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OPTIONS nocenter LINESIZE=100 pagesize=5000;
libname mydir 'c:\temp';
libname mydir2
'H:\ESD\VSDA\_STAFFS\Thompsonb\_Vsd\_Studies_Child\Autism\Autism_MADDSP_MMR\s
as';
TITLE1 '-----';
TITLE2 '-- Formats and Notes';
TITLE3 '-----';
/*****
PROC FORMAT;
  value devlab  0 = 'No Delay < 3'
                1 = 'Delay < 3 Without Reg/Plat'
                2 = 'Delay < 3 With Reg/Plat';
  value devlon  1 = 'Delay < 1';
  value autism  0 = 'Comorbid Conditions'
                1 = 'No Cormid Conditions';
  value delay   0 = 'No Delay < 1'
                1 = 'Delay < 1';
RUN;
*****/;
PROC FORMAT;
  value noyes   0 = 'NO'
                1 = 'YES';
  value caserec -1 = 'CONTROL'
                0 = 'CASE Other Records'
                1 = 'Case School Recs Only';
  value describ 1 = 'YES'
                2 = 'NO';
RUN;

TITLE1 '-----';
TITLE2 '-- Initial Data Manipulations';
TITLE3 '-----';
data temp1;
  set mydir.mmranal2;

*-----;
*--CASE AND ID CORRECTIONS PROVIDED BY TANYA;
*-----;
IF IDNUM = '2327120' THEN SEX = '1';
IF IDNUM = '6103023' THEN SEX = '1';

*-----;
*--Case Correction;
*-----;
IF CASE = '1' THEN CASE = '2';

*-----;
*--CASE DATA - CONFIRMED CASE - CASECON2;
*-----;
IF CASE = '2' THEN CASECON1 = 1;
ELSE IF CASE = '0' THEN CASECON1 = 0;
IF AUCASEDF = '1' THEN CASECON2 = 1;
ELSE IF CASE = '0' THEN CASECON2 = 0;

LABEL CASECON1 = 'CONFIRMED CASE';
LABEL CASECON2 = 'MMR/AUTISM CASE Control Subject';

*-----;
*--SEX RECODE;
*-----;
IF SEX = '1' THEN SEXMALE = 1;
ELSE IF SEX = '2' THEN SEXMALE = 0;
IF SEXMALE = . THEN SEXMISS = 1;

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ELSE SEXMISS = 0;

*-----;
*--AGE VARIABLES;
*-----;
BYR      = SUBSTR(BTHDATE,1,4);
BMO      = SUBSTR(BTHDATE,5,2);
BDY      = SUBSTR(BTHDATE,7,2);
IF BDY > 31 THEN DELETE;
AGE1996  = FLOOR((MDY(12,31,96)-MDY(BMO,BDY,BYR))/365);
AGE1998  = FLOOR((MDY(12,31,98)-MDY(BMO,BDY,BYR))/365);
IF 2 <= AGE1996 <= 5 THEN AGE1996 = 1;
IF 6 <= AGE1996 <= 8 THEN AGE1996 = 2;
IF AGE1996 >= 9 THEN AGE1996 = 3;
IF AGE1996 = . THEN BDTEMISS = 1;
ELSE BDTEMISS = 0;

*-----;
*-- RACE FOR ENTIRE SAMPLE;
*-----;
IF RACE = '01' THEN RACECAT = 1;
ELSE IF RACE = '02' THEN RACECAT = 2;
ELSE IF RACE IN ('03','04','05','06','90') THEN RACECAT = 3;
ELSE IF C_RACE = '1' THEN RACECAT = 1;
ELSE IF C_RACE = '2' THEN RACECAT = 2;
ELSE IF C_RACE IN ('0','3','4','5','6','7','8') THEN RACECAT = 3;
ELSE IF M_RACE = '1' THEN RACECAT = 1;
ELSE IF M_RACE = '2' THEN RACECAT = 2;
ELSE IF M_RACE IN ('0','3','4','5','6','7','8') THEN RACECAT = 3;

IF RACECAT=1 THEN WHITE=1; ELSE IF RACECAT IN (2,3) THEN WHITE = 0;
IF RACECAT=2 THEN BLACK=1; ELSE IF RACECAT IN (1,3) THEN BLACK = 0;
IF RACECAT=3 THEN OTHER=1; ELSE IF RACECAT IN (1,2) THEN OTHER = 0;
IF RACECAT = . THEN RACEMISS = 1;
ELSE RACEMISS = 0;

*-----;
* BIRTH STATE;
*-----;
IF BTHSTATE = '11' THEN STATEGA = 1;
* ELSE IF B_CERT6 NE ' ' THEN STATEGA = 1;
ELSE IF BTHSTATE NE ' ' THEN STATEGA = 0;
ELSE STATEGA = .;
IF STATEGA = . THEN STATMISS = 1;
ELSE STATMISS = 0;

*-----;
*--MMR VARIABLES;
*-----;
MMR1Y = SUBSTR(MMR1N,1,4);
MMR1M = SUBSTR(MMR1N,5,2);
MMR1D = SUBSTR(MMR1N,7,2);
MMR1MON = FLOOR((MDY(MMR1M,MMR1D,MMR1Y)-MDY(BMO,BDY,BYR))/30.4);

MMR2Y = SUBSTR(MMR2N,1,4);
MMR2M = SUBSTR(MMR2N,5,2);
MMR2D = SUBSTR(MMR2N,7,2);
MMR2MON = FLOOR((MDY(MMR2M,MMR2D,MMR2Y)-MDY(BMO,BDY,BYR))/30.4);

MEA1Y = SUBSTR(MEASLES1,1,4);
MEA1M = SUBSTR(MEASLES1,5,2);
MEA1D = SUBSTR(MEASLES1,7,2);
MEA1MON = FLOOR((MDY(MEA1M,MEA1D,MEA1Y)-MDY(BMO,BDY,BYR))/30.4);

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IF (MMR2MON > 0) AND (MMR1MON = .) THEN MMR1MON = MMR2MON;
IF (MEA1MON > 0) AND (MMR1MON = .) THEN MMR1MON = MEA1MON;
IF (EXCODE1 > '0') AND (MMR1MON = .) THEN MMR1MON = 9999;
IF (DTPAGE2 > 0) AND (MMR1MON = .) THEN MMR1MON = 9999;
IF MMR1MON < 0 THEN MMR1MON = .;

*-----;
* MMR MISSING DATA;
*-----;
IF MMR1MON = . THEN MMR1MISS = 1;
ELSE MMR1MISS = 0;
IF IMMFILE = ' ' OR IMMFILE = '2' THEN IMMFMISS = 1;
ELSE IMMFMISS = 0;
IF MMR1MON NE . THEN IMMFMISS = 0;

*-----;
*--AGE OF CONCERN;;
*-----;
AGECON1 = AGECON*1;

*-----;
*-- BIRTH CERTIFICATE VARIABLES;
*-----;
IF B_CERT6 = ' ' THEN BCRTMISS = 1;
ELSE BCRTMISS = 0;

*-----;
*-- BIRTH WEIGHT IN GRAMS;
*-----;
IF B_WGTC = '1' THEN B_WGTGMS = 453.59 * SUBSTR(B_WGT,1,2) +
28.35 * SUBSTR(B_WGT,3,2);
ELSE IF B_WGTC='2' THEN B_WGTGMS = B_WGT;
ELSE IF B_WGTGMS = .;
B_WGTGMS= ROUND(B_WGTGMS);

*-----;
* BIRTH WEIGHT CATEGORIES;
*-----;
IF B_WGTGMS < 0 THEN B_WGTCAT = .;
ELSE IF 0 <= B_WGTGMS < 1500 THEN B_WGTCAT = 1;
ELSE IF 1500 <= B_WGTGMS < 2500 THEN B_WGTCAT = 2;
ELSE IF B_WGTGMS >= 2500 THEN B_WGTCAT = 3;
IF B_WGTCAT = 1 THEN DO;
B_WGTC11 = 1; B_WGTC12 = 0;
END;
IF B_WGTCAT = 2 THEN DO;
B_WGTC11 = 0; B_WGTC12 = 1;
END;
IF B_WGTCAT = 3 THEN DO;
B_WGTC11 = 0; B_WGTC12 = 0;
END;
IF B_WGTCAT = . THEN BIRWMISS = 1;
ELSE BIRWMISS = 0;

