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APPENDIX AVAILABLE ON REQUEST

Special Report

Reanalysis of the Harvard Six Cities Study and the American Cancer Society Study of Particulate Air Pollution and Mortality

Part I: Replication and Validation

Appendix F. Computer Programs and Output Used in the Replication of the Original Analyses of the American Cancer Society Study

Daniel Krewski, Richard T. Burnett, Mark S. Goldberg, Kristin Hoover, Jack Siemiatycki, Michal Abrahamowicz, Warren H. White, and Others

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UNIVERSITY OF OTTAWA

Faculty of Medicine   **Faculty of Health Sciences**
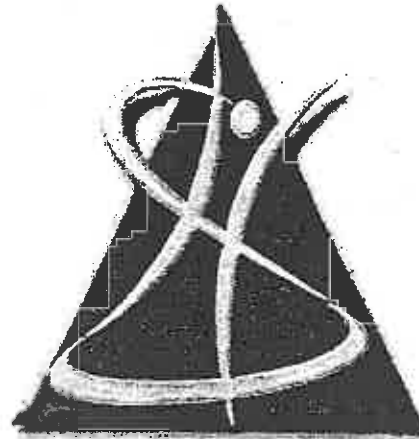
Re-analysis of the Harvard Six-Cities Study
and the American Cancer Society Study
of Air Pollution and Mortality,
Phase I: Validation and Replication

Appendix F:Computer Programs and Output Used in the Replication
of the Original Analysis of the American Cancer Society Study

R. Samuel McLaughlin Center for
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Institute of Population Health
University of Ottawa

July, 2000

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Program #1

```
/****************************
*                          *
*    Repeat the results in  *
*    ACS Study paper (1995) *
*      --   Table One       *
*                          *
****************************/

libname acs '/home/yuanli/acss/';
libname fmo '/home/fmo/';

options nocenter ps=64 ls=80 obs=max;

proc format;
     value dead 1 = 'Alive'
                0 = 'Dead'
                ;
    .value sex  1 = 'Male'
                2 = 'Female'
                ;
     value race 1 = 'White'
                2 = 'Black'
                3 = 'Other'
                ;
     value ind  0 = 'No.'
                1 = 'Yes'
                ;

filename derdata '/home/fmo/derdata.cport';

proc cimport data=dertest infile=derdata;

* proc contents data=dertest;

data sulf; set dertest;

  if flagdel = 0 and sulfdel = 0 ;

if (xsmkcpd gt 0 or xsmkcyr gt 0) then xsmk = 1;else xsmk = 0;

proc freq;
   table cenall sex racecat curcig xsmk indusexp evpconly edulow;
   format cenall dead. sex sex. racecat race.
          curcig xsmk indusexp evpconly edulow ind.;
   label curcig   = 'Current Smoker'
         xsmk      = 'Former Smoker'
         evpconly = 'Pipe/cigar smoker'
         indusexp = 'Occupational exposure'
         edulow    = 'Less than high school education';
```

```
      title1 'Table1: Summary Characteristics of Subjects in
   Baseline Analytic Cohort';
      title2 '            Derived From the ACS, CPS-II Study Cohort,
   1982-1989 ';
      title3 '            Analysis with Sulfate Particles ';

   proc means n mean;
      var age_int passive bmi alc ;
      label age_int = 'Age at Interview'
            passive = 'Passive Smoking'
            bmi     = 'Body Mass Index'
            alc     = 'Alcohol Drinking';

   proc means;
      var meansulf;
      label meansulf = 'Sulfate Particles';

   proc univariate;
      var meansulf;

data sulf2;
   set sulf;

   if curcig > 0 ;

   proc means n mean;
      var smkcpd smkcyr;
      label smkcpd = 'Current cigarettes per day'
            smkcyr = 'Current years smoke';

data sulf3;
   set sulf;

   if xsmk = 1 ;

   proc means n mean;
      var xsmkcpd xsmkcyr;
      label xsmkcpd = 'Former cigarettes per day'
            xsmkcyr = 'Former years smoked';
run;


data fpf; set dertest;

   if flagdel = 0 and fpfdel = 0 ;

if (xsmkcpd gt 0 or xsmkcyr gt 0) then xsmk = 1;else xsmk = 0;

proc freq;
   table cenall sex racecat curcig xsmk indusexp evpconly edulow;
```

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```
      format cenall dead. sex sex. racecat race.
            curcig xsmk indusexp evpconly edulow ind.;
      label curcig   = 'Current Smoker'
            xsmk      = 'Former Smoker'
            evpconly = 'Pipe/cigar smoker'
            indusexp = 'Occupational exposure'
            edulow    = 'Less than high school education';

      title1 'Table1: Summary Characteristics of Subjects in
Baseline Analytic Cohort';
      title2 '          Derived From the ACS, CPS-II Study Cohort,
1982-1989 ';
      title3 '          Analysis with Fine Particles ';

  proc means n mean;
      var age_int passive bmi alc ;
      label age_int = 'Age at Interview'
            passive = 'Passive Smoking'
            bmi      = 'Body Mass Index'
            alc      = 'Alcohol Drinking';

  proc means;
      var fpf;
      label fpf = 'Fine Particles';

  proc univariate;
      var fpf;

data fpf2;
   set fpf;

   if curcig > 0 ;

  proc means n mean;
      var smkcpd smkcyr;
      label smkcpd = 'Current cigarettes per day'
            smkcyr = 'Current years smoke';

data fpf3;
   set fpf;

   if xsmk = 1 ;

  proc means n mean;
      var xsmkcpd xsmkcyr;
      label xsmkcpd = 'Former cigarettes per day'
            xsmkcyr = 'Former years smoked';
run;

* ACS_tab1.out;
```

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```
/*****************************
*                           *
*   ACS Sensitivity Phase:  *
*                           *
*   New derdata with --     *
*                           *
*   1.Female Deaths to 89;  *
*   2.Female Former Smokers *
*                           *
*   ACS Study paper (1995)  *
*     --  Table One         *
*                           *
*****************************/

libname acs '/home/yuanli/acss/';

options nocenter ps=64 ls=80 obs=max;

proc format;
     value dead 1 = 'Alive'
                0 = 'Dead'
                ;
     value sex  1 = 'Male'
                2 = 'Female'
                ;
     value race 1 = 'White'
                2 = 'Black'
                3 = 'Other'
                ;
     value ind  0 = 'No.'
                1 = 'Yes'
                ;

/*
proc contents data=acs.dern;
title 'Contents in New Derived Dataset for ACS Study';
run; */

data sulf; set acs.dern;

  if flagd = 0 and sulfd = 0 ;

if (xsmkcpd gt 0 or xsmkcyr gt 0) then xsmk = 1;else xsmk = 0;

proc freq;
    table cenall sex racecat curcig xsmk indusexp evpconly edulow;
    format cenall dead. sex sex. racecat race.
           curcig xsmk indusexp evpconly edulow ind.;
    label curcig   = 'Current Smoker'
          xsmk     = 'Former Smoker'
```

```
            evpconly  = 'Pipe/cigar smoker'
            indusexp  = 'Occupational exposure'
            edulow    = 'Less than high school education';

        title1 'Table_1: Summary Characteristics of Subjects in
Baseline Analytic Cohort';
        title2 '            New Derived From the ACS, CPS-II Study
Cohort, 1982-1989 ';
        title3 '            Analysis with Sulfate Particles ';

  proc means n mean;
     var age_int passive bmi alc ;
     label age_int = 'Age at Interview'
           passive = 'Passive Smoking'
           bmi     = 'Body Mass Index'
           alc     = 'Alcohol Drinking';

  proc means;
     var meansulf;
     label meansulf = 'Sulfate Particles';

  proc univariate;
     var meansulf;

data sulf2;
   set sulf;

   if curcig > 0 ;

  proc means n mean;
     var smkcpd smkcyr;
     label smkcpd = 'Current cigarettes per day'
           smkcyr = 'Current years smoke';

data sulf3;
   set sulf;

   if xsmk = 1 ;

  proc means n mean;
     var xsmkcpd xsmkcyr;
     label xsmkcpd = 'Former cigarettes per day'
           xsmkcyr = 'Former years smoked';
run;


data fpf; set acs.dern;

   if flagd = 0 and fpfd = 0 ;
 if (xsmkcpd gt 0 or xsmkcyr gt 0) then xsmk = 1;else xsmk = 0;
```

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```
proc freq;
    table cenall sex racecat curcig xsmk indusexp evpconly edulow;
    format cenall dead. sex sex. racecat race.
            curcig xsmk indusexp evpconly edulow ind.;
    label curcig   = 'Current Smoker'
          xsmk     = 'Former Smoker'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education';

    title1 'Table_1: Summary Characteristics of Subjects in
Baseline Analytic Cohort';
    title2 '           New Derived From the ACS, CPS-II Study
Cohort, 1982-1989 ';
    title3 '           Analysis with Fine Particles ';

 proc means n mean;
    var age_int passive bmi alc ;
    label age_int = 'Age at Interview'
          passive = 'Passive Smoking'
          bmi     = 'Body Mass Index'
          alc     = 'Alcohol Drinking';

 proc means;
    var fpf;
    label fpf = 'Fine Particles';

 proc univariate;
    var fpf;

data fpf2;
  set fpf;

  if curcig > 0 ;

 proc means n mean;
    var smkcpd smkcyr;
    label smkcpd = 'Current cigarettes per day'
          smkcyr = 'Current years smoke';

data fpf3;
  set fpf;

  if xsmk = 1 ;

 proc means n mean;
    var xsmkcpd xsmkcyr;
    label xsmkcpd = 'Former cigarettes per day'
          xsmkcyr = 'Former years smoked';
run;
```

Output 1a:

Original Data

Table1: Summary Characteristics of Subjects in Baseline Analytic Cohort

Derived From the ACS, CPS-II Study Cohort, 1982-1989
Analysis with Sulfate Particles

CENALL	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Dead	38963	7.1	38963	7.1
Alive	513175	92.9	552138	100.0

SEX	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Male	242698	44.0	242698	44.0
Female	309440	56.0	552138	100.0

RACECAT	Frequency	Percent	Cumulative Frequency	Cumulative Percent
White	520244	94.2	520244	94.2
Black	22666	4.1	542910	98.3
Other	9228	1.7	552138	100.0

Current Smoker

CURCIG	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No.	430642	78.0	430642	78.0
Yes	121496	22.0	552138	100.0

Former Smoker

XSMK	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No.	391437	70.9	391437	70.9
Yes	160701	29.1	552138	100.0

Occupational exposure

INDUSEXP	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No.	441829	80.0	441829	80.0
Yes	110309	20.0	552138	100.0

Table1: Summary Characteristics of Subjects in Baseline Analytic Cohort

Derived From the ACS, CPS-II Study Cohort, 1982-1989
Analysis with Sulfate Particles

Pipe/cigar smoker

EVPCONLY	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No.	529620	95.9	529620	95.9
Yes	22518	4.1	552138	100.0

Less than high school education

EDULOW	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No.	484128	87.7	484128	87.7
Yes	68010	12.3	552138	100.0

Table1: Summary Characteristics of Subjects in Baseline Analytic Cohort

Derived From the ACS, CPS-II Study Cohort, 1982-1989
Analysis with Sulfate Particles

Variable	Label	N	Mean
AGE_INT	Age at Interview	552138	56.5407742
PASSIVE	Passive Smoking	552138	3.2238616
BMI	Body Mass Index	552138	25.1113858
ALC	Alcohol Drinking	552138	0.9634964

Table1: Summary Characteristics of Subjects in Baseline Analytic Cohort

Derived From the ACS, CPS-II Study Cohort, 1982-1989
Analysis with Sulfate Particles

Analysis Variable : MEANSULF Sulfate Particles

N	Mean	Std Dev	Minimum	Maximum
552138	11.0078508	3.3309424	3.6000000	23.5000000

Table1: Summary Characteristics of Subjects in Baseline Analytic Cohort

Derived From the ACS, CPS-II Study Cohort, 1982-1989
Analysis with Sulfate Particles

Univariate Procedure

Variable=MEANSULF

Moments

N	552138	Sum Wgts	552138
Mean	11.00785	Sum	6077853
Std Dev	3.330942	Variance	11.09518
Skewness	-0.05337	Kurtosis	-0.12509
USS	73030154	CSS	6126058
CV	30.2597	Std Mean	0.004483
T:Mean=0	2455.609	Pr>|T|	0.0001
Num ^= 0	552138	Num > 0	552138
M(Sign)	276069	Pr>=|M|	0.0001
Sgn Rank	7.621E10	Pr>=|S|	0.0001

Quantiles(Def=5)

100% Max	23.5	99%	19.1
75% Q3	13.7	95%	15.7
50% Med	11.4	90%	14.8
25% Q1	8.4	10%	6.2
0% Min	3.6	5%	4.8
		1%	4.3
Range	19.9		
Q3-Q1	5.3		
Mode	8.4		

Extremes

Lowest	Obs	Highest	Obs
3.6(	549251)	23.5(	546872)
3.6(	549250)	23.5(	546873)
3.6(	549249)	23.5(	546874)
3.6(	549248)	23.5(	546875)
3.6(	549247)	23.5(	547370)

Table1: Summary Characteristics of Subjects in Baseline Analytic Cohort

Derived From the ACS, CPS-II Study Cohort, 1982-1989
Analysis with Sulfate Particles

Variable	Label	N	Mean
SMKCPD	Current cigarettes per day	121496	22.0318364
SMKCYR	Current years smoke	121496	33.5317706

Variable	Label	N	Mean

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```
--------------------------------------------------------------
XSMKCPD   Former cigarettes per day   160701   21.9629312
XSMKCYR   Former years smoked         160701   22.3162084
--------------------------------------------------------------
```

Table1: Summary Characteristics of Subjects in Baseline Analytic Cohort

Derived From the ACS, CPS-II Study Cohort, 1982-1989
Analysis with Fine Particles

CENALL	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Dead	20765	7.0	20765	7.0
Alive	274458	93.0	295223	100.0

SEX	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Male	130310	44.1	130310	44.1
Female	164913	55.9	295223	100.0

RACECAT	Frequency	Percent	Cumulative Frequency	Cumulative Percent
White	277405	94.0	277405	94.0
Black	12117	4.1	289522	98.1
Other	5701	1.9	295223	100.0

Current Smoker

CURCIG	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No.	231352	78.4	231352	78.4
Yes	63871	21.6	295223	100.0

Former Smoker

XSMK	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No.	208538	70.6	208538	70.6
Yes	86685	29.4	295223	100.0

Occupational exposure

INDUSEXP	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No.	237694	80.5	237694	80.5
Yes	57529	19.5	295223	100.0

Table1: Summary Characteristics of Subjects in Baseline Analytic Cohort

Derived From the ACS, CPS-II Study Cohort, 1982-1989
Analysis with Fine Particles

Pipe/cigar smoker

EVPCONLY	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No.	283663	96.1	283663	96.1
Yes	11560	3.9	295223	100.0

Less than high school education

EDULOW	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No.	261783	88.7	261783	88.7
Yes	33440	11.3	295223	100.0

Table1: Summary Characteristics of Subjects in Baseline Analytic Cohort
Derived From the ACS, CPS-II Study Cohort, 1982-1989
Analysis with Fine Particles

Variable	Label	N	Mean
AGE_INT	Age at Interview	295223	56.6116122
PASSIVE	Passive Smoking	295223	3.1796811
BMI	Body Mass Index	295223	25.0377213
ALC	Alcohol Drinking	295223	0.9816258

Table1: Summary Characteristics of Subjects in Baseline Analytic Cohort
Derived From the ACS, CPS-II Study Cohort, 1982-1989
Analysis with Fine Particles

Analysis Variable : FPF Fine Particles

N	Mean	Std Dev	Minimum	Maximum
295223	18.1962016	4.4238552	8.9500000	33.3500000

Table1: Summary Characteristics of Subjects in Baseline Analytic Cohort
Derived From the ACS, CPS-II Study Cohort, 1982-1989

Analysis with Fine Particles

Univariate Procedure

Variable=FPF

Moments

N	295223	Sum Wgts	295223
Mean	18.1962	Sum	5371937
Std Dev	4.423855	Variance	19.5705
Skewness	-0.03277	Kurtosis	-0.6679
USS	1.0353E8	CSS	5777641
CV	24.31197	Std Mean	0.008142
T:Mean=0	2234.884	Pr>|T|	0.0001
Num ^= 0	295223	Num > 0	295223
M(Sign)	147611.5	Pr>=|M|	0.0001
Sgn Rank	2.179E10	Pr>=|S|	0.0001

Quantiles(Def=5)

100% Max	33.35	99%	25.24
75% Q3	21.81	95%	24.58
50% Med	18.8	90%	23.12
25% Q1	13.68	10%	12.16
0% Min	8.95	5%	11.42
		1%	9.38
Range	24.4		
Q3-Q1	8.13		
Mode	21.04		

Extremes

Lowest	Obs	Highest	Obs
8.95(	295223)	33.35(	295157)
8.95(	295201)	33.35(	295158)
8.95(	295176)	33.35(	295159)
8.95(	293812)	33.35(	295160)
8.95(	277062)	33.35(	295162)

Table1: Summary Characteristics of Subjects in Baseline Analytic Cohort
        Derived From the ACS, CPS-II Study Cohort, 1982-1989
        Analysis with Fine Particles

Variable	Label	N	Mean
SMKCPD	Current cigarettes per day	63871	22.1195065
SMKCYR	Current years smoke	63871	33.5461164

Variable	Label	N	Mean
XSMKCPD	Former cigarettes per day	86685	21.9716445
XSMKCYR	Former years smoked	86685	22.1799619

Output 1b:

Modified Data

Table_1: Summary Characteristics of Subjects in Baseline Analytic Cohort
5
New Derived From the ACS, CPS-II Study Cohort, 1982-1989
Analysis with Sulfate Particles

CENALL	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Dead	43361	7.8	43361	7.8
Alive	515688	92.2	559049	100.0

