male\_id(keep= INDI\_DSCM\_NO) nodupkey; by INDI\_DSCM\_NO;run;

proc sort data= c.female out=c.female\_id(keep= INDI\_DSCM\_NO) nodupkey; by INDI\_DSCM\_NO;run;

proc sort data= a.bfc\_2009 out=c.bfc\_2009\_sort; by INDI\_DSCM\_NO;run;

data c.male\_income; merge c.male\_id(in=a) c.bfc\_2009\_sort;by INDI\_DSCM\_NO; if a;run;

data c.female\_income; merge c.female\_id(in=a) c.bfc\_2009\_sort;by INDI\_DSCM\_NO; if a;run;

data c.male\_income; set c.male\_income;

if CALC\_CTRB\_VTILE\_FD >= 1 and CALC\_CTRB\_VTILE\_FD =<4 then INCOME = '1';

if CALC\_CTRB\_VTILE\_FD >= 5 and CALC\_CTRB\_VTILE\_FD =<8 then INCOME = '2';

if CALC\_CTRB\_VTILE\_FD >= 9 and CALC\_CTRB\_VTILE\_FD =<12 then INCOME = '3';

if CALC\_CTRB\_VTILE\_FD >= 13 and CALC\_CTRB\_VTILE\_FD =<16 then INCOME = '4';

if CALC\_CTRB\_VTILE\_FD >= 17 and CALC\_CTRB\_VTILE\_FD =<20 then INCOME = '5';

run;

data c.female\_income; set c.female\_income;

if CALC\_CTRB\_VTILE\_FD >= 1 and CALC\_CTRB\_VTILE\_FD =<4 then INCOME = '1';

if CALC\_CTRB\_VTILE\_FD >= 5 and CALC\_CTRB\_VTILE\_FD =<8 then INCOME = '2';

if CALC\_CTRB\_VTILE\_FD >= 9 and CALC\_CTRB\_VTILE\_FD =<12 then INCOME = '3';

if CALC\_CTRB\_VTILE\_FD >= 13 and CALC\_CTRB\_VTILE\_FD =<16 then INCOME = '4';

if CALC\_CTRB\_VTILE\_FD >= 17 and CALC\_CTRB\_VTILE\_FD =<20 then INCOME = '5';

run;

proc freq data= c.male\_income; tables INCOME;run;

proc freq data= c.female\_income; tables INCOME;run;