*-----;
* CALCULATE GESTATIONAL AGE FROM BCERT VARIABLE not used;
*-----;
LENGTH C_DOBMO C_DOBDA $2 C_DOBYR $4;
C_DOBMO = SUBSTR(C_DOB,5,2);
C_DOBDA = SUBSTR(C_DOB,7,2);
C_DOBYR = SUBSTR(C_DOB,1,4);
C_DOBSAS = MDY(C_DOBMO,C_DOBDA,C_DOBYR);
IF C_DOBSAS = . THEN CBDMISS = 1;

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ELSE                                CBDMISS = 0;

LENGTH H_LM_MO H_LM_DA $2 H_LM_YR $4;
H_LM_MO = SUBSTR(H_LMENS,5,2);
H_LM_DA = SUBSTR(H_LMENS,7,2);
H_LM_YR = SUBSTR(H_LMENS,1,4);

IF ((C_DOBYR = H_LM_YR) AND (C_DOBMO < H_LM_MO))
  THEN H_LM_YR = C_DOBYR - 1;

IF (H_LM_MO = ' ' OR
    H_LM_MO = '99') THEN MENSMIMO = 1;
ELSE MENSMIMO = 0;

IF (H_LM_YR = ' ' OR
    H_LM_YR = '9999') THEN MENSMIYR = 1;
ELSE MENSMIYR = 0;

IF (H_LM_DA = ' ' OR
    H_LM_DA = '99') THEN MENSMIDY = 1;
ELSE MENSMIDY = 0;

IF MENSMIMO = 0 AND
    MENSMIDY = 0 AND
    MENSMIYR = 0 THEN H_LMSAS = MDY(H_LM_MO,H_LM_DA,H_LM_YR);
ELSE IF MENSMIDY = 1 AND
    MENSMIMO = 0 AND
    MENSMIYR = 0 THEN H_LMSAS = MDY(H_LM_MO,15,H_LM_YR);

IF C_DOBSAS NE . AND H_LMSAS NE . THEN DO;
  NH_GEST = FLOOR((C_DOBSAS-H_LMSAS)/7);
END;

*-----;
* CATEGORIZE GESTATIONAL AGE;
*-----;

IF      20 <= NH_GEST <= 37 THEN NH_GEST1 = 1;
ELSE IF  38 <= NH_GEST <= 42 THEN NH_GEST1 = 2;
ELSE IF  43 <= NH_GEST <= 45 THEN NH_GEST1 = 3;

IF NH_GEST1 = . THEN GESTMISS = 1;
ELSE          GESTMISS = 0;

IF NH_GEST1 = 1 THEN GEST11 = 1;
ELSE IF NH_GEST1 IN (2,3) THEN GEST11 = 0;
IF NH_GEST1 = 3 THEN GEST12 = 1;
ELSE IF NH_GEST1 IN (1,2) THEN GEST12 = 0;

*-----;
* GESTATIONAL OUTLIERS;
*-----;

IF (0 <= NH_GEST <= 19) OR (NH_GEST >= 46) THEN GESTOUTL = 1;
ELSE          GESTOUTL = 0;

*-----;
* MOTHERS AGE;
*-----;

IF '0' <= M_AGEC < '20' THEN M_AGEC1 = 1;
IF '20' <= M_AGEC <= '34' THEN M_AGEC1 = 2;
IF M_AGEC >= '35' THEN M_AGEC1 = 3;
IF M_AGEC1 = 1 THEN DO;
  M_AGEC11=0; M_AGEC12=0;
END;
IF M_AGEC1 = 2 THEN DO;
  M_AGEC11=1; M_AGEC12=0;
END;
IF M_AGEC1 = 3 THEN DO;

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M_AGE11=0; M_AGE12=1;
END;
IF M_AGE1 = . THEN M_AGE1MISS = 1;
ELSE M_AGE1MISS = 0;

*-----;
* MOTHERS EDUCATION;
*-----;
IF '0' <= M_EDUC <= '12' THEN M_EDUC1 = 1;
ELSE IF '13' <= M_EDUC <= '15' THEN M_EDUC1 = 2;
ELSE IF M_EDUC >= '16' THEN M_EDUC1 = 3;
IF M_EDUC1 = 1 THEN DO;
  M_EDUC11=0; M_EDUC12=0;
END;
IF M_EDUC1 = 2 THEN DO;
  M_EDUC11=1; M_EDUC12=0;
END;
IF M_EDUC1 = 3 THEN DO;
  M_EDUC11=0; M_EDUC12=1;
END;
IF M_EDUC1 = . THEN M_EDUC1MISS = 1;
ELSE M_EDUC1MISS = 0;

*-----;
* MOTHERS RACE;
*-----;
IF M_RACE = '1' THEN M_RACE1 = 1;
ELSE IF M_RACE = '2' THEN M_RACE1 = 2;
ELSE IF '3' <= M_RACE <= '8' THEN M_RACE1 = 3;
ELSE IF M_RACE = '0' THEN M_RACE1 = 3;
IF M_RACE1 = 1 THEN DO;
  M_RACE11=0; M_RACE12=0;
END;
IF M_RACE1 = 2 THEN DO;
  M_RACE11=1; M_RACE12=0;
END;
IF M_RACE1 = 3 THEN DO;
  M_RACE11=0; M_RACE12=1;
END;
IF M_RACE1 = . THEN M_RACE1MISS = 1;
ELSE M_RACE1MISS = 0;

*-----;
* MULTIPLE BIRTHS;
*-----;
IF B_MULT=>'4' THEN B_MULT_='2';
IF B_MULT=>'3' THEN B_MULT_='2';
B_MULTB = (B_MULT * 1) - 1;
IF B_MULTB = . THEN B_MULTBMISS = 1;
ELSE B_MULTBMISS = 0;

*-----;
* BIRTH ORDER (PARITY) VARIABLE;
*-----;
IF BYR GE 1989 THEN H_PLIVE = H_LIVEND + H_LIVENL;
ELSE IF (1980 <= BYR <= 1988)
  THEN H_PLIVE = H_LNDL + H_LNDM + H_LNLL + H_LNLM;
IF H_PLIVE = . THEN H_PLIVEMISS = 1;
ELSE H_PLIVEMISS = 0;
H_LBORDR = H_PLIVE + 1;
IF H_LBORDR = 1 THEN BIRTH2ND = 0;
ELSE IF H_LBORDR > 1 THEN BIRTH2ND = 1;
IF BIRTH2ND = . THEN BIRTH2NDMISS = 1;
ELSE BIRTH2NDMISS = 0;

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*-----;
* EPILEPSY CODING;
*-----;
ARRAY ICDCODE MH1ICD9 MH2ICD9 MH3ICD9 MH4ICD9 MH5ICD9
              MH6ICD9 MH7ICD9 MH8ICD9 MH9ICD9 MH10ICD9
              MH11ICD9 MH12ICD9 MH13ICD9;
DO OVER ICDCODE;
  IF SUBSTR(ICDCODE,1,3) IN ('345','333','V17') THEN DO;
    IF SUBSTR(ICDCODE,1,5) IN ('345.3') THEN DO;
      EPILICD = ICDCODE;
      EPILDUM = '0';
    END;
  ELSE DO;
    EPILICD = ICDCODE;
    EPILDUM = '1';
  END;
END;
END;

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*-----;
* ISOLATED AUTISM CODE;
*-----;
IF CPCASEDF = '1' OR
MRCASEDF = '1' OR
HICASEDF = '1' OR
VICASEDF = '1' OR
EPILDUM = '1' THEN ISAUTISM = 0;
ELSE IF CASECON2 = 1 THEN ISAUTISM = 1;
ELSE IF CASECON2 = 0 THEN ISAUTISM = 0;