SEX	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Male	242698	43.4	242698	43.4
Female	316351	56.6	559049	100.0

RACECAT	Frequency	Percent	Cumulative Frequency	Cumulative Percent
White	526741	94.2	526741	94.2
Black	22990	4.1	549731	98.3
Other	9318	1.7	559049	100.0

Current Smoker

CURCIG	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No.	437553	78.3	437553	78.3
Yes	121496	21.7	559049	100.0

Former Smoker

XSMK	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No.	391437	70.0	391437	70.0
Yes	167612	30.0	559049	100.0

Occupational exposure

INDUSEXP	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No.	448170	80.2	448170	80.2
Yes	110879	19.8	559049	100.0

Table_1: Summary Characteristics of Subjects in Baseline Analytic Cohort
6

New Derived From the ACS, CPS-II Study Cohort, 1982-1989
Analysis with Sulfate Particles

Pipe/cigar smoker

EVPCONLY	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No.	536531	96.0	536531	96.0
Yes	22518	.4.0	559049	100.0

Less than high school education

EDULOW	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No.	490175	87.7	490175	87.7
Yes	68874	12.3	559049	100.0

Table_1: Summary Characteristics of Subjects in Baseline Analytic Cohort
7

New Derived From the ACS, CPS-II Study Cohort, 1982-1989
Analysis with Sulfate Particles

Variable	Label	N	Mean
AGE_INT	Age at Interview	559049	56.5697962
PASSIVE	Passive Smoking	559049	3.2045304
BMI	Body Mass Index	559049	25.1037408
ALC	Alcohol Drinking	559049	0.9619076

Table_1: Summary Characteristics of Subjects in Baseline Analytic Cohort
8

New Derived From the ACS, CPS-II Study Cohort, 1982-1989
Analysis with Sulfate Particles

Analysis Variable : MEANSULF Sulfate Particles

N	Mean	Std Dev	Minimum	Maximum
559049	11.0084649	3.3295041	3.6000000	23.5000000

Table_1: Summary Characteristics of Subjects in Baseline Analytic Cohort
9

New Derived From the ACS, CPS-II Study Cohort, 1982-1989
Analysis with Sulfate Particles

Univariate Procedure

Variable=MEANSULF

```
                    Moments

N                559049   Sum Wgts       559049
Mean            11.00846  Sum           6154271
Std Dev         3.329504  Variance       11.0856
Skewness        -0.05411  Kurtosis      -0.12539
USS             73946461  CSS           6197381
CV              30.24494  Std Mean      0.004453
T:Mean=0        2472.135  Pr>|T|         0.0001
Num ^= 0         559049   Num > 0        559049
M(Sign)         279524.5  Pr>=|M|        0.0001
Sgn Rank        7.813E10  Pr>=|S|        0.0001


                 Quantiles(Def=5)

100% Max     23.5      99%      19.1
 75% Q3      13.7      95%      15.7
 50% Med     11.4      90%      14.8
 25% Q1       8.4      10%       6.2
  0% Min      3.6       5%       4.8
                        1%       4.3
Range        19.9
Q3-Q1         5.3
Mode          8.4


                 Extremes

Lowest      Obs     Highest     Obs
    3.6(  555472)      23.5(  552404)
    3.6(  555471)      23.5(  552405)
    3.6(  555470)      23.5(  552406)
    3.6(  555469)      23.5(  552407)
    3.6(  555468)      23.5(  553059)
```

Table_1: Summary Characteristics of Subjects in Baseline Analytic Cohort
10
        New Derived From the ACS, CPS-II Study Cohort, 1982-1989
        Analysis with Sulfate Particles

Variable	Label	N	Mean
SMKCPD	Current cigarettes per day	121496	22.0318364
SMKCYR	Current years smoke	121496	33.5317706

Table_1: Summary Characteristics of Subjects in Baseline Analytic Cohort
11
        New Derived From the ACS, CPS-II Study Cohort, 1982-1989
        Analysis with Sulfate Particles

Variable	Label	N	Mean
XSMKCPD	Former cigarettes per day	167612	21.5404804
XSMKCYR	Former years smoked	167612	22.1532706

Table_1: Summary Characteristics of Subjects in Baseline Analytic Cohort
12
        New Derived From the ACS, CPS-II Study Cohort, 1982-1989
        Analysis with Fine Particles

CENALL	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Dead	23093	7.7	23093	7.7
Alive	275724	92.3	298817	100.0

SEX	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Male	130310	43.6	130310	43.6
Female	168507	56.4	298817	100.0

RACECAT	Frequency	Percent	Cumulative Frequency	Cumulative Percent
White	280759	94.0	280759	94.0
Black	12300	4.1	293059	98.1
Other	5758	1.9	298817	100.0

Current Smoker

CURCIG	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No.	234946	78.6	234946	78.6
Yes	63871	21.4	298817	100.0

Former Smoker

XSMK	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No.	208538	69.8	208538	69.8
Yes	90279	30.2	298817	100.0

Occupational exposure

INDUSEXP	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No.	240992	80.6	240992	80.6
Yes	57825	19.4	298817	100.0

Table_1: Summary Characteristics of Subjects in Baseline Analytic Cohort
13
        New Derived From the ACS, CPS-II Study Cohort, 1982-1989
        Analysis with Fine Particles

                    Pipe/cigar smoker

                                    Cumulative Cumulative
EVPCONLY   Frequency   Percent   Frequency   Percent

No.   287257   96.1   287257   96.1
Yes   11560   3.9   298817   100.0

            Less than high school education

                                    Cumulative Cumulative
EDULOW   Frequency   Percent   Frequency   Percent

No.   264961   88.7   264961   88.7
Yes   33856   11.3   298817   100.0

Table_1: Summary Characteristics of Subjects in Baseline Analytic Cohort
14
        New Derived From the ACS, CPS-II Study Cohort, 1982-1989
        Analysis with Fine Particles

Variable Label   N   Mean

AGE_INT   Age at Interview   298817   56.6392173
PASSIVE   Passive Smoking   298817   3.1608409
BMI   Body Mass Index   298817   25.0294690
ALC   Alcohol Drinking   298817   0.9803525

Table_1: Summary Characteristics of Subjects in Baseline Analytic Cohort
15
        New Derived From the ACS, CPS-II Study Cohort, 1982-1989
        Analysis with Fine Particles

Analysis Variable : FPF Fine Particles

     N   Mean   Std Dev   Minimum   Maximum

298817   18.1977080   4.4239552   8.9500000   33.3500000

Table_1: Summary Characteristics of Subjects in Baseline Analytic Cohort
16
        New Derived From the ACS, CPS-II Study Cohort, 1982-1989
        Analysis with Fine Particles

Univariate Procedure

Variable=FPF

            Moments

```
N                298817  Sum Wgts      298817
Mean            18.19771  Sum          5437785
Std Dev         4.423955  Variance     19.57138
Skewness        -0.03424  Kurtosis     -0.66951
USS               1.048E8 CSS          5848241
CV              24.31051  Std Mean     0.008093
T:Mean=0        2248.581  Pr>|T|        0.0001
Num ^= 0         298817   Num > 0       298817
M(Sign)         149408.5  Pr>=|M|       0.0001
Sgn Rank         2.232E10 Pr>=|S|       0.0001
```

Quantiles(Def=5)

```
100% Max      33.35        99%      25.24
 75% Q3       21.81        95%      24.58
 50% Med       18.8        90%      23.12
 25% Q1       13.68        10%      12.16
  0% Min       8.95         5%      11.42
                           1%       9.38

Range         24.4
Q3-Q1         8.13
Mode         21.04
```

Extremes

```
Lowest     Obs      Highest     Obs
 8.95(  298814)      33.35(  298735)
 8.95(  298806)      33.35(  298736)
 8.95(  298794)      33.35(  298737)
 8.95(  296934)      33.35(  298738)
 8.95(  296649)      33.35(  298742)
```

Table_1: Summary Characteristics of Subjects in Baseline Analytic Cohort
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New Derived From the ACS, CPS-II Study Cohort, 1982-1989
Analysis with Fine Particles

Variable	Label	N	Mean
SMKCPD	Current cigarettes per day	63871	22.1195065
SMKCYR	Current years smoke	63871	33.5461164

Table_1: Summary Characteristics of Subjects in Baseline Analytic Cohort
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New Derived From the ACS, CPS-II Study Cohort, 1982-1989
Analysis with Fine Particles

Variable	Label	N	Mean
XSMKCPD	Former cigarettes per day	90279	21.5583912
XSMKCYR	Former years smoked	90279	22.0252993

Program #2

```
/*****************************
*                           *
*   Repeat the results in   *
*   ACS Study paper (1995)  *
*      --   Table Two       *
*                           *
*****************************/

libname acs '/home/yuanli/acss/';

options nocenter ps=64 ls=80 obs=max;

proc format;
     value dead 1 = 'Alive'
                0 = 'Dead'
                ;
     value sex  1 = 'Male'
                2 = 'Female'
                ;
     value race 1 = 'White'
                2 = 'Black'
                3 = 'Other'
                ;
     value ind  0 = 'No.'
                1 = 'Yes'
                ;


filename derdata '/home/fmo/derdata.cport';

proc cimport data=dertest infile=derdata;

/*
data sulf; set dertest;

  if flagdel = 0 and sulfdel = 0 ;

  sulfates = meansulf/19.9;

proc phreg data=sulf nosummary;
   model fail*cenall(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                          edulow indusexp bmi alc sulfates / rl;
   strata age_int (25 to 105 by 5) sex racecat;
   format sex sex. racecat race. ;
   label curcig   = 'Current Smoker'
         smkcpd   = 'Current cigarettes per day'
         smkcyr   = 'Current years smoke'
         xsmkcpd  = 'Former cigarettes per day'
         xsmkcyr  = 'Former years smoked'
         evpconly = 'Pipe/cigar smoker'
```

```
                indusexp = 'Occupational exposure'
                edulow   = 'Less than high school education'
                age_int  = 'Age at Interview'
                passive  = 'Passive Smoking'
                bmi      = 'Body Mass Index'
                alc      = 'Alcohol Drinking'
                sulfates = 'Sulfate Particles';
        where west in (0,1);

        title1 'Table2: Adjusted Mortality Risk Ratios (and 95%
Confidence';
        title2 'Intervals) by All Cause of Death for the Sulfate
Particles';
    run;

proc phreg data=sulf nosummary;
    model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                          edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          sulfates = 'Sulfate Particles';
    where west in (0,1);

        title1 'Table2: Adjusted Mortality Risk Ratios (and 95%
Confidence';
        title2 'Intervals) by Lung Cancer Related Death for the
Sulfate Particles';

proc phreg data=sulf nosummary;
    model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                          edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
```

```
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          sulfates = 'Sulfate Particles';
   where west in (0,1);

    title1 'Table2: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Cardiopulmonary Death for the Sulfate
Particles';

proc phreg data=sulf nosummary;
    model fail*cenrest(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                            edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          sulfates = 'Sulfate Particles';
   where west in (0,1);

    title1 'Table2: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by All Other Death for the Sulfate
Particles';
run;   */


data fpf; set dertest;

  if flagdel = 0 and fpfdel = 0 ;

  fine = fpf/24.5;
```

```
proc phreg data=fpf nosummary;
    model fail*cenall(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                               edulow indusexp bmi alc fine / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig    = 'Current Smoker'
          smkcpd    = 'Current cigarettes per day'
          smkcyr    = 'Current years smoke'
          xsmkcpd   = 'Former cigarettes per day'
          xsmkcyr   = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow    = 'Less than high school education'
          age_int   = 'Age at Interview'
          passive   = 'Passive Smoking'
          bmi       = 'Body Mass Index'
          alc       = 'Alcohol Drinking'
          fine      = 'Fine Particles';
    where west in (0,1);

    title1 'Table2: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by All Cause of Death for the Fine
Particles';
 run;

proc phreg data=fpf nosummary;
    model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                               edulow indusexp bmi alc fine / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig    = 'Current Smoker'
          smkcpd    = 'Current cigarettes per day'
          smkcyr    = 'Current years smoke'
          xsmkcpd   = 'Former cigarettes per day'
          xsmkcyr   = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow    = 'Less than high school education'
          age_int   = 'Age at Interview'
          passive   = 'Passive Smoking'
          bmi       = 'Body Mass Index'
          alc       = 'Alcohol Drinking'
          fine      = 'Fine Particles';
    where west in (0,1);

    title1 'Table2: Adjusted Mortality Risk Ratios (and 95%
Confidence';
```

```
        title2 'Intervals) by Lung Cancer Related Death for the Fine
Particles';

proc phreg data=fpf nosummary;
    model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                            edulow indusexp bmi alc fine / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          fine     = 'Fine Particles';
    where west in (0,1);

        title1 'Table2: Adjusted Mortality Risk Ratios (and 95%
Confidence';
        title2 'Intervals) by Cardiopulmonary Death for the Fine
Particles';

proc phreg data=fpf nosummary;
    model fail*cenrest(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                            edulow indusexp bmi alc fine / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          fine     = 'Fine Particles';
    where west in (0,1);
```

```
    title1 'Table2: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by All Other Death for the Fine Particles';
run;


data sulf; set dertest;

   if flagdel = 0 and sulfdel = 0 ;

   sulfates = meansulf/19.9;
   smkcpd20 = smkcpd/20;
   smkcyr25 = smkcyr/25;

proc phreg data=sulf nosummary;
    model fail*cenall(1) = curcig smkcpd20 smkcyr25 evpconly
xsmkcpd xsmkcyr passive
                              edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd20 = 'Current cigarettes 20 per day'
          smkcyr25 = 'Current 25 years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          sulfates = 'Sulfate Particles';
   where west in (0,1);

    title1 'Table2: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by All Cause of Death for the Current
Smoker';
 run;

proc phreg data=sulf nosummary;
    model fail*cen62(1) = curcig smkcpd20 smkcyr25 evpconly
xsmkcpd xsmkcyr passive
                              edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd20 = 'Current cigarettes 20 per day'
```

```
          smkcyr25  = 'Current 25 years smoke'
          xsmkcpd   = 'Former cigarettes per day'
          xsmkcyr   = 'Former years smoked'
          evpconly  = 'Pipe/cigar smoker'
          indusexp  = 'Occupational exposure'
          edulow    = 'Less than high school education'
          age_int   = 'Age at Interview'
          passive   = 'Passive Smoking'
          bmi       = 'Body Mass Index'
          alc       = 'Alcohol Drinking'
          sulfates  = 'Sulfate Particles';
      where west in (0,1);

      title1 'Table2: Adjusted Mortality Risk Ratios (and 95%
Confidence';
      title2 'Intervals) by Lung Cancer Related Death for the
Current Smoker';

proc phreg data=sulf nosummary;
    model fail*cencomb(1) = curcig smkcpd20 smkcyr25 evpconly
xsmkcpd xsmkcyr passive
                          edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig    = 'Current Smoker'
          smkcpd20  = 'Current cigarettes 20 per day'
          smkcyr25  = 'Current 25 years smoke'
          xsmkcpd   = 'Former cigarettes per day'
          xsmkcyr   = 'Former years smoked'
          evpconly  = 'Pipe/cigar smoker'
          indusexp  = 'Occupational exposure'
          edulow    = 'Less than high school education'
          age_int   = 'Age at Interview'
          passive   = 'Passive Smoking'
          bmi       = 'Body Mass Index'
          alc       = 'Alcohol Drinking'
          sulfates  = 'Sulfate Particles';
      where west in (0,1);

      title1 'Table2: Adjusted Mortality Risk Ratios (and 95%
Confidence';
      title2 'Intervals) by Cardiopulmonary Death for the Current
Smoker';

proc phreg data=sulf nosummary;
    model fail*cenrest(1) = curcig smkcpd20 smkcyr25 evpconly
xsmkcpd xsmkcyr passive
                          edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
```

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```
label curcig    = 'Current Smoker'
      smkcpd20 = 'Current cigarettes 20 per day'
      smkcyr25 = 'Current 25 years smoke'
      xsmkcpd  = 'Former cigarettes per day'
      xsmkcyr  = 'Former years smoked'
      evpconly = 'Pipe/cigar smoker'
      indusexp = 'Occupational exposure'
      edulow   = 'Less than high school education'
      age_int  = 'Age at Interview'
      passive  = 'Passive Smoking'
      bmi      = 'Body Mass Index'
      alc      = 'Alcohol Drinking'
      sulfates = 'Sulfate Particles';
  where west in (0,1);

  title1 'Table2: Adjusted Mortality Risk Ratios (and 95%
Confidence';
  title2 'Intervals) by All Other Death for the Current Smoker';
run;



