libname ile 'C:\Users\Bobie\Desktop\ILE';

**data** ilestart;

set ile.nhanes2016;

**run**;

**proc** **contents** data=ile.nhanes2016;

**run**;

\*used Friedewald formula to calculate LDL;

**data** ilestart\_filtered;

set ilestart;

LBDLDL = round(LBXTC-(LBDHDD+LBXSTR/**5**));

**run**;

**proc** **contents** data=ilestart\_filtered;

**run**;

**data** ilestart\_raw;

set ilestart\_filtered;

where LBDLDL is not missing;

**run**;

**data** ilestart\_grp1;

set ilestart\_filtered;

keep SEQN RIDAGEYR LBDHDD BMXBMI RIAGENDR RIDRETH1 DMDHREDU INDHHIN2 LBDLDL DIQ010 DIQ160;

**run**;

**proc** **contents** data=ilestart\_grp1;

**run**;

**proc** **print** data=ilestart\_grp1;

**run**;

**data** ilestart\_grp2;

set DBQ\_I;

keep SEQN DBD900;

**run**;

**proc** **sort** data=ilestart\_grp1;

by SEQN;

**run**;

**proc** **sort** data=ilestart\_grp2;

by SEQN;

**run**;

**data** merged\_ILEdataset;

merge ilestart\_grp1(in=a) ilestart\_grp2(in=b);

by SEQN;

**run**;

**proc** **print** data=merged\_ILEdataset;

**run**;

**data** merged\_ILEfinal;

set merged\_ILEdataset;

if DBD900=**.** then DBD900final=**.**;

else if DBD900=**0** then DBD900final=**0**;

else if DBD900 =>**1** then DBD900final=**1**;

**run**;

**proc** **print** data=merged\_ILEfinal;

**run**;

**proc** **format**;

value RIAGENDRf **1**="Male" **2**="Female" **.** =' ';

value RIDRETH1f **1**='Mexican American' **2**='Other Hispanic' **3**='Non-Hispanic White' **4**='Non-Hispanic Black' **5**='Other Race - Including Multi-Racial' **.** =' ';

value DMDHREDUf **1**='Less Than 9th Grade' **2**='9-11th Grade' **3**='High School Grad/GED or Equivalent' **4**='Some College or AA degree' **5**='College Graduate or above' **9**='Do not know' **.** =' ';

value INDHHIN2f **1**,**2**,**3**,**4**,**5**,**12**,**13**='$ 0 to $ 24,999' **6**,**7**,**8**='$25,000 to $54,999' **9**,**10**,**14**='$55,000 to $99,999' **15**='$100,000 and Over' **77**='Refused' **99**='Do not know'**.** =' ';

value DBD900finalf **0**='No' **1**='Yes'**.** =' ';

value DIQ010f **1**='Yes' **2**='No' **3**='Borderline' **7**='Refused' **9**='Do not know'**.** =' ';

value DIQ160f **1**='Yes' **2**='No' **3**='Borderline' **7**='Refused' **9**='Do not know' **.** =' ';

**run**;

**data** ILEfinal22;

set merged\_ILEfinal;

format RIAGENDR RIAGENDRf. RIDRETH1 RIDRETH1f. DMDHREDU DMDHREDUf. INDHHIN2 INDHHIN2f. DBD900final DBD900finalf. DIQ010 DIQ010f. DIQ160 DIQ160f. ;

**run**;

**data** ILEfinal;

set ILEfinal22;

where LBDLDL is not missing;

**run**;

**proc** **sort** data=ILEfinal;

by DBD900final;

**run**;

**proc** **print** data=ILEfinal;

**run**;

**proc** **freq** data=ILEfinal;

tables RIDAGEYR;

**run**;

**proc** **freq** data=ILEfinal;

tables DBD900final;

**run**;

**proc** **means** data=ILEfinal mean std maxdec=**2**;

var RIDAGEYR BMXBMI LBDLDL LBDHDD;

by DBD900final;

**run**;

**proc** **freq** data=ILEfinal;

tables RIAGENDR RIDRETH1 DMDHREDU INDHHIN2 DIQ010 DIQ160;

by DBD900final;