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*Exclusion codes make control*

*2*

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*-----;
* MODEL VARIABLES;
*-----;
STATUS = CASECON2;
TIME = 2 - STATUS;

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*-----;
* MR Recode;
*-----;
if (casecon2 = 1 and mrcasedf eq '1') then mrcased1 = 1;
if (casecon2 = 1 and mrcasedf ne '1') then mrcased1 = 0;

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*-----;
* Delay/Pre-existing Conditions Variables;
*-----;
if casecon2 = 1 and (ddbyone = '1' or precon='1') then delay_Ch = 1;
else delay_Ch = 0;

if IDNUM in ('q940020','2265100','2266960','3814270','4153100',
            '4175020','4187870','4269560','5157640','6184670',
            '9170100') then MR_1yr = 1;
            else MR_1yr = 0;
if IDNUM in ('2157310','3325750','3367590','3818710','4269560',
            '6155790','6364490') then CP_1yr = 1;
            else CP_1yr = 0;
if IDNUM in ('2160970','2900270','3108930') then HI_1yr = 1;
            else HI_1yr = 0;
if IDNUM in ('6262150') then VI_1yr = 1;
            else VI_1yr = 0;
if IDNUM in ('J002550','2110630','2159960','2315280','3160140',
            '3166220','3181040','3188780','3278430','4153100',
            '4175020','4256250','4304190','4306570','5164480',
            '5310460','5312320','6160190','6183230','6261640',

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        '6306870','6359940','6830720','9109840','9162630',
        '9165480','9166640','9170230') then BD_lyr = 1;
    else BD_lyr = 0;
if MR_lyr = 1 or
  CP_lyr = 1 or
  HI_lyr = 1 or
  VI_lyr = 1 or
  BD_lyr = 1
then delay1 = 1;
else if delay_ch = 1
then delay1 = 1;
else
  delay1 = 0;
if devlbl = '2' then regress1 = 1;
else
  regress1 = 0;

*-----;
* Create Age Categories;
*-----;
if 2 <= age1996 < 6 then age96cat = 1;
if 6 <= age1996 < 9 then age96cat = 2;
if 9 <= age1996 < 12 then age96cat = 3;
if age96cat in (1) then age2_5 = 1;
else if age96cat in (2,3) then age2_5 = 0;
if age96cat in (2) then age6_8 = 1;
else if age96cat in (1,3) then age6_8 = 0;
if age96cat in (3) then age9_12 = 1;
else if age96cat in (1,2) then age9_12 = 0;

*-----;
* Create New MMR Variables;
*-----;
mmrcat = .; mmrcat2 = .; mmrcat3=.;
IF 0 <= MMR1MON <= 11 THEN MMR1CAT1 = 1;
ELSE IF 12 <= MMR1MON <= 17 THEN MMR1CAT1 = 2;
ELSE IF 18 <= MMR1MON <= 23 THEN MMR1CAT1 = 3;
ELSE IF 24 <= MMR1MON <= 29 THEN MMR1CAT1 = 4;
ELSE IF 30 <= MMR1MON <= 35 THEN MMR1CAT1 = 5;
ELSE IF MMR1MON >= 36 THEN MMR1CAT1 = 6;

if mmrcat1 = 1 then do;
  newmmr1 = 1;
  newmmr2 = 0;
  newmmr3 = 0;
  newmmr4 = 0;
  newmmr5 = 0;
end;
if mmrcat1 = 2 then do;
  newmmr1 = 0;
  newmmr2 = 1;
  newmmr3 = 0;
  newmmr4 = 0;
  newmmr5 = 0;
end;
if mmrcat1 = 3 then do;
  newmmr1 = 0;
  newmmr2 = 0;
  newmmr3 = 1;
  newmmr4 = 0;
  newmmr5 = 0;
end;
if mmrcat1 = 4 then do;
  newmmr1 = 0;
  newmmr2 = 0;
  newmmr3 = 0;
  newmmr4 = 1;
  newmmr5 = 0;
end;

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end;
if mmr1cat1 = 5 then do;
  newmmr1 = 0;
  newmmr2 = 0;
  newmmr3 = 0;
  newmmr4 = 0;
  newmmr5 = 1;
end;
if mmr1cat1 = 6 then do;
  newmmr1 = 0;
  newmmr2 = 0;
  newmmr3 = 0;
  newmmr4 = 0;
  newmmr5 = 0;
end;

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if mmr1cat1 in (1,2) then newmmr17 = 1;
else if mmr1cat1 in (3,4,5,6) then newmmr17 = 0;
if mmr1cat1 in (1,2,3) then newmmr23 = 1;
else if mmr1cat1 in (4,5,6) then newmmr23 = 0;
if mmr1cat1 in (1,2,3,4,5) then newmmr35 = 1;
else if mmr1cat1 in (6) then newmmr35 = 0;

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*-----;
* Dummy code school system;
*-----;
if schsys98 = '001' then do;
  sch1=0;sch2=0;sch3=0;sch4=0;sch5=0;sch6=0;sch7=0;sch8=0;sch9=0;sch10=0;
end;
if schsys98 = '002' then do;
  sch1=0;sch2=0;sch3=0;sch4=0;sch5=0;sch6=0;sch7=0;sch8=0;sch9=0;sch10=0;
end;
if schsys98 = '003' then do;
  sch1=0;sch2=0;sch3=1;sch4=0;sch5=0;sch6=0;sch7=0;sch8=0;sch9=0;sch10=0;
end;
if schsys98 = '004' then do;
  sch1=0;sch2=0;sch3=0;sch4=1;sch5=0;sch6=0;sch7=0;sch8=0;sch9=0;sch10=0;
end;
if schsys98 = '005' then do;
  sch1=0;sch2=0;sch3=0;sch4=0;sch5=1;sch6=0;sch7=0;sch8=0;sch9=0;sch10=0;
end;
if schsys98 = '006' then do;
  sch1=0;sch2=0;sch3=0;sch4=0;sch5=0;sch6=1;sch7=0;sch8=0;sch9=0;sch10=0;
end;
if schsys98 = '007' then do;
  sch1=0;sch2=0;sch3=0;sch4=0;sch5=0;sch6=0;sch7=1;sch8=0;sch9=0;sch10=0;
end;
if schsys98 = '008' then do;
  sch1=0;sch2=0;sch3=0;sch4=0;sch5=0;sch6=0;sch7=0;sch8=1;sch9=0;sch10=0;
end;
if schsys98 = '009' then do;
  sch1=0;sch2=0;sch3=0;sch4=0;sch5=0;sch6=0;sch7=0;sch8=0;sch9=1;sch10=0;
end;
if schsys98 = '900' then do;
  sch1=0;sch2=0;sch3=0;sch4=0;sch5=0;sch6=0;sch7=0;sch8=0;sch9=9;sch10=0;
end;

*-----;
* Define Birth Certificate Sample;
* CASEBC = matched to same criteria as controls';
*-----;
if casecon2 = 1 and casebc = 'Y' and bcrmiss = 0 then bcsamp = 1;
else if casecon2 = 0 and bcrmiss = 0 then bcsamp = 1;
else bcsamp = 0;

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*-----;
* Define School Source Variable;
*-----;
if schsour = 'Y'      then schonly = 1;
else if casecon2 = 1 then schonly = 0;
else if casecon2 = 0 then schonly = -1;

*-----;
* Define previous ASD Diagnosis;
*-----;
if prevdx = 'Y' then prevdx1 = 1;
else prevdx1 = 0;

*-----;
* Define Birth Certificate Sample;
*-----;
if bthstate = '11' then gastate = 1;
else                gastate = 0;
bc_mmr35 = bcsamp * newmmr35;
ga_mmr35 = gastate * newmmr35;