* ACS_tab2.out;
```

```
/****************************
*                          *
*    ACS Sensitivity Phase:  *
*                          *
*    New derdata with --     *
*                          *
*    1.Female Deaths to 89;  *
*    2.Female Former Smokers *
*                          *
*    ACS Study paper (1995)  *
*       --  Table Two        *
*                          *
****************************/

libname acs '/home/yuanli/acss/';

options nocenter ps=64 ls=80 obs=max;

proc format;
     value dead 1 = 'Alive'
                0 = 'Dead'
                ;
     value sex  1 = 'Male'
                2 = 'Female'
                ;
     value race 1 = 'White'
                2 = 'Black'
                3 = 'Other'
                ;
     value ind  0 = 'No.'
                1 = 'Yes'
                ;

data sulf; set acs.dern;

  if flagd = 0 and sulfd = 0 ;

  sulfates = meansulf/19.9;

proc phreg data=sulf nosummary;
   model fail*cenall(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                          edulow indusexp bmi alc sulfates / rl;
   strata age_int (25 to 105 by 5) sex racecat;
   format sex sex. racecat race. ;
   label curcig    = 'Current Smoker'
         smkcpd    = 'Current cigarettes per day'
         smkcyr    = 'Current years smoke'
         xsmkcpd   = 'Former cigarettes per day'
         xsmkcyr   = 'Former years smoked'
```

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```
        evpconly = 'Pipe/cigar smoker'
        indusexp = 'Occupational exposure'
        edulow   = 'Less than high school education'
        age_int  = 'Age at Interview'
        passive  = 'Passive Smoking'
        bmi      = 'Body Mass Index'
        alc      = 'Alcohol Drinking'
        sulfates = 'Sulfate Particles';
    where west in (0,1);

    title1 'Table_2: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by All Cause of Death for the Sulfate
Particles';
    title3 '-- with the Female new subcohort';
  run;

proc phreg data=sulf nosummary;
    model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                          edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig    = 'Current Smoker'
          smkcpd    = 'Current cigarettes per day'
          smkcyr    = 'Current years smoke'
          xsmkcpd   = 'Former cigarettes per day'
          xsmkcyr   = 'Former years smoked'
          evpconly  = 'Pipe/cigar smoker'
          indusexp  = 'Occupational exposure'
          edulow    = 'Less than high school education'
          age_int   = 'Age at Interview'
          passive   = 'Passive Smoking'
          bmi       = 'Body Mass Index'
          alc       = 'Alcohol Drinking'
          sulfates  = 'Sulfate Particles';
    where west in (0,1);

    title1 'Table_2: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Lung Cancer Related Death for the
Sulfate Particles';
    title3 '-- with the Female new subcohort';

proc phreg data=sulf nosummary;
    model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                          edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
```

```
      label curcig   = 'Current Smoker'
            smkcpd   = 'Current cigarettes per day'
            smkcyr   = 'Current years smoke'
            xsmkcpd  = 'Former cigarettes per day'
            xsmkcyr  = 'Former years smoked'
            evpconly = 'Pipe/cigar smoker'
            indusexp = 'Occupational exposure'
            edulow   = 'Less than high school education'
            age_int  = 'Age at Interview'
            passive  = 'Passive Smoking'
            bmi      = 'Body Mass Index'
            alc      = 'Alcohol Drinking'
            sulfates = 'Sulfate Particles';
      where west in (0,1);

      title1 'Table_2: Adjusted Mortality Risk Ratios (and 95%
Confidence';
      title2 'Intervals) by Cardiopulmonary Death for the Sulfate
Particles';
      title3 '-- with the Female new subcohort';

proc phreg data=sulf nosummary;
    model fail*cenrest(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                            edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig    = 'Current Smoker'
          smkcpd    = 'Current cigarettes per day'
          smkcyr    = 'Current years smoke'
          xsmkcpd   = 'Former cigarettes per day'
          xsmkcyr   = 'Former years smoked'
          evpconly  = 'Pipe/cigar smoker'
          indusexp  = 'Occupational exposure'
          edulow    = 'Less than high school education'
          age_int   = 'Age at Interview'
          passive   = 'Passive Smoking'
          bmi       = 'Body Mass Index'
          alc       = 'Alcohol Drinking'
          sulfates  = 'Sulfate Particles';
    where west in (0,1);

      title1 'Table_2: Adjusted Mortality Risk Ratios (and 95%
Confidence';
      title2 'Intervals) by All Other Death for the Sulfate
Particles';
      title3 '-- with the Female new subcohort';
run;
```

```
data fpf; set acs.dern;

   if flagd = 0 and fpfd = 0 ;

   fine = fpf/24.5;

proc phreg data=fpf nosummary;
    model fail*cenall(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                              edulow indusexp bmi alc fine / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          fine     = 'Fine Particles';
    where west in (0,1);

    title1 'Table_2: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by All Cause of Death for the Fine
Particles';
    title3 '-- with the Female new subcohort';

proc phreg data=fpf nosummary;
    model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                              edulow indusexp bmi alc fine / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
```

```
            alc        = 'Alcohol Drinking'
            fine       = 'Fine Particles';
     where west in (0,1);


     title1 'Table_2: Adjusted Mortality Risk Ratios (and 95%
Confidence';
     title2 'Intervals) by Lung Cancer Related Death for the Fine
Particles';
     title3 '-- with the Female new subcohort';

proc phreg data=fpf nosummary;
     model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                                edulow indusexp bmi alc fine / rl;
     strata age_int (25 to 105 by 5) sex racecat;
     format sex sex. racecat race. ;
     label curcig    = 'Current Smoker'
           smkcpd    = 'Current cigarettes per day'
           smkcyr    = 'Current years smoke'
           xsmkcpd   = 'Former cigarettes per day'
           xsmkcyr   = 'Former years smoked'
           evpconly  = 'Pipe/cigar smoker'
           indusexp  = 'Occupational exposure'
           edulow    = 'Less than high school education'
           age_int   = 'Age at Interview'
           passive   = 'Passive Smoking'
           bmi       = 'Body Mass Index'
           alc       = 'Alcohol Drinking'
           fine      = 'Fine Particles';
     where west in (0,1);


     title1 'Table_2: Adjusted Mortality Risk Ratios (and 95%
Confidence';
     title2 'Intervals) by Cardiopulmonary Death for the Fine
Particles';
     title3 '-- with the Female new subcohort';

proc phreg data=fpf nosummary;
     model fail*cenrest(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                             edulow indusexp bmi alc fine / rl;
     strata age_int (25 to 105 by 5) sex racecat;
     format sex sex. racecat race. ;
     label curcig    = 'Current Smoker'
           smkcpd    = 'Current cigarettes per day'
           smkcyr    = 'Current years smoke'
           xsmkcpd   = 'Former cigarettes per day'
           xsmkcyr   = 'Former years smoked'
           evpconly  = 'Pipe/cigar smoker'
           indusexp  = 'Occupational exposure'
```

```
        edulow    = 'Less than high school education'
        age_int   = 'Age at Interview'
        passive   = 'Passive Smoking'
        bmi       = 'Body Mass Index'
        alc       = 'Alcohol Drinking'
        fine      = 'Fine Particles';
   where west in (0,1);

    title1 'Table_2: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by All Other Death for the Fine Particles';
    title3 '-- with the Female new subcohort';
run;



data sulf; set acs.dern;

   if flagd = 0 and sulfd = 0 ;

   sulfates = meansulf/19.9;
   smkcpd20 = smkcpd/20;
   smkcyr25 = smkcyr/25;

proc phreg data=sulf nosummary;
    model fail*cenall(1) = curcig smkcpd20 smkcyr25 evpconly
xsmkcpd xsmkcyr passive
                            edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig    = 'Current Smoker'
        smkcpd20  = 'Current cigarettes 20 per day'
        smkcyr25  = 'Current 25 years smoke'
        xsmkcpd   = 'Former cigarettes per day'
        xsmkcyr   = 'Former years smoked'
        evpconly  = 'Pipe/cigar smoker'
        indusexp  = 'Occupational exposure'
        edulow    = 'Less than high school education'
        age_int   = 'Age at Interview'
        passive   = 'Passive Smoking'
        bmi       = 'Body Mass Index'
        alc       = 'Alcohol Drinking'
        sulfates  = 'Sulfate Particles';
   where west in (0,1);

    title1 'Table_2: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by All Cause of Death for the Current
Smoker';
    title3 '-- with the Female new subcohort';
```

```
proc phreg data=sulf nosummary;
    model fail*cen62(1) = curcig smkcpd20 smkcyr25 evpconly
xsmkcpd xsmkcyr passive
                            edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd20 = 'Current cigarettes 20 per day'
          smkcyr25 = 'Current 25 years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          sulfates = 'Sulfate Particles';
    where west in (0,1);

    title1 'Table_2: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Lung Cancer Related Death for the
Current Smoker';
    title3 '-- with the Female new subcohort';

proc phreg data=sulf nosummary;
    model fail*cencomb(1) = curcig smkcpd20 smkcyr25 evpconly
xsmkcpd xsmkcyr passive
                            edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd20 = 'Current cigarettes 20 per day'
          smkcyr25 = 'Current 25 years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          sulfates = 'Sulfate Particles';
    where west in (0,1);

    title1 'Table_2: Adjusted Mortality Risk Ratios (and 95%
Confidence';
```

```
      title2 'Intervals) by Cardiopulmonary Death for the Current
Smoker';
      title3 '-- with the Female new subcohort';

proc phreg data=sulf nosummary;
      model fail*cenrest(1) = curcig smkcpd20 smkcyr25 evpconly
xsmkcpd xsmkcyr passive
                              edulow indusexp bmi alc sulfates / rl;
      strata age_int (25 to 105 by 5) sex racecat;
      format sex sex. racecat race. ;
      label curcig    = 'Current Smoker'
            smkcpd20 = 'Current cigarettes 20 per day'
            smkcyr25 = 'Current 25 years smoke'
            xsmkcpd  = 'Former cigarettes per day'
            xsmkcyr  = 'Former years smoked'
            evpconly = 'Pipe/cigar smoker'
            indusexp = 'Occupational exposure'
            edulow   = 'Less than high school education'
            age_int  = 'Age at Interview'
            passive  = 'Passive Smoking'
            bmi      = 'Body Mass Index'
            alc      = 'Alcohol Drinking'
            sulfates = 'Sulfate Particles';
      where west in (0,1);

      title1 'Table_2: Adjusted Mortality Risk Ratios (and 95%
Confidence';
      title2 'Intervals) by All Other Death for the Current Smoker';
      title3 '-- with the Female new subcohort';
run;
```

Output 2a:

Original Data

Table2: Adjusted Mortality Risk Ratios (and 95% Confidence
Intervals) by All Cause of Death for the Sulfate Particles

The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	744467.416	739017.328	5450.088 with 12 DF (p=0.0001)
Score	.	.	5969.967 with 12 DF (p=0.0001)
Wald	.	.	5734.594 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.297361	0.04478	44.08867	0.0001
EVPCONLY	1	0.226345	0.02413	87.95760	0.0001
SMKCPD	1	0.011719	0.0007716	230.67138	0.0001
XSMKCPD	1	0.005072	0.0005337	90.32437	0.0001
SMKCYR	1	0.007760	0.0009304	69.56341	0.0001
XSMKCYR	1	0.012802	0.0004866	692.22879	0.0001
PASSIVE	1	0.001148	0.00146	0.62168	0.4304
EDULOW	1	0.249379	0.01238	405.59584	0.0001
INDUSEXP	1	0.035682	0.01282	7.75116	0.0054
BMI	1	-0.005508	0.00141	15.18944	0.0001
ALC	1	-0.016057	0.00264	37.08966	0.0001
SULFATES	1	0.141239	0.03010	22.01207	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.346	1.233	1.470	Current Smoker
EVPCONLY	1.254	1.196	1.315	Pipe/cigar smoker
SMKCPD	1.012	1.010	1.013	Current cigarettes per day
XSMKCPD	1.005	1.004	1.006	Former cigarettes per day
SMKCYR	1.008	1.006	1.010	Current years smoke
XSMKCYR	1.013	1.012	1.014	Former years smoked
PASSIVE	1.001	0.998	1.004	Passive Smoking
EDULOW	1.283	1.252	1.315	Less than high school education
INDUSEXP	1.036	1.011	1.063	Occupational exposure
BMI	0.995	0.992	0.997	Body Mass Index
ALC	0.984	0.979	0.989	Alcohol Drinking
SULFATES	1.152	1.086	1.222	Sulfate Particles

Table2: Adjusted Mortality Risk Ratios (and 95% Confidence

Intervals) by Lung Cancer Related Death for the Sulfate Particles

The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	69780.314	65223.146	4557.168 with 12 DF (p=0.0001)
Score			5105.261 with 12 DF (p=0.0001)
Wald			3453.342 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.951485	0.14197	44.91789	0.0001
EVPCONLY	1	1.235356	0.11783	109.92502	0.0001
SMKCPD	1	0.021890	0.00176	155.21504	0.0001
XSMKCPD	1	0.015410	0.00162	91.03174	0.0001
SMKCYR	1	0.035436	0.00292	147.05165	0.0001
XSMKCYR	1	0.056494	0.00182	965.91483	0.0001
PASSIVE	1	0.004316	0.00392	1.21457	0.2704
EDULOW	1	0.408665	0.04064	101.13842	0.0001
INDUSEXP	1	0.036601	0.03987	0.84279	0.3586
BMI	1	-0.066315	0.00509	169.42136	0.0001
ALC	1	0.004117	0.00665	0.38294	0.5360
SULFATES	1	0.307335	0.10160	9.14955	0.0025

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	2.590	1.961	3.420	Current Smoker
EVPCONLY	3.440	2.730	4.333	Pipe/cigar smoker
SMKCPD	1.022	1.019	1.026	Current cigarettes per day
XSMKCPD	1.016	1.012	1.019	Former cigarettes per day
SMKCYR	1.036	1.030	1.042	Current years smoke
XSMKCYR	1.058	1.054	1.062	Former years smoked
PASSIVE	1.004	0.997	1.012	Passive Smoking
EDULOW	1.505	1.390	1.630	Less than high school education
INDUSEXP	1.037	0.959	1.122	Occupational exposure
BMI	0.936	0.927	0.945	Body Mass Index
ALC	1.004	0.991	1.017	Alcohol Drinking
SULFATES	1.360	1.114	1.659	Sulfate Particles

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Table2: Adjusted Mortality Risk Ratios (and 95% Confidence
Intervals) by Cardiopulmonary Death for the Sulfate Particles

The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	357444.550	354830.631	2613.918 with 12 DF (p=0.0001)
Score	.	.	2785.861 with 12 DF (p=0.0001)
Wald	.	.	2708.368 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.622048	0.06697	86.28461	0.0001
EVPCONLY	1	0.244623	0.03286	55.40463	0.0001
SMKCPD	1	0.007175	0.00118	36.73418	0.0001
XSMKCPD	1	0.004718	0.0007518	39.37684	0.0001
SMKCYR	1	0.002367	0.00136	3.02777	0.0819
XSMKCYR	1	0.013060	0.0006657	384.89386	0.0001
PASSIVE	1	0.001661	0.00219	0.57671	0.4476
EDULOW	1	0.292244	0.01698	296.17376	0.0001
INDUSEXP	1	0.032133	0.01831	3.08088	0.0792
BMI	1	0.001377	0.00203	0.46148	0.4969
ALC	1	-0.040877	0.00425	92.69753	0.0001
SULFATES	1	0.231590	0.04284	29.22531	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.863	1.634	2.124	Current Smoker
EVPCONLY	1.277	1.197	1.362	Pipe/cigar smoker
SMKCPD	1.007	1.005	1.010	Current cigarettes per day
XSMKCPD	1.005	1.003	1.006	Former cigarettes per day
SMKCYR	1.002	1.000	1.005	Current years smoke
XSMKCYR	1.013	1.012	1.014	Former years smoked
PASSIVE	1.002	0.997	1.006	Passive Smoking
EDULOW	1.339	1.296	1.385	Less than high school education
INDUSEXP	1.033	0.996	1.070	Occupational exposure
BMI	1.001	0.997	1.005	Body Mass Index
ALC	0.960	0.952	0.968	Alcohol Drinking
SULFATES	1.261	1.159	1.371	Sulfate Particles

Table2: Adjusted Mortality Risk Ratios (and 95% Confidence
Intervals) by All Other Death for the Sulfate Particles

The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CENREST
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	316399.128	315508.225	890.903 with 12 DF (p=0.0001)
Score	.	.	966.584 with 12 DF (p=0.0001)
Wald	.	.	947.068 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.049556	0.06890	0.51726	0.4720
EVPCONLY	1	0.126286	0.03758	11.29315	0.0008
SMKCPD	1	0.010809	0.00126	73.53014	0.0001
XSMKCPD	1	0.004435	0.0008620	26.47287	0.0001
SMKCYR	1	0.006604	0.00149	19.74643	0.0001
XSMKCYR	1	0.006182	0.0008086	58.44638	0.0001
PASSIVE	1	-0.001240	0.00226	0.30115	0.5832
EDULOW	1	0.133238	0.02036	42.84421	0.0001
INDUSEXP	1	0.036039	0.02014	3.20077	0.0736
BMI	1	-0.001652	0.00213	0.60234	0.4377
ALC	1	0.002493	0.00377	0.43646	0.5088
SULFATES	1	0.012998	0.04658	0.07787	0.7802

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.051	0.918	1.203	Current Smoker
EVPCONLY	1.135	1.054	1.221	Pipe/cigar smoker
SMKCPD	1.011	1.008	1.013	Current cigarettes per day
XSMKCPD	1.004	1.003	1.006	Former cigarettes per day
SMKCYR	1.007	1.004	1.010	Current years smoke
XSMKCYR	1.006	1.005	1.008	Former years smoked
PASSIVE	0.999	0.994	1.003	Passive Smoking
EDULOW	1.143	1.098	1.189	Less than high school education
INDUSEXP	1.037	0.997	1.078	Occupational exposure
BMI	0.998	0.994	1.003	Body Mass Index
ALC	1.002	0.995	1.010	Alcohol Drinking
SULFATES	1.013	0.925	1.110	Sulfate Particles

Table2: Adjusted Mortality Risk Ratios (and 95% Confidence
Intervals) by All Cause of Death for the Fine Particles

The PHREG Procedure

Data Set: WORK.FPF
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	370354.471	367469.089	2885.382 with 12 DF (p=0.0001)
Score	.	.	3141.727 with 12 DF (p=0.0001)
Wald	.	.	3022.887 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.300891	0.06215	23.44252	0.0001
EVPCONLY	1	0.224551	0.03365	44.51830	0.0001
SMKCPD	1	0.010015	0.00107	86.84582	0.0001
XSMKCPD	1	0.005761	0.0007221	63.65033	0.0001
SMKCYR	1	0.008491	0.00129	43.36752	0.0001
XSMKCYR	1	0.012570	0.0006663	355.93647	0.0001
PASSIVE	1	0.001439	0.00200	0.51526	0.4729
EDULOW	1	0.248080	0.01730	205.58328	0.0001
INDUSEXP	1	0.057779	0.01758	10.79872	0.0010
BMI	1	-0.005818	0.00195	8.92694	0.0028
ALC	1	-0.016732	0.00356	22.12408	0.0001
FINE	1	0.158451	0.03869	16.77475	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.351	1.196	1.526	Current Smoker
EVPCONLY	1.252	1.172	1.337	Pipe/cigar smoker
SMKCPD	1.010	1.008	1.012	Current cigarettes per day
XSMKCPD	1.006	1.004	1.007	Former cigarettes per day
SMKCYR	1.009	1.006	1.011	Current years smoke
XSMKCYR	1.013	1.011	1.014	Former years smoked
PASSIVE	1.001	0.998	1.005	Passive Smoking
EDULOW	1.282	1.239	1.326	Less than high school education
INDUSEXP	1.059	1.024	1.097	Occupational exposure