**run**;

\*Model testing=unadjusted;

**proc** **glm** data=ILEfinal;

class DBD900final(ref='No');

model LBDLDL=DBD900final/solution clparm;

lsmeans DBD900final /tdiff adjust=tukey cl;

**run**;

\*Model 1;

**proc** **glm** data=ILEfinal;

class DBD900final(ref='No')RIAGENDR(ref='Female') RIDRETH1(ref='Non-Hispanic White');

model LBDLDL=DBD900final RIDAGEYR LBDHDD BMXBMI RIAGENDR RIDRETH1 /solution clparm;

**run**;

\*Model 2;

**proc** **glm** data=ILEfinal;

class DBD900final(ref='No')RIAGENDR(ref='Female') RIDRETH1(ref='Non-Hispanic White') DMDHREDU(ref='High School Grad/GED or Equivalent') ;

model LBDLDL=DBD900final RIDAGEYR LBDHDD BMXBMI RIAGENDR RIDRETH1 DMDHREDU /solution clparm;

**run**;

\*Model 3;

**proc** **glm** data=ILEfinal;

class DBD900final(ref='No')RIAGENDR(ref='Female') RIDRETH1(ref='Non-Hispanic White') DMDHREDU(ref='High School Grad/GED or Equivalent') INDHHIN2(ref='$25,000 to $54,999') ;

model LBDLDL=DBD900final RIDAGEYR LBDHDD BMXBMI RIAGENDR RIDRETH1 DMDHREDU INDHHIN2 /solution clparm;

**run**;

\*Removing Borderline,Refused and Do not know using ;

**data** ILEfinaldata;

set ILEfinal;

if DIQ010=**3** then delete;

else if DIQ010=**7** then delete;

else if DIQ010=**9** then delete;

if DIQ160=**3** then delete;

else if DIQ160=**7** then delete;

else if DIQ160=**9** then delete;

**run**;

**proc** **print** data=ILEfinaldata;

**run**;

**proc** **freq** data=ILEfinaldata;

tables DIQ010;

**run**;

\*Effect modication 1 Doctor told you have diabetes;

**proc** **glm** data=ILEfinaldata;

class DBD900final(ref='No') DIQ010 (ref='No') RIAGENDR(ref='Female') RIDRETH1(ref='Non-Hispanic White') DMDHREDU(ref='High School Grad/GED or Equivalent') INDHHIN2(ref='$25,000 to $54,999');

model LBDLDL=DBD900final\*DIQ010 DBD900final DIQ010 RIDAGEYR LBDHDD BMXBMI RIAGENDR RIDRETH1 DMDHREDU INDHHIN2 /solution clparm;

**run**;

\*stratification based on diabetes;

**data** Diabetes\_set ;

set ILEfinaldata;

if DIQ010 =**1** then output Diabetes\_set;

**run**;

**data** NonDiabetes\_set;

set ILEfinaldata;

if DIQ010=**2** then output NonDiabetes\_set;

**run**;

**proc** **print** data=NonDiabetes\_set;

**run**;

\*Effect modication by stratification based on diabetes;

\*Diabetes;

**proc** **glm** data=Diabetes\_set;

class DBD900final(ref='No') RIAGENDR(ref='Female') RIDRETH1(ref='Non-Hispanic White') DMDHREDU(ref='High School Grad/GED or Equivalent') INDHHIN2(ref='$25,000 to $54,999');

model LBDLDL=DBD900final\*DIQ010 DBD900final DIQ010 RIDAGEYR LBDHDD BMXBMI RIAGENDR RIDRETH1 DMDHREDU INDHHIN2 /solution clparm;

**run**;

\*NonDiabetes;

**proc** **glm** data=NonDiabetes\_set;

class DBD900final(ref='No') RIAGENDR(ref='Female') RIDRETH1(ref='Non-Hispanic White') DMDHREDU(ref='High School Grad/GED or Equivalent') INDHHIN2(ref='$25,000 to $54,999');

model LBDLDL=DBD900final\*DIQ010 DBD900final DIQ010 RIDAGEYR LBDHDD BMXBMI RIAGENDR RIDRETH1 DMDHREDU INDHHIN2 /solution clparm;

**run**;