*-----;
* Define Birth Certificate Sample;
*-----;
casecon3 = casecon2;
if casecon3 = 0 then casecon3 = 2;
ne_mmr35 = newmmr35;
if ne_mmr35 = 0 then ne_mmr35 = 2;

*-----;
* Variable labels;
*-----;
label casecon2 = 'Case Status';
label casecon3 = 'Case Status';
label newmmr35 = 'Vaccinated < 36 Months';
label ne_mmr35 = 'Vaccinated < 36 Months';
label bcsamp   = 'Birth Cert Sampl';
label gastate  = 'Ga State Birth';
label schonly  = 'School Records Only';
label mrcased1 = 'MR - Low Functioning';
label age2_5   = 'Age 2-5 Yrs';
label age6_8   = 'Age 6-8 Yrs';
label age9_12  = 'Age 9-12 Yrs';
label black    = 'Race Black';
label prevdx1  = 'Previous ASD DX';
label ddbnone  = 'Delay < 1';
label devlbl   = 'Regression/Plateau';

*-----;
* Formats;
*-----;
format casecon2 noyes.
       newmmr35 noyes.
       bcsamp   noyes.
       gastate  noyes.
              age2_5 noyes.
              age6_8 noyes.
              age9_12 noyes.
              black   noyes.
              prevdx1 noyes.
              mrcased1 noyes.
       schonly  caserec.
       casecon3 describ.

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        ne_mmr35 describ.;
run;
proc freq;
  tables casecon2;
run;
TITLE1 '-----';
TITLE2 '-- After Deletions of Confirmed Cases';
TITLE3 '-----';
data temp1;
  set temp1;
  if casecon2 = . then delete;
run;
proc freq;
  tables case aucasedf casecon2;
run;
TITLE1 '-----';
TITLE2 '-- After Deletions of Missing MMR Date';
TITLE3 '-----';
data temp1;
  set temp1;
  if mmr1mon = . then delete;
run;
proc freq;
  tables case aucasedf casecon2;
run;
TITLE1 '-----';
TITLE2 '-- After Additional Deletions';
TITLE3 '-----';
data temp1;
  set temp1;
  if idnum = '6103023' then delete;
  if substr(idnum,1,2)='XX' then delete;
run;
proc freq;
  tables case aucasedf casecon2;
run;
TITLE1 '-----';
TITLE2 '-- Summarize Matching Variable Information - Removing Missing';
TITLE3 '-----';
DATA TEMP1A;
  SET temp1;
  if casenum = ' ' then delete;
  N = 1;
  KEEP N CASENUM case aucasedf CASECON2;
  RUN;
proc freq data=TEMP1A;
  tables case aucasedf casecon2;
run;
proc means data=TEMP1A maxdec=2 n mean min max sum;
  var casecon2;
run;

TITLE1 '-----';
TITLE2 '-- Frequencies of Matching Prior to Deletion';
TITLE3 '-----';
PROC SORT DATA=TEMP1A;
  BY CASENUM;
RUN;
PROC SUMMARY DATA=TEMP1A;
  VAR N CASECON2;
  BY CASENUM;
  OUTPUT OUT=temp2 SUM=N casetot;
RUN;
PROC FREQ DATA=temp2;

```

```

TABLES N;
TABLES N * casetot / missing norow nocol;
RUN;
proc print data=TEMP2;
  var casenum N casetot;
  where casetot = . or N = .;
run;

TITLE1 '-----';
TITLE2 '-- Frequencies of Matching After Deletion';
TITLE3 '-----';
data temp2 (keep = N casetot casenum);
  set temp2;
  if N >= 2 and casetot = 1;
run;
PROC FREQ DATA=temp2;
  TABLES N;
RUN;
PROC MEANS DATA=temp2 maxdec=2;
RUN;
TITLE1 '-----';
TITLE2 '-- Final Data Prior to Deletions';
TITLE3 '-----';
proc sort data=temp1;  by casenum; run;
proc sort data=temp2;  by casenum; run;
DATA TEMP3;
  merge temp1 temp2 (in=a);
  by casenum;
  if a;
  N1 = 1;
RUN;
*Start Analysis;
TITLE1 '-----';
TITLE2 '-- Figure 1a: All Subjects' ;
TITLE3 '-----';
proc freq;
  tables mmr1cat1 * casecon2 / nocol norow nopercent;
run;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr1-newmmr5/
  TIES = DISCRETE RL;
  STRATA CASENUM;
RUN;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr17 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
RUN;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr23 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
RUN;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr35 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
RUN;
TITLE1 '-----';
TITLE2 '-- Figure 1b: Birth Certificate Sample';
TITLE3 '-----';
proc freq;
  tables mmr1cat1 * casecon2 / nocol norow nopercent;
  where bcsamp = 1;

```

```

run;
PROC logistic DATA=TEMP3 descending;
  MODEL status = newmmr1-newmmr5;
  where bcsamp = 1;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 18 Months';
TITLE3 '-----';
proc freq;
  tables casecon2;
run;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr17 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 18 where sexmale = 1';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where sexmale = 1;
run;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr17 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where sexmale = 1;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 18 where sexmale = 0';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where sexmale = 0;
run;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr17 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where sexmale = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 18 Age 3-5';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where 1 < age1996 < 6;
run;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr17 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where 1 < age1996 < 6;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 18 Age 6+';
TITLE3 '-----';
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr17 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where age1996 >= 6;
RUN;

```

*Univariate  
by Age*

```

TITLE1 '-----';
TITLE2 '-- Matched: < 18 where Delay1 = 0';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where Delay1 = 0 or casecon2 = 0;
run;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr17 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where Delay1 = 0 or casecon2 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 18 where Regression = 1';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where regress1 = 1 or casecon2 = 0;
run;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr17 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where regress1 = 1 or casecon2 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 18 where MR = 1';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where mrcasedf = '1' or casecon2 = 0;
run;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr17 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where mrcasedf = '1' or casecon2 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 18 where MR = 0';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where (casecon2 = 1 and mrcasedf ne '1') or casecon2 = 0;
run;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr17 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where (casecon2 = 1 and mrcasedf ne '1') or casecon2 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 18 Months: School Source = 'Y'';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where schsour = 'Y';
run;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr17 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where schsour = 'Y' or casecon2 = 0;

```

```

RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 18 Months: School Source = 'N'';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where schsour = 'N';
run;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr17 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where schsour = 'N' or casecon2 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 18 Months - Prevdx = 1';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where prevdx1 = 1;
run;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr17 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where prevdx1 = 1 or casecon2 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 18 Months - Prevdx = 0';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where prevdx1 = 0;
run;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr17 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where prevdx1 = 0 or casecon2 = 0;
RUN;

TITLE1 '-----';
TITLE2 '-- Matched: < 24 Months';
TITLE3 '-----';
proc freq;
  tables casecon2;
run;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr23 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 24 where sexmale = 1';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where sexmale = 1;
run;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr23 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where sexmale = 1;

```

```

RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 24 where sexmale = 0';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where sexmale = 0;
run;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr23 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where sexmale = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 24 Age 3-5';
TITLE3 '-----';
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr23 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where 1 < age1996 < 6;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 24 Age 6+';
TITLE3 '-----';
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr23 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where age1996 >= 6;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 24 where Delay1 = 0';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where delay1 = 0 or casecon2 = 0;
run;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr23 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where delay1 = 0 or casecon2 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 24 where Regression = 1';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where regress1 = 1 or casecon2 = 0;
run;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr23 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where regress1 = 1 or casecon2 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 24 where MR = 1';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where mrcasdef = '1' or casecon2 = 0;

```

```

run;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr23 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where mrcasedf = '1' or casecon2 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 24 where MR = 0';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where (casecon2 = 1 and mrcasedf ne '1') or casecon2 = 0;
run;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr23 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where (casecon2 = 1 and mrcasedf ne '1') or casecon2 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 24 Months: School Source = 'Y'';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where schsour = 'Y';
run;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr23 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where schsour = 'Y' or casecon2 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 24 Months: School Source = 'N'';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where schsour = 'N';
run;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr23 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where schsour = 'N' or casecon2 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 24 Months - PrevdX = 1';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where prevdx1 = 1;
run;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr23 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where prevdx1 = 1 or casecon2 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 24 Months - PrevdX = 0';
TITLE3 '-----';
proc freq;
  tables casecon2;

```