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BMI	0.994	0.990	0.998	Body Mass Index
ALC	0.983	0.977	0.990	Alcohol Drinking
FINE	1.172	1.086	1.264	Fine Particles

Table2: Adjusted Mortality Risk Ratios (and 95% Confidence

Intervals) by Lung Cancer Related Death for the Fine Particles

The PHREG Procedure

Data Set: WORK.FPF
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	34529.177	32040.448	2488.729 with 12 DF (p=0.0001)
Score	.	.	2773.295 with 12 DF (p=0.0001)
Wald	.	.	1887.140 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.937638	0.19546	23.01200	0.0001
EVPCONLY	1	1.249317	0.16548	56.99555	0.0001
SMKCPD	1	0.022754	0.00243	87.38859	0.0001
XSMKCPD	1	0.013550	0.00222	37.19533	0.0001
SMKCYR	1	0.035071	0.00403	75.79953	0.0001
XSMKCYR	1	0.059706	0.00246	589.61446	0.0001
PASSIVE	1	0.003238	0.00543	0.35513	0.5512
EDULOW	1	0.449284	0.05670	62.78801	0.0001
INDUSEXP	1	0.101446	0.05486	3.41923	0.0644
BMI	1	-0.077290	0.00705	120.12049	0.0001
ALC	1	-0.006642	0.00963	0.47531	0.4906
FINE	1	0.030368	0.12801	0.05628	0.8125

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	2.554	1.741	3.746	Current Smoker
EVPCONLY	3.488	2.522	4.824	Pipe/cigar smoker
SMKCPD	1.023	1.018	1.028	Current cigarettes per day
XSMKCPD	1.014	1.009	1.018	Former cigarettes per day
SMKCYR	1.036	1.028	1.044	Current years smoke
XSMKCYR	1.062	1.056	1.067	Former years smoked
PASSIVE	1.003	0.993	1.014	Passive Smoking
EDULOW	1.567	1.402	1.751	Less than high school education

INDUSEXP	1.107	0.994	1.232	Occupational exposure
BMI	0.926	0.913	0.939	Body Mass Index
ALC	0.993	0.975	1.012	Alcohol Drinking
FINE	1.031	0.802	1.325	Fine Particles

Table2: Adjusted Mortality Risk Ratios (and 95% Confidence

Intervals) by Cardiopulmonary Death for the Fine Particles

The PHREG Procedure

Data Set: WORK.FPF
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	175982.317	174616.065	1366.253 with 12 DF (p=0.0001)
Score	.		1463.905 with 12 DF (p=0.0001)
Wald	.		1422.010 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.575299	0.09392	37.52355	0.0001
EVPCONLY	1	0.216418	0.04616	21.98002	0.0001
SMKCPD	1	0.005555	0.00165	11.31746	0.0008
XSMKCPD	1	0.005627	0.00103	30.09536	0.0001
SMKCYR	1	0.003962	0.00190	4.36561	0.0367
XSMKCYR	1	0.011777	0.0009214	163.36288	0.0001
PASSIVE	1	0.003163	0.00302	1.09897	0.2945
EDULOW	1	0.296415	0.02372	156.10182	0.0001
INDUSEXP	1	0.056700	0.02521	5.05773	0.0245
BMI	1	-0.002044	0.00282	0.52528	0.4686
ALC	1	-0.037533	0.00565	44.11714	0.0001
FINE	1	0.266757	0.05554	23.07097	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.778	1.479	2.137	Current Smoker
EVPCONLY	1.242	1.134	1.359	Pipe/cigar smoker
SMKCPD	1.006	1.002	1.009	Current cigarettes per day
XSMKCPD	1.006	1.004	1.008	Former cigarettes per day
SMKCYR	1.004	1.000	1.008	Current years smoke
XSMKCYR	1.012	1.010	1.014	Former years smoked

PASSIVE	1.003	0.997	1.009	Passive Smoking
EDULOW	1.345	1.284	1.409	Less than high school education
INDUSEXP	1.058	1.007	1.112	Occupational exposure
BMI	0.998	0.992	1.003	Body Mass Index
ALC	0.963	0.953	0.974	Alcohol Drinking
FINE	1.306	1.171	1.456	Fine Particles

Table2: Adjusted Mortality Risk Ratios (and 95% Confidence

Intervals) by All Other Death for the Fine Particles

The PHREG Procedure

Data Set: WORK.FPF
Dependent Variable: FAIL
Censoring Variable: CENREST
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	159365.319	158892.141	473.178 with 12 DF (p=0.0001)
Score			502.925 with 12 DF (p=0.0001)
Wald			494.306 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.114070	0.09485	1.44618	0.2291
EVPCONLY	1	0.147476	0.05177	8.11583	0.0044
SMKCPD	1	0.007797	0.00176	19.66166	0.0001
XSMKCPD	1	0.005464	0.00115	22.61805	0.0001
SMKCYR	1	0.006856	0.00205	11.16673	0.0008
XSMKCYR	1	0.006383	0.00110	33.90128	0.0001
PASSIVE	1	-0.001396	0.00309	0.20389	0.6516
EDULOW	1	0.117209	0.02847	16.94438	0.0001
INDUSEXP	1	0.044762	0.02749	2.65067	0.1035
BMI	1	0.003301	0.00289	1.30313	0.2536
ALC	1	0.001577	0.00509	0.09607	0.7566
FINE	1	0.069941	0.05956	1.37885	0.2403

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.121	0.931	1.350	Current Smoker
EVPCONLY	1.159	1.047	1.283	Pipe/cigar smoker
SMKCPD	1.008	1.004	1.011	Current cigarettes per day
XSMKCPD	1.005	1.003	1.008	Former cigarettes per day

47

SMKCYR	1.007	1.003	1.011	Current years smoke
XSMKCYR	1.006	1.004	1.009	Former years smoked
PASSIVE	0.999	0.993	1.005	Passive Smoking
EDULOW	1.124	1.063	1.189	Less than high school education
INDUSEXP	1.046	0.991	1.104	Occupational exposure
BMI	1.003	0.998	1.009	Body Mass Index
ALC	1.002	0.992	1.012	Alcohol Drinking
FINE	1.072	0.954	1.205	Fine Particles

Table2: Adjusted Mortality Risk Ratios (and 95% Confidence

Intervals) by All Cause of Death for the Current Smoker

The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	744467.416	739017.328	5450.088 with 12 DF (p=0.0001)
Score	.	.	5969.967 with 12 DF (p=0.0001)
Wald	.	.	5734.594 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.297361	0.04478	44.08867	0.0001
SMKCPD20	1	0.234388	0.01543	230.67138	0.0001
SMKCYR25	1	0.193989	0.02326	69.56341	0.0001
EVPCONLY	1	0.226345	0.02413	87.95760	0.0001
XSMKCPD	1	0.005072	0.0005337	90.32437	0.0001
XSMKCYR	1	0.012802	0.0004866	692.22879	0.0001
PASSIVE	1	0.001148	0.00146	0.62168	0.4304
EDULOW	1	0.249379	0.01238	405.59584	0.0001
INDUSEXP	1	0.035682	0.01282	7.75116	0.0054
BMI	1	-0.005508	0.00141	15.18944	0.0001
ALC	1	-0.016057	0.00264	37.08966	0.0001
SULFATES	1	0.141239	0.03010	22.01207	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.346	1.233	1.470	Current Smoker
SMKCPD20	1.264	1.226	1.303	Current cigarettes 20 per day

48

SMKCYR25	1.214	1.160	1.271	Current 25 years smoke
EVPCONLY	1.254	1.196	1.315	Pipe/cigar smoker
XSMKCPD	1.005	1.004	1.006	Former cigarettes per day
XSMKCYR	1.013	1.012	1.014	Former years smoked
PASSIVE	1.001	0.998	1.004	Passive Smoking
EDULOW	1.283	1.252	1.315	Less than high school education
INDUSEXP	1.036	1.011	1.063	Occupational exposure
BMI	0.995	0.992	0.997	Body Mass Index
ALC	0.984	0.979	0.989	Alcohol Drinking
SULFATES	1.152	1.086	1.222	Sulfate Particles

Table2: Adjusted Mortality Risk Ratios (and 95% Confidence Intervals) by Lung Cancer Related Death for the Current Smoker

The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	69780.314	65223.146	4557.168 with 12 DF (p=0.0001)
Score	.	.	5105.261 with 12 DF (p=0.0001)
Wald	.	.	3453.342 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.951485	0.14197	44.91789	0.0001
SMKCPD20	1	0.437806	0.03514	155.21504	0.0001
SMKCYR25	1	0.885891	0.07305	147.05165	0.0001
EVPCONLY	1	1.235356	0.11783	109.92502	0.0001
XSMKCPD	1	0.015410	0.00162	91.03174	0.0001
XSMKCYR	1	0.056494	0.00182	965.91483	0.0001
PASSIVE	1	0.004316	0.00392	1.21457	0.2704
EDULOW	1	0.408665	0.04064	101.13842	0.0001
INDUSEXP	1	0.036601	0.03987	0.84279	0.3586
BMI	1	-0.066315	0.00509	169.42136	0.0001
ALC	1	0.004117	0.00665	0.38294	0.5360
SULFATES	1	0.307335	0.10160	9.14955	0.0025

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and 95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	2.590	1.961	3.420	Current Smoker
SMKCPD20	1.549	1.446	1.660	Current cigarettes 20 per day

49

SMKCYR25	2.425	2.102	2.798	Current 25 years smoke
EVPCONLY	3.440	2.730	4.333	Pipe/cigar smoker
XSMKCPD	1.016	1.012	1.019	Former cigarettes per day
XSMKCYR	1.058	1.054	1.062	Former years smoked
PASSIVE	1.004	0.997	1.012	Passive Smoking
EDULOW	1.505	1.390	1.630	Less than high school education
INDUSEXP	1.037	0.959	1.122	Occupational exposure
BMI	0.936	0.927	0.945	Body Mass Index
ALC	1.004	0.991	1.017	Alcohol Drinking
SULFATES	1.360	1.114	1.659	Sulfate Particles

Table2: Adjusted Mortality Risk Ratios (and 95% Confidence Intervals) by Cardiopulmonary Death for the Current Smoker

The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square				
-2 LOG L	357444.550	354830.631	2613.918 with 12 DF (p=0.0001)
Score	.	.	2785.861 with 12 DF (p=0.0001)
Wald	.	.	2708.368 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.622048	0.06697	86.28461	0.0001
SMKCPD20	1	0.143501	0.02368	36.73418	0.0001
SMKCYR25	1	0.059183	0.03401	3.02777	0.0819
EVPCONLY	1	0.244623	0.03286	55.40463	0.0001
XSMKCPD	1	0.004718	0.0007518	39.37684	0.0001
XSMKCYR	1	0.013060	0.0006657	384.89386	0.0001
PASSIVE	1	0.001661	0.00219	0.57671	0.4476
EDULOW	1	0.292244	0.01698	296.17376	0.0001
INDUSEXP	1	0.032133	0.01831	3.08088	0.0792
BMI	1	0.001377	0.00203	0.46148	0.4969
ALC	1	-0.040877	0.00425	92.69753	0.0001
SULFATES	1	0.231590	0.04284	29.22531	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.863	1.634	2.124	Current Smoker
SMKCPD20	1.154	1.102	1.209	Current cigarettes 20 per day

SMKCYR25	1.061	0.993	1.134	Current 25 years smoke
EVPCONLY	1.277	1.197	1.362	Pipe/cigar smoker
XSMKCPD	1.005	1.003	1.006	Former cigarettes per day
XSMKCYR	1.013	1.012	1.014	Former years smoked
PASSIVE	1.002	0.997	1.006	Passive Smoking
EDULOW	1.339	1.296	1.385	Less than high school education
INDUSEXP	1.033	0.996	1.070	Occupational exposure
BMI	1.001	0.997	1.005	Body Mass Index
ALC	0.960	0.952	0.968	Alcohol Drinking
SULFATES	1.261	1.159	1.371	Sulfate Particles

Table2: Adjusted Mortality Risk Ratios (and 95% Confidence
Intervals) by All Other Death for the Current Smoker

The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CENREST
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	316399.128	315508.225	890.903 with 12 DF (p=0.0001)
Score	.	.	966.584 with 12 DF (p=0.0001)
Wald	.	.	947.068 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.049556	0.06890	0.51726	0.4720
SMKCPD20	1	0.216173	0.02521	73.53014	0.0001
SMKCYR25	1	0.165090	0.03715	19.74643	0.0001
EVPCONLY	1	0.126286	0.03758	11.29315	0.0008
XSMKCPD	1	0.004435	0.0008620	26.47287	0.0001
XSMKCYR	1	0.006182	0.0008086	58.44638	0.0001
PASSIVE	1	-0.001240	0.00226	0.30115	0.5832
EDULOW	1	0.133238	0.02036	42.84421	0.0001
INDUSEXP	1	0.036039	0.02014	3.20077	0.0736
BMI	1	-0.001652	0.00213	0.60234	0.4377
ALC	1	0.002493	0.00377	0.43646	0.5088
SULFATES	1	0.012998	0.04658	0.07787	0.7802

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.051	0.918	1.203	Current Smoker
SMKCPD20	1.241	1.181	1.304	Current cigarettes 20 per day

SMKCYR25	1.179	1.097	1.269	Current 25 years smoke
EVPCONLY	1.135	1.054	1.221	Pipe/cigar smoker
XSMKCPD	1.004	1.003	1.006	Former cigarettes per day
XSMKCYR	1.006	1.005	1.008	Former years smoked
PASSIVE	0.999	0.994	1.003	Passive Smoking
EDULOW	1.143	1.098	1.189	Less than high school education
INDUSEXP	1.037	0.997	1.078	Occupational exposure
BMI	0.998	0.994	1.003	Body Mass Index
ALC	1.002	0.995	1.010	Alcohol Drinking
SULFATES	1.013	0.925	1.110	Sulfate Particles

Output 2b:

Modified Data

Table_2: Adjusted Mortality Risk Ratios (and 95% Confidence
1
Intervals) by All Cause of Death for the Sulfate Particles
-- with the Female new subcohort

The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	829147.183	823192.894	5954.289 with 12 DF (p=0.0001)
Score	.	.	6558.806 with 12 DF (p=0.0001)
Wald	.	.	6301.681 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.277415	0.04210	43.41944	0.0001
EVPCONLY	1	0.221992	0.02396	85.86112	0.0001
SMKCPD	1	0.012405	0.0007407	280.48101	0.0001
XSMKCPD	1	0.005252	0.0005171	103.14534	0.0001
SMKCYR	1	0.007825	0.0008822	78.67998	0.0001
XSMKCYR	1	0.012478	0.0004629	726.66995	0.0001
PASSIVE	1	0.001136	0.00139	0.66485	0.4149
EDULOW	1	0.247560	0.01175	444.02462	0.0001
INDUSEXP	1	0.039604	0.01248	10.07614	0.0015
BMI	1	-0.002720	0.00131	4.29467	0.0382
ALC	1	-0.017794	0.00259	47.31403	0.0001
SULFATES	1	0.150844	0.02855	27.91566	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.320	1.215	1.433	Current Smoker
EVPCONLY	1.249	1.191	1.309	Pipe/cigar smoker
SMKCPD	1.012	1.011	1.014	Current cigarettes per day
XSMKCPD	1.005	1.004	1.006	Former cigarettes per day
SMKCYR	1.008	1.006	1.010	Current years smoke
XSMKCYR	1.013	1.012	1.013	Former years smoked
PASSIVE	1.001	0.998	1.004	Passive Smoking
EDULOW	1.281	1.252	1.311	Less than high school education
INDUSEXP	1.040	1.015	1.066	Occupational exposure

```
BMI              0.997        0.995        1.000     Body Mass Index
ALC              0.982        0.977        0.987     Alcohol Drinking
SULFATES         1.163        1.100        1.230     Sulfate Particles
```

Table_2: Adjusted Mortality Risk Ratios (and 95% Confidence 2

Intervals) by Lung Cancer Related Death for the Sulfate Particles -- with the Female new subcohort

The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	75831.517	70820.661	5010.856 with 12 DF (p=0.0001)
Score	.	.	5705.606 with 12 DF (p=0.0001)
Wald	.	.	3816.474 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.997632	0.13328	56.02591	0.0001
EVPCONLY	1	1.239756	0.11639	113.45428	0.0001
SMKCPD	1	0.023366	0.00168	194.27245	0.0001
XSMKCPD	1	0.015995	0.00157	103.96630	0.0001
SMKCYR	1	0.034038	0.00277	150.93196	0.0001
XSMKCYR	1	0.055832	0.00174	1026	0.0001
PASSIVE	1	0.004199	0.00376	1.24769	0.2640
EDULOW	1	0.396354	0.03936	101.41258	0.0001
INDUSEXP	1	0.044867	0.03901	1.32296	0.2501
BMI	1	-0.061222	0.00484	160.13927	0.0001
ALC	1	0.000579	0.00664	0.00760	0.9305
SULFATES	1	0.308890	0.09764	10.00740	0.0016

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and 95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	2.712	2.088	3.521	Current Smoker
EVPCONLY	3.455	2.750	4.340	Pipe/cigar smoker
SMKCPD	1.024	1.020	1.027	Current cigarettes per day
XSMKCPD	1.016	1.013	1.019	Former cigarettes per day
SMKCYR	1.035	1.029	1.040	Current years smoke
XSMKCYR	1.057	1.054	1.061	Former years smoked

