

```

OPTIONS nocenter LINESIZE=100 pagesize=5000;
libname mydir 'H:\ESD\VSDA\_STAFFS\Thompsonb\_Vsd\_Studies_Child\Autism\Autism_MADDSP_MMR\sas';
TITLE1 '-----';
TITLE2 '-- Summarize Case Data';
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;
DATA TEMP1;
  SET mydir.temp1;
run;
proc print;
  var idnum;
  where idnum in ('1800170','3252980');
run;
proc contents;
run;
proc freq;
  tables case aucasedf casecon2;
run;
proc means maxdec=2 n mean min max sum;
  var casecon2;
run;

TITLE1 '-----';
TITLE2 '-- Summarize Matching Variable Information - Removing Missing';
TITLE3 '-----';
DATA TEMP1;
  SET temp1;
  if casenum = ' ' then delete;
  N = 1;
  KEEP N CASENUM case aucasedf CASECON2;
  RUN;
proc freq;
  tables case aucasedf casecon2;
run;
proc means maxdec=2 n mean min max sum;

```

About

Program  
For Analyses / Tables

2002/08/16

2002/08/21

N = 629 Confirmed Cases

```

var casecon2;
run;

TITLE1 '-----';
TITLE2 '-- Frequencies of Matching Prior to Deletion';
TITLE3 '-----';
PROC SORT DATA=TEMP1;
  BY CASENUM;
RUN;
PROC SUMMARY DATA=TEMP1;
  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;
  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=mydir.temp1; by casenum; run;
proc sort data=temp2; by casenum; run;
DATA TEMP3;
  merge mydir.temp1 temp2 (in=a);
  by casenum;
  if a;

*-----;
* Create Counter;
*-----;
N1 = 1;

*-----;
* MR Recode;
*-----;
if (casecon2 = 1 and mrcasdef eq '1') then mrcasdef1 = 1;

```

```

if (casecon2 = 1 and mrcasedf ne '1') then mrcased1 = 0;

*-----;
* 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',
            '6306870', '6359940', '6830720', '9109840', '9162630',
            '9165480', '9166640', '9170230') then BD_1yr = 1;
else BD_1yr = 0;
if MR_1yr = 1 or
   CP_1yr = 1 or
   HI_1yr = 1 or
   VI_1yr = 1 or
   BD_1yr = 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;
*-----;
mmr1cat = .; mmrcat2 = .; mmrcat3 = .;
IF 0 <= MMR1MON <= 11 THEN MMR1CAT1 = 1;
ELSE IF 12 <= MMR1MON <= 17 THEN MMR1CAT1 = 2;

```

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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 mmr1cat1 = 1 then do;
  newmmr1 = 1;
  newmmr2 = 0;
  newmmr3 = 0;
  newmmr4 = 0;
  newmmr5 = 0;
end;
if mmr1cat1 = 2 then do;
  newmmr1 = 0;
  newmmr2 = 1;
  newmmr3 = 0;
  newmmr4 = 0;
  newmmr5 = 0;
end;
if mmr1cat1 = 3 then do;
  newmmr1 = 0;
  newmmr2 = 0;
  newmmr3 = 1;
  newmmr4 = 0;
  newmmr5 = 0;
end;
if mmr1cat1 = 4 then do;
  newmmr1 = 0;
  newmmr2 = 0;
  newmmr3 = 0;
  newmmr4 = 1;
  newmmr5 = 0;
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;

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;

```

```

*-----;
* 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;

*-----;
* Deletions;
*-----;
if substr(idnum,1,2)='XX' then delete;
if idnum = '6103023' then delete;
if mmr1cat3 = . then delete;

*-----;
* 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;

*-----;
* 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 ddbyone = '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.  
ne_mmr35 describ.;
```