```

    where prevdx1 = 0;
run;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr23 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where prevdx1 = 0 or casecon2 = 0;
RUN;

TITLE1 '-----';
TITLE2 '-- Matched: < 36 Months';
TITLE3 '-----';
proc freq;
  tables casecon2;
run;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr35 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 36 where sexmale = 1';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where sexmale = 1;
run;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr35 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where sexmale = 1;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 36 where sexmale = 0';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where sexmale = 0;
run;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr35 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where sexmale = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 36 Age 3-5';
TITLE3 '-----';
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr35 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where 1 < age1996 < 6;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 36 Age 6+';
TITLE3 '-----';
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr35 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where age1996 >= 6;
RUN;

```

```

TITLE1 '-----';
TITLE2 '-- Matched: < 36 where Delay1 = 0';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where Delay1 = 0 or casecon2 = 0;
run;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr35 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where Delay1 = 0 or casecon2 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 36 where Regression = 1';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where regress1 = 1 or casecon2 = 0;
run;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr35 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where regress1 = 1 or casecon2 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 36 where MR = 1';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where mrcasedf = '1' or casecon2 = 0;
run;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr35 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where mrcasedf = '1' or casecon2 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 36 where MR = 0';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where (casecon2 = 1 and mrcasedf ne '1') or casecon2 = 0;
run;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr35 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where (casecon2 = 1 and mrcasedf ne '1') or casecon2 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 36 Months: School Source = 'Y'';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where schsour = 'Y';
run;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr35 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where schsour = 'Y' or casecon2 = 0;

```

```

RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 36 Months: School Source = 'N'';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where schsour = 'N';
run;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr35 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where schsour = 'N' or casecon2 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 36 Months - Prevd1 = 1';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where prevd1 = 1;
run;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr35 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where prevd1 = 1 or casecon2 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 36 Months - Prevd1 = 0';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where prevd1 = 0;
run;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr35 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where prevd1 = 0 or casecon2 = 0;
RUN;

TITLE1 '-----';
TITLE2 '-- Create Unmatched BC Samp';
TITLE3 '-----';
data temp3;
  set temp3;
  if bcsamp = 1;
  N = 1;
run;
proc freq;
  tables (m_agec11 m_agec12 m_educ11 m_educ12
  b_wgtc11 b_wgtc12 b_multb) * casecon2 / norow nocol nopercnt;
run;
TITLE1 '-----';
TITLE2 '-- UnMatched: < 18';
TITLE3 '-----';
PROC logistic DATA=TEMP3 descending;
  MODEL casecon2 = newmmr17
  M_AGEC11 M_AGEC12
  M_EDUC11 M_EDUC12
  B_WGTC11 B_WGTC12
  B_MULTB;
RUN;

```

```

TITLE1 '-----';
TITLE2 '-- UnMatched: < 18 Age 3-5';
TITLE3 '-----';
PROC logistic DATA=TEMP3 descending;
  MODEL casecon2 = newmmr17
    M_AGE11 M_AGE12
    M_EDUC11 M_EDUC12
    B_WGTC11 B_WGTC12
    B_MULTB;
  where age1996 < 6;
RUN;
TITLE1 '-----';
TITLE2 '-- UnMatched: < 18 Age 6+';
TITLE3 '-----';
PROC logistic DATA=TEMP3 descending;
  MODEL casecon2 = newmmr17
    M_AGE11 M_AGE12
    M_EDUC11 M_EDUC12
    B_WGTC11 B_WGTC12
    B_MULTB;
  where age1996 >= 6;
RUN;
TITLE1 '-----';
TITLE2 '-- UnMatched: < 18 White/Other';
TITLE3 '-----';
PROC logistic DATA=TEMP3 descending;
  MODEL casecon2 = newmmr17
    M_AGE11 M_AGE12
    M_EDUC11 M_EDUC12
    B_WGTC11 B_WGTC12
    B_MULTB;
  where black = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- UnMatched: < 18 Black';
TITLE3 '-----';
PROC logistic DATA=TEMP3 descending;
  MODEL casecon2 = newmmr17
    M_AGE11 M_AGE12
    M_EDUC11 M_EDUC12
    B_WGTC11 B_WGTC12
    B_MULTB;
  where black = 1;
RUN;
TITLE1 '-----';
TITLE2 '-- UnMatched: < 18 Age < 35';
TITLE3 '-----';
PROC logistic DATA=TEMP3 descending;
  MODEL casecon2 = newmmr17
    M_EDUC11 M_EDUC12
    B_WGTC11 B_WGTC12
    B_MULTB;
  where m_agec12 = 1;
RUN;
TITLE1 '-----';
TITLE2 '-- UnMatched: < 18 Age >= 35';
TITLE3 '-----';
PROC logistic DATA=TEMP3 descending;
  MODEL casecon2 = newmmr17
    M_EDUC11 M_EDUC12
    B_WGTC11 B_WGTC12
    B_MULTB;
  where m_agec12 = 0;
RUN;

```

```

TITLE1 '-----';
TITLE2 '-- UnMatched: < 18 Educ < 16';
TITLE3 '-----';
PROC logistic DATA=TEMP3 descending;
  MODEL casecon2 = newmmr17
    M_AGEC11 M_AGEC12
    B_WGTC11 B_WGTC12
    B_MULTB;
  where m_educ12 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- UnMatched: < 18 Educ 16+';
TITLE3 '-----';
PROC logistic DATA=TEMP3 descending;
  MODEL casecon2 = newmmr17
    M_AGEC11 M_AGEC12
    B_WGTC11 B_WGTC12
    B_MULTB;
  where m_educ12 = 1;
RUN;
TITLE1 '-----';
TITLE2 '-- UnMatched: < 18 Birth Weight >= 2500';
TITLE3 '-----';
PROC logistic DATA=TEMP3 descending;
  MODEL casecon2 = newmmr17
    M_AGEC11 M_AGEC12
    M_EDUC11 M_EDUC12
    B_MULTB;
  where b_wgtc11 = 0 and b_wgtc12 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- UnMatched: < 18 Birth Weight < 2500';
TITLE3 '-----';
PROC logistic DATA=TEMP3 descending;
  MODEL casecon2 = newmmr17
    M_AGEC11 M_AGEC12
    M_EDUC11 M_EDUC12
    B_MULTB;
  where b_wgtc11 = 1 or b_wgtc12 = 1;
RUN;

TITLE1 '-----';
TITLE2 '-- UnMatched: < 24';
TITLE3 '-----';
PROC logistic DATA=TEMP3 descending;
  MODEL casecon2 = newmmr23
    M_AGEC11 M_AGEC12
    M_EDUC11 M_EDUC12
    B_WGTC11 B_WGTC12
    B_MULTB;
RUN;
TITLE1 '-----';
TITLE2 '-- UnMatched: < 24 Age 3-5';
TITLE3 '-----';
PROC logistic DATA=TEMP3 descending;
  MODEL casecon2 = newmmr23
    M_AGEC11 M_AGEC12
    M_EDUC11 M_EDUC12
    B_WGTC11 B_WGTC12
    B_MULTB;
  where age1996 < 6;
RUN;
TITLE1 '-----';

```