PASSIVE	1.004	0.997	1.012	Passive Smoking
EDULOW	1.486	1.376	1.606	Less than high school education
INDUSEXP	1.046	0.969	1.129	Occupational exposure
BMI	0.941	0.932	0.950	Body Mass Index
ALC	1.001	0.988	1.014	Alcohol Drinking
SULFATES	1.362	1.125	1.649	Sulfate Particles

Table_2: Adjusted Mortality Risk Ratios (and 95% Confidence
3
Intervals) by Cardiopulmonary Death for the Sulfate Particles
-- with the Female new subcohort

The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	394021.990	391066.500	2955.491 with 12 DF (p=0.0001)
Score	.	.	3165.167 with 12 DF (p=0.0001)
Wald	.	.	3076.289 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.627590	0.06302	99.18688	0.0001
EVPCONLY	1	0.249394	0.03264	58.38099	0.0001
SMKCPD	1	0.007810	0.00114	47.00785	0.0001
XSMKCPD	1	0.005048	0.0007307	47.74005	0.0001
SMKCYR	1	0.002206	0.00129	2.92234	0.0874
XSMKCYR	1	0.012905	0.0006346	413.50527	0.0001
PASSIVE	1	0.001988	0.00210	0.89395	0.3444
EDULOW	1	0.299184	0.01612	344.54437	0.0001
INDUSEXP	1	0.034284	0.01791	3.66332	0.0556
BMI	1	0.003302	0.00189	3.04068	0.0812
ALC	1	-0.043209	0.00418	106.89307	0.0001
SULFATES	1	0.249393	0.04080	37.35791	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.873	1.655	2.119	Current Smoker
EVPCONLY	1.283	1.204	1.368	Pipe/cigar smoker
SMKCPD	1.008	1.006	1.010	Current cigarettes per day

XSMKCPD	1.005	1.004	1.007	Former cigarettes per day
SMKCYR	1.002	1.000	1.005	Current years smoke
XSMKCYR	1.013	1.012	1.014	Former years smoked
PASSIVE	1.002	0.998	1.006	Passive Smoking
EDULOW	1.349	1.307	1.392	Less than high school education
INDUSEXP	1.035	0.999	1.072	Occupational exposure
BMI	1.003	1.000	1.007	Body Mass Index
ALC	0.958	0.950	0.966	Alcohol Drinking
SULFATES	1.283	1.185	1.390	Sulfate Particles

Table_2: Adjusted Mortality Risk Ratios (and 95% Confidence

4

Intervals) by All Other Death for the Sulfate Particles
-- with the Female new subcohort

The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CENREST
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	358042.829	357115.281	927.548 with 12 DF (p=0.0001)
Score	.	.	1007.755 with 12 DF (p=0.0001)
Wald	.	.	988.599 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.011874	0.06480	0.03358	0.8546
EVPCONLY	1	0.117028	0.03733	9.83008	0.0017
SMKCPD	1	0.011091	0.00121	83.87970	0.0001
XSMKCPD	1	0.004353	0.0008315	27.41213	0.0001
SMKCYR	1	0.006979	0.00141	24.50032	0.0001
XSMKCYR	1	0.005979	0.0007653	61.03765	0.0001
PASSIVE	1	-0.001560	0.00215	0.52825	0.4673
EDULOW	1	0.125461	0.01923	42.58584	0.0001
INDUSEXP	1	0.040884	0.01947	4.40818	0.0358
BMI	1	0.001250	0.00196	0.40699	0.5235
ALC	1	0.001591	0.00368	0.18733	0.6651
SULFATES	1	0.017940	0.04385	0.16735	0.6825

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label

CURCIG	1.012	0.891	1.149	Current Smoker
EVPCONLY	1.124	1.045	1.209	Pipe/cigar smoker
SMKCPD	1.011	1.009	1.014	Current cigarettes per day
XSMKCPD	1.004	1.003	1.006	Former cigarettes per day
SMKCYR	1.007	1.004	1.010	Current years smoke
XSMKCYR	1.006	1.004	1.008	Former years smoked
PASSIVE	0.998	0.994	1.003	Passive Smoking
EDULOW	1.134	1.092	1.177	Less than high school education
INDUSEXP	1.042	1.003	1.082	Occupational exposure
BMI	1.001	0.997	1.005	Body Mass Index
ALC	1.002	0.994	1.009	Alcohol Drinking
SULFATES	1.018	0.934	1.109	Sulfate Particles

Table_2: Adjusted Mortality Risk Ratios (and 95% Confidence
5
Intervals) by All Cause of Death for the Fine Particles
-- with the Female new subcohort

The PHREG Procedure

Data Set: WORK.FPF
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	412146.044	408975.491	3170.553 with 12 DF (p=0.0001)
Score	.	.	3471.612 with 12 DF (p=0.0001)
Wald	.	.	3341.331 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.262766	0.05852	20.16104	0.0001
EVPCONLY	1	0.221210	0.03343	43.79841	0.0001
SMKCPD	1	0.010512	0.00103	103.55119	0.0001
XSMKCPD	1	0.005836	0.0006996	69.57174	0.0001
SMKCYR	1	0.009032	0.00122	54.49050	0.0001
XSMKCYR	1	0.012344	0.0006321	381.30492	0.0001
PASSIVE	1	0.001890	0.00192	0.97386	0.3237
EDULOW	1	0.253270	0.01639	238.76793	0.0001
INDUSEXP	1	0.061154	0.01712	12.76536	0.0004
BMI	1	-0.003111	0.00181	2.95727	0.0855
ALC	1	-0.017242	0.00346	24.77760	0.0001
FINE	1	0.167046	0.03670	20.72320	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.301	1.160	1.459	Current Smoker
EVPCONLY	1.248	1.168	1.332	Pipe/cigar smoker
SMKCPD	1.011	1.009	1.013	Current cigarettes per day
XSMKCPD	1.006	1.004	1.007	Former cigarettes per day
SMKCYR	1.009	1.007	1.011	Current years smoke
XSMKCYR	1.012	1.011	1.014	Former years smoked
PASSIVE	1.002	0.998	1.006	Passive Smoking
EDULOW	1.288	1.248	1.330	Less than high school education
INDUSEXP	1.063	1.028	1.099	Occupational exposure
BMI	0.997	0.993	1.000	Body Mass Index
ALC	0.983	0.976	0.990	Alcohol Drinking
FINE	1.182	1.100	1.270	Fine Particles

Table_2: Adjusted Mortality Risk Ratios (and 95% Confidence
6
Intervals) by Lung Cancer Related Death for the Fine Particles
-- with the Female new subcohort

The PHREG Procedure

Data Set: WORK.FPF
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	37302.126	34588.620	2713.507 with 12 DF (p=0.0001)
Score	.	.	3071.615 with 12 DF (p=0.0001)
Wald	.	.	2063.364 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.959785	0.18451	27.05806	0.0001
EVPCONLY	1	1.250382	0.16379	58.27932	0.0001
SMKCPD	1	0.023391	0.00234	100.24927	0.0001
XSMKCPD	1	0.013918	0.00217	41.12524	0.0001
SMKCYR	1	0.034609	0.00383	81.52196	0.0001
XSMKCYR	1	0.058978	0.00237	621.02922	0.0001
PASSIVE	1	0.004428	0.00522	0.71914	0.3964
EDULOW	1	0.448474	0.05488	66.78425	0.0001
INDUSEXP	1	0.098079	0.05383	3.32018	0.0684
BMI	1	-0.071920	0.00673	114.32971	0.0001
ALC	1	-0.009376	0.00955	0.96437	0.3261
FINE	1	0.017144	0.12329	0.01934	0.8894

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	2.611	1.819	3.749	Current Smoker
EVPCONLY	3.492	2.533	4.813	Pipe/cigar smoker
SMKCPD	1.024	1.019	1.028	Current cigarettes per day
XSMKCPD	1.014	1.010	1.018	Former cigarettes per day
SMKCYR	1.035	1.027	1.043	Current years smoke
XSMKCYR	1.061	1.056	1.066	Former years smoked
PASSIVE	1.004	0.994	1.015	Passive Smoking
EDULOW	1.566	1.406	1.744	Less than high school education
INDUSEXP	1.103	0.993	1.226	Occupational exposure
BMI	0.931	0.918	0.943	Body Mass Index
ALC	0.991	0.972	1.009	Alcohol Drinking
FINE	1.017	0.799	1.295	Fine Particles

Table_2: Adjusted Mortality Risk Ratios (and 95% Confidence
7
Intervals) by Cardiopulmonary Death for the Fine Particles
-- with the Female new subcohort

The PHREG Procedure

Data Set: WORK.FPF
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	194480.995	192929.578	1551.417 with 12 DF (p=0.0001)
Score	.	.	1672.019 with 12 DF (p=0.0001)
Wald	.	.	1623.234 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.544053	0.08867	37.64750	0.0001
EVPCONLY	1	0.222319	0.04586	23.49728	0.0001
SMKCPD	1	0.006097	0.00159	14.71249	0.0001
XSMKCPD	1	0.005690	0.0009969	32.57854	0.0001
SMKCYR	1	0.004643	0.00180	6.64480	0.0099
XSMKCYR	1	0.011844	0.0008744	183.48717	0.0001
PASSIVE	1	0.003808	0.00290	1.72804	0.1887
EDULOW	1	0.307022	0.02245	187.01698	0.0001
INDUSEXP	1	0.064200	0.02462	6.79730	0.0091
BMI	1	0.000175	0.00263	0.00441	0.9470
ALC	1	-0.037996	0.00551	47.52896	0.0001
FINE	1	0.274734	0.05282	27.05804	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and 95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.723	1.448	2.050	Current Smoker
EVPCONLY	1.249	1.142	1.366	Pipe/cigar smoker
SMKCPD	1.006	1.003	1.009	Current cigarettes per day
XSMKCPD	1.006	1.004	1.008	Former cigarettes per day
SMKCYR	1.005	1.001	1.008	Current years smoke
XSMKCYR	1.012	1.010	1.014	Former years smoked
PASSIVE	1.004	0.998	1.010	Passive Smoking
EDULOW	1.359	1.301	1.421	Less than high school education
INDUSEXP	1.066	1.016	1.119	Occupational exposure
BMI	1.000	0.995	1.005	Body Mass Index
ALC	0.963	0.952	0.973	Alcohol Drinking
FINE	1.316	1.187	1.460	Fine Particles

Table_2: Adjusted Mortality Risk Ratios (and 95% Confidence
8
Intervals) by All Other Death for the Fine Particles
-- with the Female new subcohort

The PHREG Procedure

Data Set: WORK.FPF
Dependent Variable: FAIL
Censoring Variable: CENREST
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	179701.910	179198.132	503.778 with 12 DF (p=0.0001)
Score	.	.	535.772 with 12 DF (p=0.0001)
Wald	.	.	527.241 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.075786	0.08917	0.72242	0.3954
EVPCONLY	1	0.140914	0.05145	7.50171	0.0062
SMKCPD	1	0.008160	0.00169	23.32347	0.0001
XSMKCPD	1	0.005503	0.00111	24.70650	0.0001
SMKCYR	1	0.007175	0.00195	13.57481	0.0002
XSMKCYR	1	0.006216	0.00104	35.93872	0.0001
PASSIVE	1	-0.001429	0.00294	0.23660	0.6267
EDULOW	1	0.119383	0.02690	19.70040	0.0001
INDUSEXP	1	0.045232	0.02662	2.88821	0.0892
BMI	1	0.005428	0.00267	4.13816	0.0419
ALC	1	0.001447	0.00492	0.08637	0.7688

| FINE | 1 | 0.084878 | 0.05616 | 2.28411 | 0.1307 |

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.079	0.906	1.285	Current Smoker
EVPCONLY	1.151	1.041	1.273	Pipe/cigar smoker
SMKCPD	1.008	1.005	1.012	Current cigarettes per day
XSMKCPD	1.006	1.003	1.008	Former cigarettes per day
SMKCYR	1.007	1.003	1.011	Current years smoke
XSMKCYR	1.006	1.004	1.008	Former years smoked
PASSIVE	0.999	0.993	1.004	Passive Smoking
EDULOW	1.127	1.069	1.188	Less than high school education
INDUSEXP	1.046	0.993	1.102	Occupational exposure
BMI	1.005	1.000	1.011	Body Mass Index
ALC	1.001	0.992	1.011	Alcohol Drinking
FINE	1.089	0.975	1.215	Fine Particles

Table_2: Adjusted Mortality Risk Ratios (and 95% Confidence
9
Intervals) by All Cause of Death for the Current Smoker
-- with the Female new subcohort

The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	829147.183	823192.894	5954.289 with 12 DF (p=0.0001)
Score	.	.	6558.806 with 12 DF (p=0.0001)
Wald	.	.	6301.681 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.277415	0.04210	43.41944	0.0001
SMKCPD20	1	0.248098	0.01481	280.48101	0.0001
SMKCYR25	1	0.195622	0.02205	78.67998	0.0001
EVPCONLY	1	0.221992	0.02396	85.86112	0.0001
XSMKCPD	1	0.005252	0.0005171	103.14534	0.0001
XSMKCYR	1	0.012478	0.0004629	726.66995	0.0001
PASSIVE	1	0.001136	0.00139	0.66485	0.4149
EDULOW	1	0.247560	0.01175	444.02462	0.0001

INDUSEXP	1	0.039604	0.01248	10.07614	0.0015
BMI	1	-0.002720	0.00131	4.29467	0.0382
ALC	1	-0.017794	0.00259	47.31403	0.0001
SULFATES	1	0.150844	0.02855	27.91566	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.320	1.215	1.433	Current Smoker
SMKCPD20	1.282	1.245	1.319	Current cigarettes 20 per day
SMKCYR25	1.216	1.165	1.270	Current 25 years smoke
EVPCONLY	1.249	1.191	1.309	Pipe/cigar smoker
XSMKCPD	1.005	1.004	1.006	Former cigarettes per day
XSMKCYR	1.013	1.012	1.013	Former years smoked
PASSIVE	1.001	0.998	1.004	Passive Smoking
EDULOW	1.281	1.252	1.311	Less than high school education
INDUSEXP	1.040	1.015	1.066	Occupational exposure
BMI	0.997	0.995	1.000	Body Mass Index
ALC	0.982	0.977	0.987	Alcohol Drinking
SULFATES	1.163	1.100	1.230	Sulfate Particles

Table_2: Adjusted Mortality Risk Ratios (and 95% Confidence
10
Intervals) by Lung Cancer Related Death for the Current Smoker
-- with the Female new subcohort

The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	75831.517	70820.661	5010.856 with 12 DF (p=0.0001)
Score	.	.	5705.606 with 12 DF (p=0.0001)
Wald	.	.	3816.474 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.997632	0.13328	56.02591	0.0001
SMKCPD20	1	0.467317	0.03353	194.27245	0.0001
SMKCYR25	1	0.850947	0.06926	150.93196	0.0001
EVPCONLY	1	1.239756	0.11639	113.45428	0.0001
XSMKCPD	1	0.015995	0.00157	103.96630	0.0001

Variable	DF				
XSMKCYR	1	0.055832	0.00174	1026	0.0001
PASSIVE	1	0.004199	0.00376	1.24769	0.2640
EDULOW	1	0.396354	0.03936	101.41258	0.0001
INDUSEXP	1	0.044867	0.03901	1.32296	0.2501
BMI	1	-0.061222	0.00484	160.13927	0.0001
ALC	1	0.000579	0.00664	0.00760	0.9305
SULFATES	1	0.308890	0.09764	10.00740	0.0016

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and 95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	2.712	2.088	3.521	Current Smoker
SMKCPD20	1.596	1.494	1.704	Current cigarettes 20 per day
SMKCYR25	2.342	2.045	2.682	Current 25 years smoke
EVPCONLY	3.455	2.750	4.340	Pipe/cigar smoker
XSMKCPD	1.016	1.013	1.019	Former cigarettes per day
XSMKCYR	1.057	1.054	1.061	Former years smoked
PASSIVE	1.004	0.997	1.012	Passive Smoking
EDULOW	1.486	1.376	1.606	Less than high school education
INDUSEXP	1.046	0.969	1.129	Occupational exposure
BMI	0.941	0.932	0.950	Body Mass Index
ALC	1.001	0.988	1.014	Alcohol Drinking
SULFATES	1.362	1.125	1.649	Sulfate Particles

Table_2: Adjusted Mortality Risk Ratios (and 95% Confidence
11
Intervals) by Cardiopulmonary Death for the Current Smoker
-- with the Female new subcohort

The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	394021.990	391066.500	2955.491 with 12 DF (p=0.0001)
Score	.	.	3165.167 with 12 DF (p=0.0001)
Wald	.	.	3076.289 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.627590	0.06302	99.18688	0.0001
SMKCPD20	1	0.156209	0.02278	47.00785	0.0001

Variable	DF				
SMKCYR25	1	0.055142	0.03226	2.92234	0.0874
EVPCONLY	1	0.249394	0.03264	58.38099	0.0001
XSMKCPD	1	0.005048	0.0007307	47.74005	0.0001
XSMKCYR	1	0.012905	0.0006346	413.50527	0.0001
PASSIVE	1	0.001988	0.00210	0.89395	0.3444
EDULOW	1	0.299184	0.01612	344.54437	0.0001
INDUSEXP	1	0.034284	0.01791	3.66332	0.0556
BMI	1	0.003302	0.00189	3.04068	0.0812
ALC	1	-0.043209	0.00418	106.89307	0.0001
SULFATES	1	0.249393	0.04080	37.35791	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.873	1.655	2.119	Current Smoker
SMKCPD20	1.169	1.118	1.222	Current cigarettes 20 per day
SMKCYR25	1.057	0.992	1.126	Current 25 years smoke
EVPCONLY	1.283	1.204	1.368	Pipe/cigar smoker
XSMKCPD	1.005	1.004	1.007	Former cigarettes per day
XSMKCYR	1.013	1.012	1.014	Former years smoked
PASSIVE	1.002	0.998	1.006	Passive Smoking
EDULOW	1.349	1.307	1.392	Less than high school education
INDUSEXP	1.035	0.999	1.072	Occupational exposure
BMI	1.003	1.000	1.007	Body Mass Index
ALC	0.958	0.950	0.966	Alcohol Drinking
SULFATES	1.283	1.185	1.390	Sulfate Particles