```
RUN;
```

```
TITLE1 '-----';
```

```
TITLE2 '-- Case Data Check - Old Analyses';
```

```
TITLE3 '-----';
```

```
data mydir.case_old;
```

```
set temp3;
```

```
keep casenum idnum aucasedf casecon2 mmr1cat1 newmmr35;
```

```
run;
```

```
proc freq data=mydir.case_old;
```

```
tables aucasedf casecon2 mmr1cat1 newmmr35;
```

```
tables aucasedf * casecon2
```

```
mmr1cat1 * casecon2
```

```
newmmr35 * casecon2 / norow nocol nopercnt;
```

```
run;
```

```
TITLE1 '-----';
```

```
TITLE2 '-- Matched: < 36 where MR = 0';
```

```
TITLE3 '-----';
```

```
PROC PHREG DATA=TEMP3 NOSUMMARY;
```

```
MODEL TIME * STATUS (0) = newmmr35 /
```

```
TIES = DISCRETE RL;
```

```
STRATA CASENUM;
```

```
where (casecon2 = 1 and mrcasedf ne '1' and sexmale = 1 and age2_5 = 1)
```

```
or casecon2 = 0;
```

```
RUN;
```

```
proc print;
```

```
var idnum casecon2 newmmr35;
```

```
where idnum in('1800170','3252980');
```

```
run;
```

```
proc means maxdec=2;
```

```
class mrcased1 sexmale;
```

```
var age1996;
```

```
run;
```

```
proc means maxdec=2 N mean;
```

```
class sexmale age2_5;
```

```
var age1996 prevdx1 mrcased1;
```

```
where casecon2 = 1;
```

```
run;
```

```
proc corr;
```

```
var mrcased1 age1996;
```

```
run;
```

```
TITLE1 '-----';
```

```
TITLE2 '-- Matched: < 18 Age 3-5';
```

```
TITLE3 '-----';
```

```
proc freq;
```

```
tables prevdx1 * age2_5 / nocol nopercnt;
```

```
tables sexmale * age2_5 / nocol nopercnt;
```

```
tables mrcasedf * age2_5 / nocol nopercnt missing;
```

```
tables mrcasedf * prevdx1 / nocol nopercnt missing;
```

```
tables schsour * age2_5 / nocol nopercnt missing;
```

```
run;
```

```

proc freq;
  tables age1996 * prevdx1 / norow nopercent missing;
  where casecon2 = 1;
run;
TITLE1 '-----';
TITLE2 '-- Describe Subjects - All Subjects';
TITLE3 '-----';
proc freq;
  tables ne_mmr35 * casecon3 / norow nopercent;
run;
TITLE1 '-----';
TITLE2 '-- Describe Subjects - Males';
TITLE3 '-----';
proc freq;
  tables ne_mmr35 * casecon3 / norow nopercent;
  where sexmale = 1;
run;
TITLE1 '-----';
TITLE2 '-- Describe Subjects - High Functioning Cases';
TITLE3 '-----';
proc freq;
  tables ne_mmr35 * casecon3 / norow nopercent;
  where mrcasdef ne '1' or casecon2 = 0;
run;
TITLE1 '-----';
TITLE2 '-- Describe Subjects - School Source Only Cases';
TITLE3 '-----';
proc freq;
  tables ne_mmr35 * casecon3 / norow nopercent;
  where schsour = 'Y' or casecon2 = 0;;
run;
TITLE1 '-----';
TITLE2 '-- Describe Subjects - Previous ASD = No';
TITLE3 '-----';
proc freq;
  tables ne_mmr35 * casecon3 / norow nopercent;
  where prevdx1 = 0 or casecon2 = 0;
run;
proc freq;
  tables prevdx1 * schsour / norow nopercent;
  where casecon2 = 1 and ne_mmr35 = 2;
run;
TITLE1 '-----';
TITLE2 '-- Describe Subjects - Blacks';
TITLE3 '-----';
proc freq;
  tables ne_mmr35 * casecon3 / norow nopercent;
  where black = 1;
run;
TITLE1 '-----';
TITLE2 '-- Figure 1a: All Subjects';
TITLE3 '-----';
proc freq;
  tables mmricat1 * 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 '-- All-Subjects: State Effects';
TITLE3 '-----';
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr1-newmmr5 gastate/
  TIES = DISCRETE RL;
  STRATA CASENUM;
RUN;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr1-newmmr5/
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where gastate = 1;
RUN;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr1-newmmr5/
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where gastate = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- All-Subjects: Race Interactions';
TITLE3 '-----';
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr1-newmmr5 black black1-black5 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
RUN;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr17 black black17/
  TIES = DISCRETE RL;
  STRATA CASENUM;
RUN;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr23 black black23/

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```

TIES = DISCRETE RL;
STRATA CASENUM;
RUN;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr35 black black35/
  TIES = DISCRETE RL;
  STRATA CASENUM;
RUN;
TITLE1 '-----';
TITLE2 '-- All-Subjects: Blacks by Birth Certificate';
TITLE3 '-----';
PROC logistic DATA=TEMP3 descending;
  MODEL STATUS = newmmr35;
  where bcsamp = 0;
RUN;
PROC logistic DATA=TEMP3 descending;
  MODEL STATUS = newmmr35;
  where bcsamp = 1;
RUN;
TITLE1 '-----';
TITLE2 '-- Figure 1b: Birth Certificate Sample';
TITLE3 '-----';
proc freq;
  tables mmr1cat1 * casecon2 / nocol norow nopercnt;
  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;
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;

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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 mrcasdef = '1' or casecon2 = 0;
run;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr17 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where mrcasdef = '1' or casecon2 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 18 where MR = 0';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where (casecon2 = 1 and mrcasdef 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 mrcasdef 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 - Prevd1 = 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 - Prevd1 = 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';

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```

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 mrcasdef = '1' or casecon2 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 24 where MR = 0';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where (casecon2 = 1 and mrcasdef 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 mrcasdef 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 mrcasdef = '1' or casecon2 = 0;
run;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr35 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where mrcasdef = '1' or casecon2 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 36 where MR = 0';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where (casecon2 = 1 and mrcasdef 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 mrcasdef 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 prevdx1 = 1;
run;
PROC PHREG DATA=TEMP3 NOSUMMARY;

```