```

TITLE2 '-- UnMatched: < 24 Age 6+';
TITLE3 '-----';
PROC logistic DATA=TEMP3 descending;
  MODEL casecon2 = newmmr23
    M_AGE11 M_AGE12
    M_EDUC11 M_EDUC12
    B_WGTC11 B_WGTC12
    B_MULTB;
  where age1996 >= 6;
RUN;
TITLE1 '-----';
TITLE2 '-- UnMatched: < 24 White/Other';
TITLE3 '-----';
PROC logistic DATA=TEMP3 descending;
  MODEL casecon2 = newmmr23
    M_AGE11 M_AGE12
    M_EDUC11 M_EDUC12
    B_WGTC11 B_WGTC12
    B_MULTB;
  where black = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- UnMatched: < 24 Black';
TITLE3 '-----';
PROC logistic DATA=TEMP3 descending;
  MODEL casecon2 = newmmr23
    M_AGE11 M_AGE12
    M_EDUC11 M_EDUC12
    B_WGTC11 B_WGTC12
    B_MULTB;
  where black = 1;
RUN;
TITLE1 '-----';
TITLE2 '-- UnMatched: < 24 Age < 35';
TITLE3 '-----';
PROC logistic DATA=TEMP3 descending;
  MODEL casecon2 = newmmr23
    M_EDUC11 M_EDUC12
    B_WGTC11 B_WGTC12
    B_MULTB;
  where m_age12 = 1;
RUN;
TITLE1 '-----';
TITLE2 '-- UnMatched: < 24 Age >= 35';
TITLE3 '-----';
PROC logistic DATA=TEMP3 descending;
  MODEL casecon2 = newmmr23
    M_EDUC11 M_EDUC12
    B_WGTC11 B_WGTC12
    B_MULTB;
  where m_age12 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- UnMatched: < 24 Educ < 16';
TITLE3 '-----';
PROC logistic DATA=TEMP3 descending;
  MODEL casecon2 = newmmr23
    M_AGE11 M_AGE12
    B_WGTC11 B_WGTC12
    B_MULTB;
  where m_educ12 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- UnMatched: < 24 Educ 16+';

```

```

TITLE3 '-----';
PROC logistic DATA=TEMP3 descending;
  MODEL casecon2 = newmmr23
    B_WGTC11 B_WGTC12
    B_MULTB;
  where m_educ12 = 1;
RUN;
TITLE1 '-----';
TITLE2 '-- UnMatched: < 24 Birth Weight >= 2500';
TITLE3 '-----';
PROC logistic DATA=TEMP3 descending;
  MODEL casecon2 = newmmr23
    M_AGEC11 M_AGEC12
    M_EDUC11 M_EDUC12
    B_MULTB;
  where b_wgtc11 = 0 and b_wgtc12 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- UnMatched: < 24 Birth Weight < 2500';
TITLE3 '-----';
PROC logistic DATA=TEMP3 descending;
  MODEL casecon2 = newmmr23
    M_AGEC11 M_AGEC12
    M_EDUC11 M_EDUC12
    B_MULTB;
  where b_wgtc11 = 1 or b_wgtc12 = 1;
RUN;

TITLE1 '-----';
TITLE2 '-- UnMatched: < 36';
TITLE3 '-----';
PROC logistic DATA=TEMP3 descending;
  MODEL casecon2 = newmmr35
    M_AGEC11 M_AGEC12
    M_EDUC11 M_EDUC12
    B_WGTC11 B_WGTC12
    B_MULTB;
RUN;
TITLE1 '-----';
TITLE2 '-- UnMatched: < 36 Age 3-5';
TITLE3 '-----';
PROC logistic DATA=TEMP3 descending;
  MODEL casecon2 = newmmr35
    M_AGEC11 M_AGEC12
    M_EDUC11 M_EDUC12
    B_WGTC11 B_WGTC12
    B_MULTB;
  where age1996 < 6;
RUN;
TITLE1 '-----';
TITLE2 '-- UnMatched: < 36 Age 6+';
TITLE3 '-----';
PROC logistic DATA=TEMP3 descending;
  MODEL casecon2 = newmmr35
    M_AGEC11 M_AGEC12
    M_EDUC11 M_EDUC12
    B_WGTC11 B_WGTC12
    B_MULTB;
  where age1996 >= 6;
RUN;
TITLE1 '-----';
TITLE2 '-- UnMatched: < 36 White/Other';
TITLE3 '-----';

```

```

PROC logistic DATA=TEMP3 descending;
  MODEL casecon2 = newmmr35
    M_AGE11 M_AGE12
    M_EDUC11 M_EDUC12
    B_WGTC11 B_WGTC12
    B_MULTB;
  where black = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- UnMatched: < 36 Black';
TITLE3 '-----';
PROC logistic DATA=TEMP3 descending;
  MODEL casecon2 = newmmr35
    M_AGE11 M_AGE12
    M_EDUC11 M_EDUC12
    B_WGTC11 B_WGTC12
    B_MULTB;
  where black = 1;
RUN;
TITLE1 '-----';
TITLE2 '-- UnMatched: < 36 Age < 35';
TITLE3 '-----';
PROC logistic DATA=TEMP3 descending;
  MODEL casecon2 = newmmr35
    M_EDUC11 M_EDUC12
    B_WGTC11 B_WGTC12
    B_MULTB;
  where m_agec12 = 1;
RUN;
TITLE1 '-----';
TITLE2 '-- UnMatched: < 36 Age >= 35';
TITLE3 '-----';
PROC logistic DATA=TEMP3 descending;
  MODEL casecon2 = newmmr35
    M_EDUC11 M_EDUC12
    B_WGTC11 B_WGTC12
    B_MULTB;
  where m_agec12 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- UnMatched: < 36 Educ < 16';
TITLE3 '-----';
PROC logistic DATA=TEMP3 descending;
  MODEL casecon2 = newmmr35
    M_AGE11 M_AGE12
    B_WGTC11 B_WGTC12
    B_MULTB;
  where m_educ12 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- UnMatched: < 36 Educ 16+';
TITLE3 '-----';
PROC logistic DATA=TEMP3 descending;
  MODEL casecon2 = newmmr35
    B_WGTC11 B_WGTC12
    B_MULTB;
  where m_educ12 = 1;
RUN;
TITLE1 '-----';
TITLE2 '-- UnMatched: < 36 Birth Weight >= 2500';
TITLE3 '-----';
PROC logistic DATA=TEMP3 descending;
  MODEL casecon2 = newmmr35
    M_AGE11 M_AGE12

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```

                M_EDUC11 M_EDUC12
                B_MULTB;
    where b_wgtc11 = 0 and b_wgtc12 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- UnMatched: < 36 Birth Weight < 2500';
TITLE3 '-----';
PROC logistic DATA=TEMP3 descending;
    MODEL casecon2 = newmmr35
                M_AGEC11 M_AGEC12
                M_EDUC11 M_EDUC12
                B_MULTB;
    where b_wgtc11 = 1 or b_wgtc12 = 1;
RUN;

TITLE1 '-----';
TITLE2 '-- Create Matched BC Samp';
TITLE3 '-----';
PROC SORT DATA=TEMP3;
    BY CASENUM;
RUN;
PROC SUMMARY DATA=TEMP3;
    VAR N CASECON2;
    BY CASENUM;
    OUTPUT OUT=temp4 SUM=N casetot;
RUN;
data temp4 (keep = N casetot casenum);
    set temp4;
    if N >= 2 and casetot = 1;
run;
PROC FREQ DATA=temp4;
    TABLES N;
RUN;
proc sort data=mydir.temp1;    by casenum; run;
proc sort data=temp4;        by casenum; run;
DATA TEMP5;
    merge temp3 temp4 (in=a);
    by casenum;
    if a;
run;
TITLE1 '-----';
TITLE2 '-- Figure 1c: Matched Birth Certificate Sample';
TITLE3 '-----';
proc freq data=temp5;
    tables mmr1cat1 * casecon2 / norow nocol nopercnt;
run;
PROC PHREG DATA=TEMP5 NOSUMMARY;
    MODEL TIME * STATUS (0) = newmmr1-newmmr5/
    TIES = DISCRETE RL;
    STRATA CASENUM;
RUN;

TITLE1 '-----';
TITLE2 '-- Matched: < 18 Months';
TITLE3 '-----';
proc freq data=temp5;
    tables casecon2;
run;
PROC PHREG DATA=TEMP5 NOSUMMARY;
    MODEL TIME * STATUS (0) = newmmr17
                M_AGEC11 M_AGEC12
                M_EDUC11 M_EDUC12
                B_WGTC11 B_WGTC12
                B_MULTB /

```

