Laboratory 8
Conditional Logistic Regression

1:1 Conditional Logistic Regression

Description of Data

'CASECONTROL11.DBF' is data from a 1:1 matched case-control study of low birth weight (<2500 grams) babies. There are 56 matched pairs, with the variable STATUS=1 indicating a case and STATUS=0 indicating a control. Controls were age-matched mothers who gave birth to a baby above 2500 grams. Risk factors under study were race, maternal smoking during pregnancy, history of hypertension, history of premature labor, presence of uterine irritability, and mother’s pre-pregnant weight. The goal of the analysis is to determine whether the low birth weight is associated with any of the explanatory variables. Following is the data dictionary (in order as on file):

ID identification variable for each matched pair
Status 0= GE 2500 grams (controls), 1=<2500 grams (cases)
AGE age of mother in years
LWT pre-pregnant weight, weight in pounds at last menstrual period
RACE race of mother (1=white, 2=black, 3= other)
SMOKE smoking status during pregnancy (1=yes, 0=no)
PTD history of premature labor (1=yes, 0=no)
HT history of hypertension (1=yes, 0=no)
UI presence of uterine irritability (1=yes, 0=no)

Please run the following SAS program, report and interpret the results

SAS Program for 1:1 Conditional Logistic Regression

title1 '*******************************************************';
title2 '1:1 Conditional Logistic Regression by Henian Chen 2002-09-11';
title3 '*******************************************************';
proc import datafile='a:casecontrol11.dbf' 
   out=casecontrol11 dbms=dbf replace;
run;
data casecontrol11;
set casecontrol11;
status1=1-status;
race1=0;
if race=2 then race1=1;
race2=0;
if race=3 then race2=1;
run;
**proc phreg;**
**model status1=age lwt race1 race2 smoke ptd ht ui**
**/selection=forward ties=discrete rl;**
strata=id;
run;

### 1:3 Conditional Logistic Regression

#### Description of Data

'CASECONTROL13.TXT' is data from a 1:3 matched hospital based case-control study. Cases are women diagnosed with benign breast disease from two hospitals. Controls were selected from other patients at the same two hospitals. Following is a list of variables in order:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>stratum number</td>
</tr>
<tr>
<td>SUBJECT</td>
<td>observation within a matched set (1=case, 2-4= controls)</td>
</tr>
<tr>
<td>AGEINTER</td>
<td>age of the subject at the interview</td>
</tr>
<tr>
<td>STATUS</td>
<td>diagnosis (1=case, 0=control)</td>
</tr>
<tr>
<td>MCHECK</td>
<td>regular medical checkup history (1=yes, 0=no)</td>
</tr>
<tr>
<td>AGEP</td>
<td>age at first pregnancy</td>
</tr>
<tr>
<td>AGEM</td>
<td>age at menarche</td>
</tr>
<tr>
<td>NONLIVEN</td>
<td>number of stillbirths, miscarriages, and other non live births</td>
</tr>
<tr>
<td>LIVEN</td>
<td>number of live births</td>
</tr>
<tr>
<td>WEIGHT</td>
<td>weight of the subject</td>
</tr>
<tr>
<td>AGELM</td>
<td>age at last menstrual period</td>
</tr>
</tbody>
</table>

Please run the following SAS program, report and interpret the results

#### SAS Program for 1:3 Conditional Logistic Regression

```sas
title1 '*******************************************************';
title2 '1:3 Conditional Logistic Regression by Henian Chen 2002-09-11';
title3 '*******************************************************';
proc import datafile='a:casecontrol13.txt'
   out=casecontrol13 dbms=tab replace;
run;
data casecontrol13;
set casecontrol13;
status1=1-status;
run;
proc phreg;
model status1=ageinter mcheck agep agem nonliven liven weight agelm
   /selection=forward ties=discrete rl;
strata=id;
run;
```