```

MODEL TIME * STATUS (0) = newmmr35 /
TIES = DISCRETE RL;
STRATA CASENUM;
where prevdx1 = 1 or casecon2 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- Matched: < 36 Months - Prevdx = 0';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where prevdx1 = 0;
run;
PROC PHREG DATA=TEMP3 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr35 /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where prevdx1 = 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_AGEC11 M_AGEC12
              M_EDUC11 M_EDUC12
              B_WGTC11 B_WGTC12
              B_MULTB;
  where age1996 < 6;
RUN;
TITLE1 '-----';
TITLE2 '-- UnMatched: < 18 Age 6+';

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```

TITLE3 '-----';
PROC logistic DATA=TEMP3 descending;
  MODEL casecon2 = newmmr17
    M_AGEC11 M_AGEC12
    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_AGEC11 M_AGEC12
    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_AGEC11 M_AGEC12
    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_AGEC11 M_AGEC12
        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_AGEC11 M_AGEC12
        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_AGEC11 M_AGEC12
        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_agec12 = 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_agec12 = 0;
RUN;
TITLE1 '-----';
TITLE2 '-- UnMatched: < 24 Educ < 16';
TITLE3 '-----';
PROC logistic DATA=TEMP3 descending;
  MODEL casecon2 = newmmr23
    M_AGEC11 M_AGEC12
    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';

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```

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_AGEC11 M_AGEC12
    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_AGEC11 M_AGEC12
    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_AGEC11 M_AGEC12
    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_AGEC11 M_AGEC12
    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;

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```

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_AGE11 M_AGE12
      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_AGEC11 M_AGEC12
        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_AGEC11 M_AGEC12
        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_AGEC11 M_AGEC12
        M_EDUC11 M_EDUC12
        B_WGTC11 B_WGTC12
        B_MULTB /
  TIES = DISCRETE RL;
  STRATA CASENUM;

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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_AGEC11 M_AGEC12
    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_AGEC11 M_AGEC12
    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_AGEC11 M_AGEC12
    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';

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TITLE3 '-----';
proc freq data=temp5;
  tables casecon2;
  where (casecon2 = 1 and mrcasedf ne '1') or casecon2 = 0;
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;
  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_AGEC11 M_AGEC12
    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_AGEC11 M_AGEC12
    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 prevdx1 = 1;

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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 = 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
        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

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        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_AGEC11 M_AGEC12
        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_AGEC11 M_AGEC12
        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_AGEC11 M_AGEC12
        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';

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TITLE3 '-----';
proc freq;
  tables casecon2;
  where delay1 = 0 or casecon2 = 0;
run;
PROC PHREG DATA=TEMP5 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr23
        M_AGEC11 M_AGEC12
        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_AGEC11 M_AGEC12
        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 mrcasdef = '1' or casecon2 = 0;
run;
PROC PHREG DATA=TEMP5 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr23
        M_AGEC11 M_AGEC12
        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: < 24 where MR = 0';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where (casecon2 = 1 and mrcasdef ne '1') or casecon2 = 0;

```



```

run;
PROC PHREG DATA=TEMP5 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr23
        M_AGEC11 M_AGEC12
        M_EDUC11 M_EDUC12
        B_WGTC11 B_WGTC12
        B_MULTB /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where (casecon2 = 1 and mrcasdef 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_AGEC11 M_AGEC12
        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_AGEC11 M_AGEC12
        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: < 24 Months - Prevd1 = 1';
TITLE3 '-----';
proc freq;
  tables casecon2;
  where prevdx1 = 1;
run;
PROC PHREG DATA=TEMP5 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr23
        M_AGEC11 M_AGEC12

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M_EDUC11 M_EDUC12
B_WGTC11 B_WGTC12
B_MULTB /

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=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 prevdx1 = 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
        M_AGE11 M_AGE12
        M_EDUC11 M_EDUC12
        B_WGTC11 B_WGTC12
        B_MULTB /

  TIES = DISCRETE RL;
  STRATA CASENUM;

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```

where sexmale = 0;
RUN;
PROC PHREG DATA=TEMP5 NOSUMMARY;
  MODEL TIME * STATUS (0) = newmmr35
        M_AGEC11 M_AGEC12
        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_AGEC11 M_AGEC12
        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_AGEC11 M_AGEC12
        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_AGEC11 M_AGEC12
        M_EDUC11 M_EDUC12
        B_WGTC11 B_WGTC12
        B_MULTB /

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```

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_AGEC11 M_AGEC12
        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_AGEC11 M_AGEC12
        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';

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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_AGEC11 M_AGEC12
        M_EDUC11 M_EDUC12
        B_WGTC11 B_WGTC12
        B_MULTB /
  TIES = DISCRETE RL;
  STRATA CASENUM;
  where (casecon2 = 1 and mrcasdef 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_AGEC11 M_AGEC12
        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_AGEC11 M_AGEC12
        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 - Prevdx = 1';
TITLE3 '-----';
proc freq data=temp5;
  tables casecon2;

```