```

TIES = DISCRETE RL;
STRATA CASENUM;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 18 where sexmale = 0';
TITLE3 '-----';
proc freq data=temp5;
  tables casecon2;
  where sexmale = 0;
run;
PROC PHREG DATA=TEMP5 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr17
        M_AGE11 M_AGE12
        M_EDUC11 M_EDUC12
        B_WGTC11 B_WGTC12
        B_MULTB /
TIES = DISCRETE RL;
STRATA CASENUM;
  where sexmale = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 18 where sexmale = 1';
TITLE3 '-----';
proc freq data=temp5;
  tables casecon2;
  where sexmale = 1;
run;
PROC PHREG DATA=TEMP5 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr17
        M_AGE11 M_AGE12
        M_EDUC11 M_EDUC12
        B_WGTC11 B_WGTC12
        B_MULTB /
  TIES = DISCRETE RL;
STRATA CASENUM;
  where sexmale = 1;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 18 Age 3-5';
TITLE3 '-----';
proc freq data=temp5;
  tables casecon2;
  where age2_5 = 1;
run;
PROC PHREG DATA=TEMP5 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr17
        M_AGE11 M_AGE12
        M_EDUC11 M_EDUC12
        B_WGTC11 B_WGTC12
        B_MULTB /
  TIES = DISCRETE RL;
STRATA CASENUM;
  where age2_5 = 1;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 18 Age 6+';
TITLE3 '-----';
proc freq data=temp5;
  tables casecon2;
  where age2_5 = 0;
run;
PROC PHREG DATA=TEMP5 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr17
        M_AGE11 M_AGE12

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```

                M_EDUC11 M_EDUC12
                B_WGTC11 B_WGTC12
                B_MULTB /
    TIES = DISCRETE RL;
    STRATA CASENUM;
    where age2_5 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 18 where Delay1 = 0';
TITLE3 '-----';
proc freq data=temp5;
  tables casecon2;
  where Delay1 = 0 or casecon2 = 0;
run;
PROC PHREG DATA=TEMP5 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr17
        M_AGE11 M_AGE12
        M_EDUC11 M_EDUC12
        B_WGTC11 B_WGTC12
        B_MULTB /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where Delay1 = 0 or casecon2 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 18 where Regression = 1';
TITLE3 '-----';
proc freq data=temp5;
  tables casecon2;
  where regress1 = 1 or casecon2 = 0;
run;
PROC PHREG DATA=TEMP5 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr17
        M_AGE11 M_AGE12
        M_EDUC11 M_EDUC12
        B_WGTC11 B_WGTC12
        B_MULTB /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where regress1 = 1 or casecon2 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 18 where MR = 1';
TITLE3 '-----';
proc freq data=temp5;
  tables casecon2;
  where mrcasdef = '1' or casecon2 = 0;
run;
PROC PHREG DATA=TEMP5 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr17
        M_AGE11 M_AGE12
        M_EDUC11 M_EDUC12
        B_WGTC11 B_WGTC12
        B_MULTB /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where mrcasdef = '1' or casecon2 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 18 where MR = 0';
TITLE3 '-----';
proc freq data=temp5;
  tables casecon2;
  where (casecon2 = 1 and mrcasdef ne '1') or casecon2 = 0;

```

```

run;
PROC PHREG DATA=TEMP5 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr17
        M_AGE11 M_AGE12
        M_EDUC11 M_EDUC12
        B_WGTC11 B_WGTC12
        B_MULTB /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where (casecon2 = 1 and mrcasedf ne '1') or casecon2 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 18 Months: School Source = 'Y'';
TITLE3 '-----';
proc freq data=temp5;
  tables casecon2;
  where schsour = 'Y';
run;
PROC PHREG DATA=TEMP5 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr17
        M_AGE11 M_AGE12
        M_EDUC11 M_EDUC12
        B_WGTC11 B_WGTC12
        B_MULTB /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where schsour = 'Y' or casecon2 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 18 Months: School Source = 'N'';
TITLE3 '-----';
proc freq data=temp5;
  tables casecon2;
  where schsour = 'N';
run;
PROC PHREG DATA=TEMP5 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr17
        M_AGE11 M_AGE12
        M_EDUC11 M_EDUC12
        B_WGTC11 B_WGTC12
        B_MULTB /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where schsour = 'N' or casecon2 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 18 Months - Prevd1 = 1';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where prevd1 = 1;
run;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr17
        M_AGE11 M_AGE12
        M_EDUC11 M_EDUC12
        B_WGTC11 B_WGTC12
        B_MULTB /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where prevd1 = 1 or casecon2 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 18 Months - Prevd1 = 0';

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```

TITLE3 '-----';
proc freq;
  tables casecon2;
  where prevdx1 = 0;
run;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr17
        M_AGE11 M_AGE12
        M_EDUC11 M_EDUC12
        B_WGTC11 B_WGTC12
        B_MULTB /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where prevdx1 = 0 or casecon2 = 0;
RUN;

TITLE1 '-----';
TITLE2 '-- Matched: < 24 Months';
TITLE3 '-----';
proc freq;
  tables casecon2;
run;
PROC PHREG DATA=TEMP5 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr23
        M_AGE11 M_AGE12
        M_EDUC11 M_EDUC12
        B_WGTC11 B_WGTC12
        B_MULTB /
  TIES = DISCRETE RL;
  STRATA CASENUM;
RUN;

TITLE1 '-----';
TITLE2 '-- Matched: < 24 where sexmale = 0';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where sexmale = 0;
run;
PROC PHREG DATA=TEMP5 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr23
        M_AGE11 M_AGE12
        M_EDUC11 M_EDUC12
        B_WGTC11 B_WGTC12
        B_MULTB /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where sexmale = 0;
RUN;

TITLE1 '-----';
TITLE2 '-- Matched: < 24 where sexmale = 1';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where sexmale = 1;
run;
PROC PHREG DATA=TEMP5 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr23
        M_AGE11 M_AGE12
        M_EDUC11 M_EDUC12
        B_WGTC11 B_WGTC12
        B_MULTB /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where sexmale = 1;

```

```

RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 24 Age 3-5';
TITLE3 '-----';
proc freq data=temp5;
  tables casecon2;
  where 1 < age1996 < 6;
run;
PROC PHREG DATA=TEMP5 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr23
        M_AGE11 M_AGE12
        M_EDUC11 M_EDUC12
        B_WGTC11 B_WGTC12
        B_MULTB /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where 1 < age1996 < 6;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 24 Age 6+';
TITLE3 '-----';
PROC PHREG DATA=TEMP5 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr23
        M_AGE11 M_AGE12
        M_EDUC11 M_EDUC12
        B_WGTC11 B_WGTC12
        B_MULTB /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where age1996 >= 6;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 24 where Delay1 = 0';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where delay1 = 0 or casecon2 = 0;
run;
PROC PHREG DATA=TEMP5 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr23
        M_AGE11 M_AGE12
        M_EDUC11 M_EDUC12
        B_WGTC11 B_WGTC12
        B_MULTB /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where delay1 = 0 or casecon2 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 24 where Regression = 1';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where regress1 = 1 or casecon2 = 0;
run;
PROC PHREG DATA=TEMP5 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr23
        M_AGE11 M_AGE12
        M_EDUC11 M_EDUC12
        B_WGTC11 B_WGTC12
        B_MULTB /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where regress1 = 1 or casecon2 = 0;

```