Table_2: Adjusted Mortality Risk Ratios (and 95% Confidence
12
Intervals) by All Other Death for the Current Smoker
-- with the Female new subcohort

The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CENREST
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square			
-2 LOG L	358042.829	357115.281	927.548 with 12 DF	(p=0.0001)		
Score	.	.	1007.755 with 12 DF	(p=0.0001)		
Wald	.	.	988.599 with 12 DF	(p=0.0001)		

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square

CURCIG	1	0.011874	0.06480	0.03358	0.8546
SMKCPD20	1	0.221816	0.02422	83.87970	0.0001
SMKCYR25	1	0.174484	0.03525	24.50032	0.0001
EVPCONLY	1	0.117028	0.03733	9.83008	0.0017
XSMKCPD	1	0.004353	0.0008315	27.41213	0.0001
XSMKCYR	1	0.005979	0.0007653	61.03765	0.0001
PASSIVE	1	-0.001560	0.00215	0.52825	0.4673
EDULOW	1	0.125461	0.01923	42.58584	0.0001
INDUSEXP	1	0.040884	0.01947	4.40818	0.0358
BMI	1	0.001250	0.00196	0.40699	0.5235
ALC	1	0.001591	0.00368	0.18733	0.6651
SULFATES	1	0.017940	0.04385	0.16735	0.6825

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.012	0.891	1.149	Current Smoker
SMKCPD20	1.248	1.190	1.309	Current cigarettes 20 per day
SMKCYR25	1.191	1.111	1.276	Current 25 years smoke
EVPCONLY	1.124	1.045	1.209	Pipe/cigar smoker
XSMKCPD	1.004	1.003	1.006	Former cigarettes per day
XSMKCYR	1.006	1.004	1.008	Former years smoked
PASSIVE	0.998	0.994	1.003	Passive Smoking
EDULOW	1.134	1.092	1.177	Less than high school education
INDUSEXP	1.042	1.003	1.082	Occupational exposure
BMI	1.001	0.997	1.005	Body Mass Index
ALC	1.002	0.994	1.009	Alcohol Drinking
SULFATES	1.018	0.934	1.109	Sulfate Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
1
Intervals) by Cardiopulmonary+Asthma Death for the Sulfate Particles
  -- with the Female New Subcohort
The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	395272.837	392324.662	2948.176 with 12 DF (p=0.0001)
Score	.	.	3155.784 with 12 DF (p=0.0001)
Wald	.	.	3067.965 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.615399	0.06299	95.44964	0.0001
EVPCONLY	1	0.248016	0.03262	57.81483	0.0001
SMKCPD	1	0.007740	0.00114	46.18555	0.0001
XSMKCPD	1	0.005026	0.0007295	47.46993	0.0001
SMKCYR	1	0.002438	0.00129	3.57379	0.0587
XSMKCYR	1	0.012938	0.0006336	416.97564	0.0001
PASSIVE	1	0.002111	0.00210	1.01044	0.3148
EDULOW	1	0.298705	0.01610	344.28708	0.0001
INDUSEXP	1	0.034626	0.01789	3.74734	0.0529
BMI	1	0.003305	0.00189	3.05878	0.0803
ALC	1	-0.043238	0.00417	107.27348	0.0001
SULFATES	1	0.240555	0.04074	34.86216	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
   95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.850	1.635	2.094	Current Smoker
EVPCONLY	1.281	1.202	1.366	Pipe/cigar smoker
SMKCPD	1.008	1.006	1.010	Current cigarettes per day
XSMKCPD	1.005	1.004	1.006	Former cigarettes per day
SMKCYR	1.002	1.000	1.005	Current years smoke
XSMKCYR	1.013	1.012	1.014	Former years smoked
PASSIVE	1.002	0.998	1.006	Passive Smoking
EDULOW	1.348	1.306	1.391	Less than high school education
INDUSEXP	1.035	1.000	1.072	Occupational exposure
BMI	1.003	1.000	1.007	Body Mass Index

| ALC | 0.958 | 0.950 | 0.966 | Alcohol Drinking |
| SULFATES | 1.272 | 1.174 | 1.378 | Sulfate Particles |

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
2
Intervals) by Cardiopulmonary+Asthma Death for the Sulfate Particles
        in Women
  -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	149232.637	147970.703	1261.934 with 11 DF (p=0.0001)
Score	.	.	1466.665 with 11 DF (p=0.0001)
Wald	.	.	1401.962 with 11 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.466090	0.09308	25.07584	0.0001
EVPCONLY	0	0	.	.	.
SMKCPD	1	0.018243	0.00208	77.10431	0.0001
XSMKCPD	1	0.008683	0.00195	19.75523	0.0001
SMKCYR	1	0.002452	0.00200	1.50096	0.2205
XSMKCYR	1	0.010306	0.00135	58.64122	0.0001
PASSIVE	1	0.005767	0.00374	2.38074	0.1228
EDULOW	1	0.325632	0.02540	164.39893	0.0001
INDUSEXP	1	0.044343	0.04320	1.05356	0.3047
BMI	1	0.004162	0.00264	2.48782	0.1147
ALC	1	-0.075125	0.01066	49.67760	0.0001
SULFATES	1	0.343328	0.06572	27.28877	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
  95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.594	1.328	1.913	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	1.018	1.014	1.023	Current cigarettes per day
XSMKCPD	1.009	1.005	1.013	Former cigarettes per day
SMKCYR	1.002	0.999	1.006	Current years smoke
XSMKCYR	1.010	1.008	1.013	Former years smoked

```
PASSIVE       1.006      0.998       1.013      Passive Smoking
EDULOW        1.385      1.318       1.456      Less than high school education
INDUSEXP      1.045      0.960       1.138      Occupational exposure
BMI           1.004      0.999       1.009      Body Mass Index
ALC           0.928      0.908       0.947      Alcohol Drinking
SULFATES      1.410      1.239       1.603      Sulfate Particles
```

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
3
Intervals) by Cardiopulmonary+Asthma Death for the Sulfate Particles
in Men
  -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	246040.200	244287.282	1752.918 with 12 DF (p=0.0001)
Score	.	.	1820.001 with 12 DF (p=0.0001)
Wald	.	.	1767.140 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.656415	0.08853	54.97581	0.0001
EVPCONLY	1	0.243627	0.03397	51.42714	0.0001
SMKCPD	1	0.004046	0.00139	8.52997	0.0035
XSMKCPD	1	0.004046	0.0007987	25.66718	0.0001
SMKCYR	1	0.002883	0.00173	2.76823	0.0962
XSMKCYR	1	0.013811	0.0007456	343.07457	0.0001
PASSIVE	1	0.000851	0.00254	0.11194	0.7379
EDULOW	1	0.274680	0.02101	170.91598	0.0001
INDUSEXP	1	0.036378	0.01968	3.41596	0.0646
BMI	1	0.001893	0.00271	0.48630	0.4856
ALC	1	-0.036085	0.00452	63.72681	0.0001
SULFATES	1	0.171631	0.05193	10.92394	0.0009

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.928	1.621	2.293	Current Smoker
EVPCONLY	1.276	1.194	1.364	Pipe/cigar smoker

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```
SMKCPD      1.004    1.001    1.007    Current cigarettes per day
XSMKCPD     1.004    1.002    1.006    Former cigarettes per day
SMKCYR      1.003    0.999    1.006    Current years smoke
XSMKCYR     1.014    1.012    1.015    Former years smoked
PASSIVE     1.001    0.996    1.006    Passive Smoking
EDULOW      1.316    1.263    1.371    Less than high school education
INDUSEXP    1.037    0.998    1.078    Occupational exposure
BMI         1.002    0.997    1.007    Body Mass Index
ALC         0.965    0.956    0.973    Alcohol Drinking
SULFATES    1.187    1.072    1.314    Sulfate Particles
```
Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
4
Intervals) by Cardiopulmonary+Asthma Death for the Sulfate Particles
          Never-smokers
   -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF_N
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

            Testing Global Null Hypothesis: BETA=0

                Without   With
Criterion   Covariates   Covariates   Model Chi-Square

-2 LOG L   124993.647   124775.284   218.363 with 6 DF (p=0.0001)
Score   .   .   216.907 with 6 DF (p=0.0001)
Wald   .   .   217.830 with 6 DF (p=0.0001)

            Analysis of Maximum Likelihood Estimates

                    Parameter   Standard   Wald   Pr >
Variable   DF   Estimate   Error   Chi-Square   Chi-Square

CURCIG   0   0   .   .   .
EVPCONLY   0   0   .   .   .
SMKCPD   0   0   .   .   .
XSMKCPD   0   0   .   .   .
SMKCYR   0   0   .   .   .
XSMKCYR   0   0   .   .   .
PASSIVE   1   0.012522   0.00515   5.91261   0.0150
EDULOW   1   0.284389   0.02593   120.25597   0.0001
INDUSEXP   1   -0.032111   0.03723   0.74388   0.3884
BMI   1   0.012429   0.00289   18.46931   0.0001
ALC   1   -0.059550   0.01161   26.32058   0.0001
SULFATES   1   0.304465   0.06635   21.05869   0.0001

            Analysis of Maximum Likelihood Estimates

            Conditional Risk Ratio and
                95% Confidence Limits

            Risk
```

| Variable | Ratio | Lower | Upper | Label |
|---|---|---|---|---|
| CURCIG | . | . | . | Current Smoker |
| EVPCONLY | . | . | . | Pipe/cigar smoker |
| SMKCPD | . | . | . | Current cigarettes per day |
| XSMKCPD | . | . | . | Former cigarettes per day |
| SMKCYR | . | . | . | Current years smoke |
| XSMKCYR | . | . | . | Former years smoked |
| PASSIVE | 1.013 | 1.002 | 1.023 | Passive Smoking |
| EDULOW | 1.329 | 1.263 | 1.398 | Less than high school education |
| INDUSEXP | 0.968 | 0.900 | 1.042 | Occupational exposure |
| BMI | 1.013 | 1.007 | 1.018 | Body Mass Index |
| ALC | 0.942 | 0.921 | 0.964 | Alcohol Drinking |
| SULFATES | 1.356 | 1.191 | 1.544 | Sulfate Particles |

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
5
Intervals) by Cardiopulmonary+Asthma Death for the Sulfate Particles
Never-smokers in Women
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF_N
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

| Criterion | Without Covariates | With Covariates | Model Chi-Square |
|---|---|---|---|
| -2 LOG L | 82417.255 | 82259.147 | 158.108 with 6 DF (p=0.0001) |
| Score | . | . | 148.597 with 6 DF (p=0.0001) |
| Wald | . | . | 150.893 with 6 DF (p=0.0001) |

Analysis of Maximum Likelihood Estimates

| Variable | DF | Parameter Estimate | Standard Error | Wald Chi-Square | Pr > Chi-Square |
|---|---|---|---|---|---|
| CURCIG | 0 | 0 | . | . | . |
| EVPCONLY | 0 | 0 | . | . | . |
| SMKCPD | 0 | 0 | . | . | . |
| XSMKCPD | 0 | 0 | . | . | . |
| SMKCYR | 0 | 0 | . | . | . |
| XSMKCYR | 0 | 0 | . | . | . |
| PASSIVE | 1 | 0.017083 | 0.00638 | 7.15930 | 0.0075 |
| EDULOW | 1 | 0.259151 | 0.03123 | 68.84752 | 0.0001 |
| INDUSEXP | 1 | 0.006144 | 0.06153 | 0.00997 | 0.9205 |
| BMI | 1 | 0.007460 | 0.00334 | 4.98524 | 0.0256 |
| ALC | 1 | -0.124803 | 0.02147 | 33.79779 | 0.0001 |
| SULFATES | 1 | 0.339958 | 0.08361 | 16.53079 | 0.0001 |

Analysis of Maximum Likelihood Estimates

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## Conditional Risk Ratio and
## 95% Confidence Limits

| Variable | Risk Ratio | Lower | Upper | Label |
|---|---|---|---|---|
| CURCIG | . | . | . | Current Smoker |
| EVPCONLY | . | . | . | Pipe/cigar smoker |
| SMKCPD | . | . | . | Current cigarettes per day |
| XSMKCPD | . | . | . | Former cigarettes per day |
| SMKCYR | . | . | . | Current years smoke |
| XSMKCYR | . | . | . | Former years smoked |
| PASSIVE | 1.017 | 1.005 | 1.030 | Passive Smoking |
| EDULOW | 1.296 | 1.219 | 1.378 | Less than high school education |
| INDUSEXP | 1.006 | 0.892 | 1.135 | Occupational exposure |
| BMI | 1.007 | 1.001 | 1.014 | Body Mass Index |
| ALC | 0.883 | 0.846 | 0.921 | Alcohol Drinking |
| SULFATES | 1.405 | 1.193 | 1.655 | Sulfate Particles |

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
6
Intervals) by Cardiopulmonary+Asthma Death for the Sulfate Particles
        Never-smokers in Men
  -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF_N
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

### Testing Global Null Hypothesis: BETA=0

| Criterion | Without Covariates | With Covariates | Model Chi-Square |
|---|---|---|---|
| -2 LOG L | 42576.392 | 42487.751 | 88.642 with 6 DF (p=0.0001) |
| Score | . | . | 92.029 with 6 DF (p=0.0001) |
| Wald | . | . | 91.745 with 6 DF (p=0.0001) |

### Analysis of Maximum Likelihood Estimates

| Variable | DF | Parameter Estimate | Standard Error | Wald Chi-Square | Pr > Chi-Square |
|---|---|---|---|---|---|
| CURCIG | 0 | 0 | . | . | . |
| EVPCONLY | 0 | 0 | . | . | . |
| SMKCPD | 0 | 0 | . | . | . |
| XSMKCPD | 0 | 0 | . | . | . |
| SMKCYR | 0 | 0 | . | . | . |
| XSMKCYR | 0 | 0 | . | . | . |
| PASSIVE | 1 | 0.003885 | 0.00872 | 0.19842 | 0.6560 |
| EDULOW | 1 | 0.334582 | 0.04634 | 52.12362 | 0.0001 |
| INDUSEXP | 1 | -0.058183 | 0.04672 | 1.55089 | 0.2130 |
| BMI | 1 | 0.027290 | 0.00587 | 21.63316 | 0.0001 |
| ALC | 1 | -0.027208 | 0.01292 | 4.43801 | 0.0351 |
| SULFATES | 1 | 0.238437 | 0.10925 | 4.76292 | 0.0291 |

# Analysis of Maximum Likelihood Estimates

### Conditional Risk Ratio and 95% Confidence Limits

| Variable | Risk Ratio | Lower | Upper | Label |
|---|---|---|---|---|
| CURCIG | . | . | . | Current Smoker |
| EVPCONLY | . | . | . | Pipe/cigar smoker |
| SMKCPD | . | . | . | Current cigarettes per day |
| XSMKCPD | . | . | . | Former cigarettes per day |
| SMKCYR | . | . | . | Current years smoke |
| XSMKCYR | . | . | . | Former years smoked |
| PASSIVE | 1.004 | 0.987 | 1.021 | Passive Smoking |
| EDULOW | 1.397 | 1.276 | 1.530 | Less than high school education |
| INDUSEXP | 0.943 | 0.861 | 1.034 | Occupational exposure |
| BMI | 1.028 | 1.016 | 1.040 | Body Mass Index |
| ALC | 0.973 | 0.949 | 0.998 | Alcohol Drinking |
| SULFATES | 1.269 | 1.025 | 1.572 | Sulfate Particles |

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence.
7
Intervals) by Cardiopulmonary+Asthma Death for the Sulfate Particles
Ever-smokers
-- with the Female New Subcohort.