```

RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 24 where MR = 1';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where mrcasedf = '1' or casecon2 = 0;
run;
PROC PHREG DATA=TEMP5 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr23
        M_AGE11 M_AGE12
        M_EDUC11 M_EDUC12
        B_WGTC11 B_WGTC12
        B_MULTB /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where mrcasedf = '1' or casecon2 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 24 where MR = 0';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where (casecon2 = 1 and mrcasedf ne '1') or casecon2 = 0;
run;
PROC PHREG DATA=TEMP5 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr23
        M_AGE11 M_AGE12
        M_EDUC11 M_EDUC12
        B_WGTC11 B_WGTC12
        B_MULTB /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where (casecon2 = 1 and mrcasedf ne '1') or casecon2 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 24 Months: School Source = 'Y'';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where schsour = 'Y';
run;
PROC PHREG DATA=TEMP5 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr23
        M_AGE11 M_AGE12
        M_EDUC11 M_EDUC12
        B_WGTC11 B_WGTC12
        B_MULTB /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where schsour = 'Y' or casecon2 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 24 Months: School Source = 'N'';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where schsour = 'N';
run;
PROC PHREG DATA=TEMP5 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr23
        M_AGE11 M_AGE12
        M_EDUC11 M_EDUC12
        B_WGTC11 B_WGTC12

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```

                B_MULTB /
TIES = DISCRETE RL;
STRATA CASENUM;
where schsour = 'N' or casecon2 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 24 Months - Prevd1 = 1';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where prevd1 = 1;
run;
PROC PHREG DATA=TEMP5 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr23
        M_AGE11 M_AGE12
        M_EDUC11 M_EDUC12
        B_WGTC11 B_WGTC12
        B_MULTB /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where prevd1 = 1 or casecon2 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 24 Months - Prevd1 = 0';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where prevd1 = 0;
run;
PROC PHREG DATA=TEMP5 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr23
        M_AGE11 M_AGE12
        M_EDUC11 M_EDUC12
        B_WGTC11 B_WGTC12
        B_MULTB /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where prevd1 = 0 or casecon2 = 0;
RUN;

TITLE1 '-----';
TITLE2 '-- Matched: < 36 Months';
TITLE3 '-----';
proc freq data=temp5;
  tables casecon2;
run;
PROC PHREG DATA=TEMP5 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr35
        M_AGE11 M_AGE12
        M_EDUC11 M_EDUC12
        B_WGTC11 B_WGTC12
        B_MULTB /
  TIES = DISCRETE RL;
  STRATA CASENUM;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 36 where sexmale = 0';
TITLE3 '-----';
proc freq data=temp5;
  tables casecon2;
  where sexmale = 0;
run;
PROC PHREG DATA=TEMP5 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr35

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```

                M_AGE11 M_AGE12
                M_EDUC11 M_EDUC12
                B_WGTC11 B_WGTC12
                B_MULTB /
    TIES = DISCRETE RL;
    STRATA CASENUM;
    where sexmale = 0;
RUN;
PROC PHREG DATA=TEMP5 NOSUMMARY;
    MODEL TIME * STATUS (0) = newmmr35
                M_AGE11 M_AGE12
                M_EDUC11 M_EDUC12
                B_WGTC11 B_WGTC12
                B_MULTB /
    TIES = DISCRETE RL;
    STRATA CASENUM;
    where sexmale = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 36 where sexmale = 1';
TITLE3 '-----';
proc freq data=temp5;
    tables casecon2;
    where sexmale = 1;
run;
PROC PHREG DATA=TEMP5 NOSUMMARY;
    MODEL TIME * STATUS (0) = newmmr35
                M_AGE11 M_AGE12
                M_EDUC11 M_EDUC12
                B_WGTC11 B_WGTC12
                B_MULTB /
    TIES = DISCRETE RL;
    STRATA CASENUM;
    where sexmale = 1;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 36 Age 3-5';
TITLE3 '-----';
proc freq data=temp5;
    tables casecon2;
    where 1 < age1996 < 6;
run;
PROC PHREG DATA=TEMP5 NOSUMMARY;
    MODEL TIME * STATUS (0) = newmmr35
                M_AGE11 M_AGE12
                M_EDUC11 M_EDUC12
                B_WGTC11 B_WGTC12
                B_MULTB /
    TIES = DISCRETE RL;
    STRATA CASENUM;
    where 1 < age1996 < 6;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 36 Age 6+';
TITLE3 '-----';
PROC PHREG DATA=TEMP5 NOSUMMARY;
    MODEL TIME * STATUS (0) = newmmr35
                M_AGE11 M_AGE12
                M_EDUC11 M_EDUC12
                B_WGTC11 B_WGTC12
                B_MULTB /
    TIES = DISCRETE RL;
    STRATA CASENUM;
    where age1996 >= 6;

```

```

RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 36 where Delay1 = 0';
TITLE3 '-----';
proc freq data=temp5;
  tables casecon2;
  where Delay1 = 0 or casecon2 = 0;
run;
PROC PHREG DATA=TEMP5 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr35
        M_AGE11 M_AGE12
        M_EDUC11 M_EDUC12
        B_WGTC11 B_WGTC12
        B_MULTB /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where Delay1 = 0 or casecon2 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 36 where Regression = 1';
TITLE3 '-----';
proc freq data=temp5;
  tables casecon2;
  where regress1 = 1 or casecon2 = 0;
run;
PROC PHREG DATA=TEMP5 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr35
        M_EDUC11 M_EDUC12
        B_MULTB /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where regress1 = 1 or casecon2 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 36 where MR = 1';
TITLE3 '-----';
proc freq data=temp5;
  tables casecon2;
  where mrcasdef = '1' or casecon2 = 0;
run;
PROC PHREG DATA=TEMP5 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr35
        M_AGE11 M_AGE12
        M_EDUC11 M_EDUC12
        B_WGTC11 B_WGTC12
        B_MULTB /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where mrcasdef = '1' or casecon2 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 36 where MR = 0';
TITLE3 '-----';
proc freq data=temp5;
  tables casecon2 * newmmr35;
  where (casecon2 = 1 and mrcasdef ne '1') or casecon2 = 0;
run;
PROC PHREG DATA=TEMP5 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr35
        M_AGE11 M_AGE12
        M_EDUC11 M_EDUC12
        B_WGTC11 B_WGTC12
        B_MULTB /
  TIES = DISCRETE RL;

```

```

STRATA CASENUM;
  where (casecon2 = 1 and mrcasedf ne '1') or casecon2 = 0;
RUN;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 36 Months: School Source = 'Y'';
TITLE3 '-----';
proc freq data=temp5;
  tables casecon2;
  where schsour = 'Y';
run;
PROC PHREG DATA=TEMP5 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr35
        M_AGE11 M_AGE12
        M_EDUC11 M_EDUC12
        B_WGTC11 B_WGTC12
        B_MULTB /
  TIES = DISCRETE RL;
STRATA CASENUM;
  where schsour = 'Y' or casecon2 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 36 Months: School Source = 'N'';
TITLE3 '-----';
proc freq data=temp5;
  tables casecon2;
  where schsour = 'N';
run;
PROC PHREG DATA=TEMP5 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr35
        M_AGE11 M_AGE12
        M_EDUC11 M_EDUC12
        B_WGTC11 B_WGTC12
        B_MULTB /
  TIES = DISCRETE RL;
STRATA CASENUM;
  where schsour = 'N' or casecon2 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 36 Months - Prevd1 = 1';
TITLE3 '-----';
proc freq data=temp5;
  tables casecon2;
  where prevd1 = 1;
run;
PROC PHREG DATA=TEMP5 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr35
        M_AGE11 M_AGE12
        M_EDUC11 M_EDUC12
        B_WGTC11 B_WGTC12
        B_MULTB /
  TIES = DISCRETE RL;
STRATA CASENUM;
  where prevd1 = 1 or casecon2 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 36 Months - Prevd1 = 0';
TITLE3 '-----';
proc freq data=temp5;
  tables casecon2;
  where prevd1 = 0;
run;
PROC PHREG DATA=TEMP5 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr35

```

```
                M_AGE11 M_AGE12  
                M_EDUC11 M_EDUC12  
                B_WGTC11 B_WGTC12  
                B_MULTB /  
TIES = DISCRETE RL;  
STRATA CASENUM;  
where prevdx1 = 0 or casecon2 = 0;  
RUN;
```