The PHREG Procedure

Data Set: WORK.SULF_E
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

### Testing Global Null Hypothesis: BETA=0

| Criterion | Without Covariates | With Covariates | Model Chi-Square |
|---|---|---|---|
| -2 LOG L | 246622.457 | 244659.076 | 1963.381 with 12 DF (p=0.0001) |
| Score | . | . | 1934.924 with 12 DF (p=0.0001) |
| Wald | . | . | 1889.071 with 12 DF (p=0.0001) |

### Analysis of Maximum Likelihood Estimates

| Variable | DF | Parameter Estimate | Standard Error | Wald Chi-Square | Pr > Chi-Square |
|---|---|---|---|---|---|
| CURCIG | 1 | 0.829727 | 0.07243 | 131.22107 | 0.0001 |
| EVPCONLY | 1 | 0.701792 | 0.04611 | 231.64238 | 0.0001 |
| SMKCPD | 1 | 0.006718 | 0.00116 | 33.66027 | 0.0001 |
| XSMKCPD | 1 | 0.008247 | 0.0007860 | 110.10184 | 0.0001 |
| SMKCYR | 1 | 0.007311 | 0.00139 | 27.68672 | 0.0001 |
| XSMKCYR | 1 | 0.022608 | 0.0009219 | 601.32268 | 0.0001 |
| PASSIVE | 1 | -0.001671 | 0.00230 | 0.52742 | 0.4677 |
| EDULOW | 1 | 0.278460 | 0.02072 | 180.58403 | 0.0001 |
| INDUSEXP | 1 | 0.059972 | 0.02048 | 8.57150 | 0.0034 |

| | | | | |
|---|---|---|---|---|
| BMI | 1 | -0.004019 | 0.00249 | 2.60029 | 0.1068 |
| ALC | 1 | -0.039155 | 0.00445 | 77.32033 | 0.0001 |
| SULFATES | 1 | 0.200063 | 0.05167 | 14.99402 | 0.0001 |

### Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

| Variable | Risk Ratio | Lower | Upper | Label |
|---|---|---|---|---|
| CURCIG | 2.293 | 1.989 | 2.642 | Current Smoker |
| EVPCONLY | 2.017 | 1.843 | 2.208 | Pipe/cigar smoker |
| SMKCPD | 1.007 | 1.004 | 1.009 | Current cigarettes per day |
| XSMKCPD | 1.008 | 1.007 | 1.010 | Former cigarettes per day |
| SMKCYR | 1.007 | 1.005 | 1.010 | Current years smoke |
| XSMKCYR | 1.023 | 1.021 | 1.025 | Former years smoked |
| PASSIVE | 0.998 | 0.994 | 1.003 | Passive Smoking |
| EDULOW | 1.321 | 1.269 | 1.376 | Less than high school education |
| INDUSEXP | 1.062 | 1.020 | 1.105 | Occupational exposure |
| BMI | 0.996 | 0.991 | 1.001 | Body Mass Index |
| ALC | 0.962 | 0.953 | 0.970 | Alcohol Drinking |
| SULFATES | 1.221 | 1.104 | 1.352 | Sulfate Particles |

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
8
Intervals) by Cardiopulmonary+Asthma Death for the Sulfate Particles
Ever-smokers in Women
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF_E
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

### Testing Global Null Hypothesis: BETA=0

| Criterion | Without Covariates | With Covariates | Model Chi-Square |
|---|---|---|---|
| -2 LOG L | 56662.084 | 56040.785 | 621.299 with 11 DF (p=0.0001) |
| Score | . | . | 618.879 with 11 DF (p=0.0001) |
| Wald | . | . | 591.902 with 11 DF (p=0.0001) |

### Analysis of Maximum Likelihood Estimates

| Variable | DF | Parameter Estimate | Standard Error | Wald Chi-Square | Pr > Chi-Square |
|---|---|---|---|---|---|
| CURCIG | 1 | 0.698071 | 0.11619 | 36.09381 | 0.0001 |
| EVPCONLY | 0 | 0 | . | . | . |
| SMKCPD | 1 | 0.015871 | 0.00213 | 55.65403 | 0.0001 |
| XSMKCPD | 1 | 0.010287 | 0.00206 | 24.84456 | 0.0001 |
| SMKCYR | 1 | 0.007085 | 0.00220 | 10.35117 | 0.0013 |

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| Variable | DF | Parameter Estimate | Standard Error | Wald Chi-Square | Pr > Chi-Square |
|---|---|---|---|---|---|
| XSMKCYR | 1 | 0.020887 | 0.00204 | 104.71643 | 0.0001 |
| PASSIVE | 1 | -0.001465 | 0.00459 | 0.10196 | 0.7495 |
| EDULOW | 1 | 0.415509 | 0.04333 | 91.94115 | 0.0001 |
| INDUSEXP | 1 | 0.092793 | 0.06086 | 2.32431 | 0.1274 |
| BMI | 1 | -0.000994 | 0.00430 | 0.05332 | 0.8174 |
| ALC | 1 | -0.053365 | 0.01204 | 19.64784 | 0.0001 |
| SULFATES | 1 | 0.354919 | 0.10663 | 11.07817 | 0.0009 |

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

| Variable | Risk Ratio | Lower | Upper | Label |
|---|---|---|---|---|
| CURCIG | 2.010 | 1.601 | 2.524 | Current Smoker |
| EVPCONLY | . | . | . | Pipe/cigar smoker |
| SMKCPD | 1.016 | 1.012 | 1.020 | Current cigarettes per day |
| XSMKCPD | 1.010 | 1.006 | 1.014 | Former cigarettes per day |
| SMKCYR | 1.007 | 1.003 | 1.011 | Current years smoke |
| XSMKCYR | 1.021 | 1.017 | 1.025 | Former years smoked |
| PASSIVE | 0.999 | 0.990 | 1.008 | Passive Smoking |
| EDULOW | 1.515 | 1.392 | 1.649 | Less than high school education |
| INDUSEXP | 1.097 | 0.974 | 1.236 | Occupational exposure |
| BMI | 0.999 | 0.991 | 1.007 | Body Mass Index |
| ALC | 0.948 | 0.926 | 0.971 | Alcohol Drinking |
| SULFATES | 1.426 | 1.157 | 1.758 | Sulfate Particles |

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
9
Intervals) by Cardiopulmonary+Asthma Death for the Sulfate Particles
Ever-smokers in Men
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF_E
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

| Criterion | Without Covariates | With Covariates | Model Chi-Square |
|---|---|---|---|
| -2 LOG L | 189960.373 | 188567.298 | 1393.075 with 12 DF (p=0.0001) |
| Score | . | . | 1382.815 with 12 DF (p=0.0001) |
| Wald | . | . | 1355.204 with 12 DF (p=0.0001) |

Analysis of Maximum Likelihood Estimates

| Variable | DF | Parameter Estimate | Standard Error | Wald Chi-Square | Pr > Chi-Square |
|---|---|---|---|---|---|
| CURCIG | 1 | 0.872353 | 0.09664 | 81.48206 | 0.0001 |

| | | | | | |
|---|---|---|---|---|---|
| EVPCONLY | 1 | 0.696625 | 0.05001 | 194.05882 | 0.0001 |
| SMKCPD | 1 | 0.003334 | 0.00140 | 5.70311 | 0.0169 |
| XSMKCPD | 1 | 0.007605 | 0.0008660 | 77.11526 | 0.0001 |
| SMKCYR | 1 | 0.007659 | 0.00183 | 17.49479 | 0.0001 |
| XSMKCYR | 1 | 0.023205 | 0.00104 | 497.64559 | 0.0001 |
| PASSIVE | 1 | −0.001477 | 0.00266 | 0.30788 | 0.5790 |
| EDULOW | 1 | 0.236453 | 0.02361 | 100.27440 | 0.0001 |
| INDUSEXP | 1 | 0.060799 | 0.02175 | 7.81267 | 0.0052 |
| BMI | 1 | −0.006127 | 0.00306 | 4.01976 | 0.0450 |
| ALC | 1 | −0.036067 | 0.00479 | 56.65270 | 0.0001 |
| SULFATES | 1 | 0.149650 | 0.05907 | 6.41855 | 0.0113 |

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

| Variable | Risk Ratio | Lower | Upper | Label |
|---|---|---|---|---|
| CURCIG | 2.393 | 1.980 | 2.891 | Current Smoker |
| EVPCONLY | 2.007 | 1.820 | 2.214 | Pipe/cigar smoker |
| SMKCPD | 1.003 | 1.001 | 1.006 | Current cigarettes per day |
| XSMKCPD | 1.008 | 1.006 | 1.009 | Former cigarettes per day |
| SMKCYR | 1.008 | 1.004 | 1.011 | Current years smoke |
| XSMKCYR | 1.023 | 1.021 | 1.026 | Former years smoked |
| PASSIVE | 0.999 | 0.993 | 1.004 | Passive Smoking |
| EDULOW | 1.267 | 1.209 | 1.327 | Less than high school education |
| INDUSEXP | 1.063 | 1.018 | 1.109 | Occupational exposure |
| BMI | 0.994 | 0.988 | 1.000 | Body Mass Index |
| ALC | 0.965 | 0.956 | 0.974 | Alcohol Drinking |
| SULFATES | 1.161 | 1.034 | 1.304 | Sulfate Particles |

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
10
Intervals) by Cardiopulmonary+Asthma Death for the Fine Particles
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

| Criterion | Without Covariates | With Covariates | Model Chi-Square |
|---|---|---|---|
| -2 LOG L | 195142.008 | 193589.714 | 1552.294 with 12 DF (p=0.0001) |
| Score | . | . | 1671.853 with 12 DF (p=0.0001) |
| Wald | . | . | 1623.452 with 12 DF (p=0.0001) |

Analysis of Maximum Likelihood Estimates

| | Parameter | Standard | Wald | Pr > |
|---|---|---|---|---|

| Variable | DF | Estimate | Error | Chi-Square | Chi-Square |
|----------|----|----------|-------|-----------|-----------|
| CURCIG | 1 | 0.542040 | 0.08853 | 37.48526 | 0.0001 |
| EVPCONLY | 1 | 0.220999 | 0.04585 | 23.23238 | 0.0001 |
| SMKCPD | 1 | 0.006042 | 0.00159 | 14.46339 | 0.0001 |
| XSMKCPD | 1 | 0.005683 | 0.0009952 | 32.60329 | 0.0001 |
| SMKCYR | 1 | 0.004660 | 0.00180 | 6.70921 | 0.0096 |
| XSMKCYR | 1 | 0.011896 | 0.0008727 | 185.82326 | 0.0001 |
| PASSIVE | 1 | 0.003921 | 0.00289 | 1.83800 | 0.1752 |
| EDULOW | 1 | 0.307184 | 0.02242 | 187.72994 | 0.0001 |
| INDUSEXP | 1 | 0.064418 | 0.02459 | 6.86229 | 0.0088 |
| BMI | 1 | 0.000121 | 0.00262 | 0.00214 | 0.9631 |
| ALC | 1 | -0.038293 | 0.00551 | 48.27478 | 0.0001 |
| FINE | 1 | 0.266587 | 0.05273 | 25.56044 | 0.0001 |

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

| Variable | Risk Ratio | Lower | Upper | Label |
|----------|-----------|-------|-------|-------|
| CURCIG | 1.720 | 1.446 | 2.045 | Current Smoker |
| EVPCONLY | 1.247 | 1.140 | 1.365 | Pipe/cigar smoker |
| SMKCPD | 1.006 | 1.003 | 1.009 | Current cigarettes per day |
| XSMKCPD | 1.006 | 1.004 | 1.008 | Former cigarettes per day |
| SMKCYR | 1.005 | 1.001 | 1.008 | Current years smoke |
| XSMKCYR | 1.012 | 1.010 | 1.014 | Former years smoked |
| PASSIVE | 1.004 | 0.998 | 1.010 | Passive Smoking |
| EDULOW | 1.360 | 1.301 | 1.421 | Less than high school education |
| INDUSEXP | 1.067 | 1.016 | 1.119 | Occupational exposure |
| BMI | 1.000 | 0.995 | 1.005 | Body Mass Index |
| ALC | 0.962 | 0.952 | 0.973 | Alcohol Drinking |
| FINE | 1.306 | 1.177 | 1.448 | Fine Particles |

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
11
Intervals) by Cardiopulmonary+Asthma Death for the Fine Particles
in Women
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

| Criterion | Without Covariates | With Covariates | Model Chi-Square |
|-----------|-------------------|-----------------|------------------|
| -2 LOG L | 72923.155 | 72260.840 | 662.315 with 11 DF (p=0.0001) |
| Score | . | . | 769.188 with 11 DF (p=0.0001) |
| Wald | . | . | 736.900 with 11 DF (p=0.0001) |

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## Analysis of Maximum Likelihood Estimates

| Variable | DF | Parameter Estimate | Standard Error | Wald Chi-Square | Pr > Chi-Square |
|---|---|---|---|---|---|
| CURCIG | 1 | 0.311665 | 0.13348 | 5.45201 | 0.0195 |
| EVPCONLY | 0 | 0 | . | . | . |
| SMKCPD | 1 | 0.016591 | 0.00299 | 30.79241 | 0.0001 |
| XSMKCPD | 1 | 0.007013 | 0.00268 | 6.87235 | 0.0088 |
| SMKCYR | 1 | 0.006466 | 0.00283 | 5.21966 | 0.0223 |
| XSMKCYR | 1 | 0.010874 | 0.00181 | 36.21192 | 0.0001 |
| PASSIVE | 1 | 0.011572 | 0.00515 | 5.05366 | 0.0246 |
| EDULOW | 1 | 0.331682 | 0.03520 | 88.78463 | 0.0001 |
| INDUSEXP | 1 | 0.087543 | 0.05949 | 2.16517 | 0.1412 |
| BMI | 1 | 0.001125 | 0.00369 | 0.09279 | 0.7607 |
| ALC | 1 | -0.071736 | 0.01408 | 25.95878 | 0.0001 |
| FINE | 1 | 0.359862 | 0.08549 | 17.71993 | 0.0001 |

## Analysis of Maximum Likelihood Estimates

### Conditional Risk Ratio and 95% Confidence Limits

| Variable | Risk Ratio | Lower | Upper | Label |
|---|---|---|---|---|
| CURCIG | 1.366 | 1.051 | 1.774 | Current Smoker |
| EVPCONLY | . | . | . | Pipe/cigar smoker |
| SMKCPD | 1.017 | 1.011 | 1.023 | Current cigarettes per day |
| XSMKCPD | 1.007 | 1.002 | 1.012 | Former cigarettes per day |
| SMKCYR | 1.006 | 1.001 | 1.012 | Current years smoke |
| XSMKCYR | 1.011 | 1.007 | 1.015 | Former years smoked |
| PASSIVE | 1.012 | 1.001 | 1.022 | Passive Smoking |
| EDULOW | 1.393 | 1.300 | 1.493 | Less than high school education |
| INDUSEXP | 1.091 | 0.971 | 1.226 | Occupational exposure |
| BMI | 1.001 | 0.994 | 1.008 | Body Mass Index |
| ALC | 0.931 | 0.905 | 0.957 | Alcohol Drinking |
| FINE | 1.433 | 1.212 | 1.695 | Fine Particles |

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
12
Intervals) by Cardiopulmonary+Asthma Death for the Fine Particles
in Men
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

### Testing Global Null Hypothesis: BETA=0

| Criterion | Without Covariates | With Covariates | Model Chi-Square |
|---|---|---|---|
| -2 LOG L | 122218.853 | 121292.495 | 926.358 with 12 DF (p=0.0001) |

```
Score                                     969.726 with 12 DF (p=0.0001)
Wald                                      940.408 with 12 DF (p=0.0001)
```

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.643273	0.12292	27.38919	0.0001
EVPCONLY	1	0.213956	0.04753	20.26423	0.0001
SMKCPD	1	0.002615	0.00191	1.86510	0.1720
XSMKCPD	1	0.005154	0.00109	22.40310	0.0001
SMKCYR	1	0.003757	0.00240	2.45421	0.1172
XSMKCYR	1	0.012306	0.00103	142.53247	0.0001
PASSIVE	1	0.000685	0.00350	0.03827	0.8449
EDULOW	1	0.287741	0.02934	96.16749	0.0001
INDUSEXP	1	0.063129	0.02702	5.46029	0.0195
BMI	1	-0.001305	0.00374	0.12182	0.7271
ALC	1	-0.030822	0.00599	26.51692	0.0001
FINE	1	0.205248	0.06705	9.37105	0.0022

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.903	1.495	2.421	Current Smoker
EVPCONLY	1.239	1.128	1.359	Pipe/cigar smoker
SMKCPD	1.003	0.999	1.006	Current cigarettes per day
XSMKCPD	1.005	1.003	1.007	Former cigarettes per day
SMKCYR	1.004	0.999	1.008	Current years smoke
XSMKCYR	1.012	1.010	1.014	Former years smoked
PASSIVE	1.001	0.994	1.008	Passive Smoking
EDULOW	1.333	1.259	1.412	Less than high school education
INDUSEXP	1.065	1.010	1.123	Occupational exposure
BMI	0.999	0.991	1.006	Body Mass Index
ALC	0.970	0.958	0.981	Alcohol Drinking
FINE	1.228	1.077	1.400	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
13
Intervals) by Cardiopulmonary+Asthma Death for the Fine Particles
        Never-smokers
  -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_N
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

        Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	62160.712	62037.082	123.630 with 6 DF (p=0.0001)
Score	.	.	123.693 with 6 DF (p=0.0001)
Wald	.	.	123.766 with 6 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	0.012611	0.00704	3.21045	0.0732
EDULOW	1	0.298212	0.03565	69.98240	0.0001
INDUSEXP	1	0.044036	0.04964	0.78696	0.3750
BMI	1	0.010512	0.00398	6.95840	0.0083
ALC	1	-0.056289	0.01502	14.04059	0.0002
FINE	1	0.344704	0.08900	15.00121	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	.	.	.	Current cigarettes per day
XSMKCPD	.	.	.	Former cigarettes per day
SMKCYR	.	.	.	Current years smoke
XSMKCYR	.	.	.	Former years smoked
PASSIVE	1.013	0.999	1.027	Passive Smoking
EDULOW	1.347	1.257	1.445	Less than high school education
INDUSEXP	1.045	0.948	1.152	Occupational exposure
BMI	1.011	1.003	1.018	Body Mass Index
ALC	0.945	0.918	0.974	Alcohol Drinking
FINE	1.412	1.186	1.681	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
14
Intervals) by Cardiopulmonary+Asthma Death for the Fine Particles
        Never-smokers in Women
  -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_N
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	40258.360	40164.651	93.710 with 6 DF (p=0.0001)
Score			86.896 with 6 DF (p=0.0001)
Wald			88.735 with 6 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0			
EVPCONLY	0	0			
SMKCPD	0	0			
XSMKCPD	0	0			
SMKCYR	0	0			
XSMKCYR	0	0			
PASSIVE	1	0.020214	0.00879	5.28706	0.0215
EDULOW	1	0.266845	0.04301	38.49876	0.0001
INDUSEXP	1	0.054995	0.08469	0.42171	0.5161
BMI	1	0.003577	0.00466	0.58884	0.4429
ALC	1	-0.128098	0.02916	19.30103	0.0001
FINE	1	0.419712	0.11108	14.27640	0.0002

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG				Current Smoker
EVPCONLY				Pipe/cigar smoker
SMKCPD				Current cigarettes per day
XSMKCPD				Former cigarettes per day
SMKCYR				Current years smoke
XSMKCYR				Former years smoked
PASSIVE	1.020	1.003	1.038	Passive Smoking
EDULOW	1.306	1.200	1.421	Less than high school education
INDUSEXP	1.057	0.895	1.247	Occupational exposure
BMI	1.004	0.994	1.013	Body Mass Index
ALC	0.880	0.831	0.932	Alcohol Drinking
FINE	1.522	1.224	1.892	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
15
Intervals) by Cardiopulmonary+Asthma Death for the Fine Particles
Never-smokers in Men
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_N
Dependent Variable: FAIL
Censoring Variable: CENCOMA

Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	21902.352	21848.999	53.353 with 6 DF (p=0.0001)
Score	.	.	56.086 with 6 DF (p=0.0001)
Wald	.	.	55.841 with 6 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	-0.000642	0.01175	0.00299	0.9564
EDULOW	1	0.359062	0.06338	32.09582	0.0001
INDUSEXP	1	0.036119	0.06132	0.34696	0.5558
BMI	1	0.030191	0.00780	14.96628	0.0001
ALC	1	-0.022817	0.01678	1.84820	0.1740
FINE	1	0.206863	0.14935	1.91844	0.1660

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	.	.	.	Current cigarettes per day
XSMKCPD	.	.	.	Former cigarettes per day
SMKCYR	.	.	.	Current years smoke
XSMKCYR	.	.	.	Former years smoked
PASSIVE	0.999	0.977	1.023	Passive Smoking
EDULOW	1.432	1.265	1.621	Less than high school education
INDUSEXP	1.037	0.919	1.169	Occupational exposure
BMI	1.031	1.015	1.047	Body Mass Index
ALC	0.977	0.946	1.010	Alcohol Drinking
FINE	1.230	0.918	1.648	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
16
Intervals) by Cardiopulmonary+Asthma Death for the Fine Particles
        Ever-smokers
  -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_E
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	120322.978	119290.058	1032.920 with 12 DF (p=0.0001)
Score	.	.	1023.711 with 12 DF (p=0.0001)
Wald	.	.	998.140 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.745877	0.10128	54.23190	0.0001
EVPCONLY	1	0.673802	0.06366	112.03228	0.0001
SMKCPD	1	0.004923	0.00162	9.25223	0.0024
XSMKCPD	1	0.008743	0.00107	66.19824	0.0001
SMKCYR	1	0.009607	0.00194	24.51039	0.0001
XSMKCYR	1	0.021650	0.00127	291.65191	0.0001
PASSIVE	1	0.000511	0.00318	0.02583	0.8723
EDULOW	1	0.290102	0.02909	99.48374	0.0001
INDUSEXP	1	0.076725	0.02838	7.30907	0.0069
BMI	1	-0.008149	0.00348	5.48515	0.0192
ALC	1	-0.034075	0.00591	33.20618	0.0001
FINE	1	0.217831	0.06558	11.03408	0.0009

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	2.108	1.729	2.571	Current Smoker
EVPCONLY	1.962	1.732	2.222	Pipe/cigar smoker
SMKCPD	1.005	1.002	1.008	Current cigarettes per day
XSMKCPD	1.009	1.007	1.011	Former cigarettes per day
SMKCYR	1.010	1.006	1.014	Current years smoke
XSMKCYR	1.022	1.019	1.024	Former years smoked
PASSIVE	1.001	0.994	1.007	Passive Smoking
EDULOW	1.337	1.263	1.415	Less than high school education
INDUSEXP	1.080	1.021	1.142	Occupational exposure
BMI	0.992	0.985	0.999	Body Mass Index
ALC	0.966	0.955	0.978	Alcohol Drinking
FINE	1.243	1.093	1.414	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
17
Intervals) by Cardiopulmonary+Asthma Death for the Fine Particles
Ever-smokers in Women

-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_E
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	27353.226	27041.873	311.353 with 11 DF (p=0.0001)
Score	.	.	310.861 with 11 DF (p=0.0001)
Wald	.	.	298.140 with 11 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.484170	0.16414	8.70072	0.0032
EVPCONLY	0	0	.	.	.
SMKCPD	1	0.013191	0.00307	18.42070	0.0001
XSMKCPD	1	0.007798	0.00287	7.39094	0.0066
SMKCYR	1	0.011578	0.00313	13.69922	0.0002
XSMKCYR	1	0.020645	0.00275	56.32508	0.0001
PASSIVE	1	0.006110	0.00634	0.92733	0.3356
EDULOW	1	0.429017	0.06106	49.36957	0.0001
INDUSEXP	1	0.125739	0.08387	2.24765	0.1338
BMI	1	-0.002498	0.00607	0.16928	0.6808
ALC	1	-0.048093	0.01577	9.30171	0.0023
FINE	1	0.271401	0.13414	4.09342	0.0431

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.623	1.176	2.239	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	1.013	1.007	1.019	Current cigarettes per day
XSMKCPD	1.008	1.002	1.014	Former cigarettes per day
SMKCYR	1.012	1.005	1.018	Current years smoke
XSMKCYR	1.021	1.015	1.026	Former years smoked
PASSIVE	1.006	0.994	1.019	Passive Smoking
EDULOW	1.536	1.363	1.731	Less than high school education
INDUSEXP	1.134	0.962	1.337	Occupational exposure
BMI	0.998	0.986	1.009	Body Mass Index
ALC	0.953	0.924	0.983	Alcohol Drinking
FINE	1.312	1.009	1.706	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
18
Intervals) by Cardiopulmonary+Asthma Death for the Fine Particles
           Ever-smokers in Men
  -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_E
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	92969.752	92223.035	746.717 with 12 DF (p=0.0001)
Score	.	.	745.286 with 12 DF (p=0.0001)
Wald	.	.	729.098 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.873643	0.13420	42.38304	0.0001
EVPCONLY	1	0.681646	0.06893	97.79289	0.0001
SMKCPD	1	0.001962	0.00193	1.03210	0.3097
XSMKCPD	1	0.008736	0.00118	54.78146	0.0001
SMKCYR	1	0.008407	0.00254	10.94650	0.0009
XSMKCYR	1	0.022108	0.00144	237.01052	0.0001
PASSIVE	1	-0.001399	0.00368	0.14481	0.7035
EDULOW	1	0.250945	0.03311	57.44047	0.0001
INDUSEXP	1	0.074954	0.03014	6.18621	0.0129
BMI	1	-0.011427	0.00424	7.26689	0.0070
ALC	1	-0.031093	0.00638	23.74016	0.0001
FINE	1	0.199497	0.07519	7.03979	0.0080

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
    95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	2.396	1.842	3.116	Current Smoker
EVPCONLY	1.977	1.727	2.263	Pipe/cigar smoker
SMKCPD	1.002	0.998	1.006	Current cigarettes per day
XSMKCPD	1.009	1.006	1.011	Former cigarettes per day
SMKCYR	1.008	1.003	1.013	Current years smoke
XSMKCYR	1.022	1.019	1.025	Former years smoked
PASSIVE	0.999	0.991	1.006	Passive Smoking
EDULOW	1.285	1.204	1.371	Less than high school education

INDUSEXP	1.078	1.016	1.143	Occupational exposure
BMI	0.989	0.980	0.997	Body Mass Index
ALC	0.969	0.957	0.982	Alcohol Drinking
FINE	1.221	1.054	1.415	Fine Particles

Table2c: Adjusted Mortality Risk Ratios (and 95% Confidence
19
Intervals) by Cardiopulmonary+Asthma Death for the Current Smoker
-- with the Female new subcohort

The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	395272.837	392324.662	2948.176 with 12 DF (p=0.0001)
Score	.	.	3155.784 with 12 DF (p=0.0001)
Wald	.	.	3067.965 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.615399	0.06299	95.44964	0.0001
SMKCPD20	1	0.154808	0.02278	46.18555	0.0001
SMKCYR25	1	0.060946	0.03224	3.57379	0.0587
EVPCONLY	1	0.248016	0.03262	57.81483	0.0001
XSMKCPD	1	0.005026	0.0007295	47.46993	0.0001
XSMKCYR	1	0.012938	0.0006336	416.97564	0.0001
PASSIVE	1	0.002111	0.00210	1.01044	0.3148
EDULOW	1	0.298705	0.01610	344.28708	0.0001
INDUSEXP	1	0.034626	0.01789	3.74734	0.0529
BMI	1	0.003305	0.00189	3.05878	0.0803
ALC	1	-0.043238	0.00417	107.27348	0.0001
SULFATES	1	0.240555	0.04074	34.86216	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.850	1.635	2.094	Current Smoker
SMKCPD20	1.167	1.116	1.221	Current cigarettes 20 per day
SMKCYR25	1.063	0.998	1.132	Current 25 years smoke
EVPCONLY	1.281	1.202	1.366	Pipe/cigar smoker
XSMKCPD	1.005	1.004	1.006	Former cigarettes per day

XSMKCYR	1.013	1.012	1.014	Former years smoked
PASSIVE	1.002	0.998	1.006	Passive Smoking
EDULOW	1.348	1.306	1.391	Less than high school education
INDUSEXP	1.035	1.000	1.072	Occupational exposure
BMI	1.003	1.000	1.007	Body Mass Index
ALC	0.958	0.950	0.966	Alcohol Drinking
SULFATES	1.272	1.174	1.378	Sulfate Particles

Covariance Matrix for Cardiopulmonary+Asthma Death in ACS Study 20
-- with the Female new subcohort

OBS	_TIES_	_TYPE_	_NAME_	CURCIG	SMKCPD20	SMKCYR25
1	BRESLOW	PARMS	ESTIMATE	0.61540	0.15481	0.060946
2	BRESLOW	COV	CURCIG	0.00397	-0.00047	-0.001776
3	BRESLOW	COV	SMKCPD20	-0.00047	0.00052	-0.000022
4	BRESLOW	COV	SMKCYR25	-0.00178	-0.00002	0.001039
5	BRESLOW	COV	EVPCONLY	0.00008	0.00002	0.000043
6	BRESLOW	COV	XSMKCPD	0.00000	0.00000	-0.000001
7	BRESLOW	COV	XSMKCYR	0.00000	-0.00000	0.000002
8	BRESLOW	COV	PASSIVE	-0.00001	-0.00001	0.000002
9	BRESLOW	COV	EDULOW	0.00001	-0.00000	-0.000016
10	BRESLOW	COV	INDUSEXP	0.00002	-0.00000	-0.000010
11	BRESLOW	COV	BMI	0.00000	-0.00000	0.000002
12	BRESLOW	COV	ALC	0.00000	-0.00000	-0.000003
13	BRESLOW	COV	SULFATES	-0.00000	0.00000	-0.000011

OBS	EVPCONLY	XSMKCPD	XSMKCYR	PASSIVE	EDULOW	INDUSEXP
1	0.24802	0.0050263	0.012938	0.0021106	0.29870	0.034626
2	0.00008	0.0000029	0.000000	-.0000113	0.00001	0.000018
3	0.00002	0.0000009	-0.000000	-.0000089	-0.00000	-0.000005
4	0.00004	-.0000008	0.000002	0.0000021	-0.00002	-0.000010
5	0.00106	0.0000026	0.000004	-.0000018	0.00001	0.000003
6	0.00000	0.0000005	-0.000000	-.0000000	0.00000	-0.000000
7	0.00000	-.0000003	0.000000	-.0000000	-0.00000	-0.000000
8	-0.00000	-.0000000	-0.000000	0.0000044	0.00000	-0.000001
9	0.00001	0.0000003	-0.000000	0.0000002	0.00026	-0.000021
10	0.00000	-.0000001	-0.000000	-.0000011	-0.00002	0.000320
11	-0.00000	-.0000001	0.000000	-.0000001	-0.00000	-0.000001
12	-0.00001	-.0000002	-0.000000	-.0000004	0.00000	0.000000
13	-0.00003	0.0000000	-0.000000	-.0000016	-0.00002	-0.000009

OBS	BMI	ALC	SULFATES	_LNLIKE_
1	0.0033054	-0.043238	0.24055	-196162.33
2	0.0000024	0.000001	-0.00000	-196162.33
3	-.0000013	-0.000005	0.00000	-196162.33
4	0.0000018	-0.000003	-0.00001	-196162.33
5	-.0000006	-0.000006	-0.00003	-196162.33
6	-.0000001	-0.000000	0.00000	-196162.33
7	0.0000001	-0.000000	-0.00000	-196162.33
8	-.0000001	-0.000000	-0.00000	-196162.33
9	-.0000030	0.000005	-0.00002	-196162.33
10	-.0000008	0.000000	-0.00001	-196162.33
11	0.0000036	0.000000	-0.00000	-196162.33
12	0.0000001	0.000017	0.00000	-196162.33
13	-.0000009	0.000002	0.00166	-196162.33

Program #3

```
/*****************************
*                            *
*    Repeat the results in   *
*    ACS Study paper (1995)  *
*       --   Table Three     *
*                            *
*****************************/

libname acs  '/home/yuanli/acss/';

options nocenter ps=64 ls=80 obs=max;

proc format;
     value dead 1 = 'Alive'
                0 = 'Dead'
                ;
     value sex  1 = 'Male'
                2 = 'Female'
                ;
     value race 1 = 'White'
                2 = 'Black'
                3 = 'Other'
                ;
     value ind  0 = 'No.'
                1 = 'Yes'
                ;

filename derdata '/home/fmo/derdata.cport';

proc cimport data=dertest infile=derdata;

data sulf; set dertest;

 if flagdel = 0 and sulfdel = 0 ;

  sulfates = meansulf/19.9;


proc phreg data=sulf nosummary;
   model fail*cenall(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                          edulow indusexp bmi alc sulfates / rl;
   strata age_int (25 to 105 by 5) sex racecat;
   format sex sex. racecat race. ;
   label curcig   = 'Current Smoker'
         smkcpd   = 'Current cigarettes per day'
         smkcyr   = 'Current years smoke'
         xsmkcpd  = 'Former cigarettes per day'
         xsmkcyr  = 'Former years smoked'
         evpconly = 'Pipe/cigar smoker'
```

```
        indusexp = 'Occupational exposure'
        edulow   = 'Less than high school education'
        age_int  = 'Age at Interview'
        passive  = 'Passive Smoking'
        bmi      = 'Body Mass Index'
        alc      = 'Alcohol Drinking'
        sulfates = 'Sulfate Particles';
  where west in (0,1);

    title1 'Table3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by All Cause of Death for the Sulfate
Particles';

proc phreg data=sulf nosummary;
    model fail*cenall(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                                edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
        smkcpd   = 'Current cigarettes per day'
        smkcyr   = 'Current years smoke'
        xsmkcpd  = 'Former cigarettes per day'
        xsmkcyr  = 'Former years smoked'
        evpconly = 'Pipe/cigar smoker'
        indusexp = 'Occupational exposure'
        edulow   = 'Less than high school education'
        age_int  = 'Age at Interview'
        passive  = 'Passive Smoking'
        bmi      = 'Body Mass Index'
        alc      = 'Alcohol Drinking'
        sulfates = 'Sulfate Particles';
  where west in (0,1) and sex eq 2 ;

    title1 'Table3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by All Cause of Death for the Sulfate
Particles';
    title3 '              in Women ';

proc phreg data=sulf nosummary;
    model fail*cenall(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                                edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
        smkcpd   = 'Current cigarettes per day'
        smkcyr   = 'Current years smoke'
```

```
            xsmkcpd  = 'Former cigarettes per day'
            xsmkcyr  = 'Former years smoked'
            evpconly = 'Pipe/cigar smoker'
            indusexp = 'Occupational exposure'
            edulow   = 'Less than high school education'
            age_int  = 'Age at Interview'
            passive  = 'Passive Smoking'
            bmi      = 'Body Mass Index'
            alc      = 'Alcohol Drinking'
            sulfates = 'Sulfate Particles';
      where west in (0,1) and sex eq 1 ;

      title1 'Table3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
      title2 'Intervals) by All Cause of Death for the Sulfate
Particles';
      title3 '            in Men ';
run;




proc phreg data=sulf nosummary;
      model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                             edulow indusexp bmi alc sulfates / rl;
      strata age_int (25 to 105 by 5) sex racecat;
      format sex sex. racecat race. ;
      label curcig    = 'Current Smoker'
            smkcpd    = 'Current cigarettes per day'
            smkcyr    = 'Current years smoke'
            xsmkcpd   = 'Former cigarettes per day'
            xsmkcyr   = 'Former years smoked'
            evpconly  = 'Pipe/cigar smoker'
            indusexp  = 'Occupational exposure'
            edulow    = 'Less than high school education'
            age_int   = 'Age at Interview'
            passive   = 'Passive Smoking'
            bmi       = 'Body Mass Index'
            alc       = 'Alcohol Drinking'
            sulfates  = 'Sulfate Particles';
      where west in (0,1);

      title1 'Table3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
      title2 'Intervals) by Lung Cancer Related Death for the
Sulfate Particles';

proc phreg data=sulf nosummary;
      model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                             edulow indusexp bmi alc sulfates / rl;
```

```
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          sulfates = 'Sulfate Particles';
    where west in (0,1) and sex eq 2 ;

    title1 'Table3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Lung Cancer Related Death for the
Sulfate Particles';
    title3 '              in Women ';

proc phreg data=sulf nosummary;
    model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                          edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          sulfates = 'Sulfate Particles';
    where west in (0,1) and sex eq 1;

    title1 'Table3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Lung Cancer Related Death for the
Sulfate Particles';
    title3 '              in Men ';
 run;
```

```
proc phreg data=sulf nosummary;
    model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                            edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          sulfates = 'Sulfate Particles';
    where west in (0,1);

    title1 'Table3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Cardiopulmonary Death for the Sulfate
Particles';

proc phreg data=sulf nosummary;
    model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                            edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          sulfates = 'Sulfate Particles';
    where west in (0,1) and sex eq 2 ;

    title1 'Table3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
```

```
      title2 'Intervals) by Cardiopulmonary Death for the Sulfate
Particles';
      title3 '              in Women ';


proc phreg data=sulf nosummary;
    model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                                edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          sulfates = 'Sulfate Particles';
    where west in (0,1) and sex eq 1;

    title1 'Table3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Cardiopulmonary Death for the Sulfate
Particles';
    title3 '              in Men ';
 run;




data sulf_n;set sulf;

 if curcig = 0 and xsmkcpd = 0 and xsmkcyr = 0 and evpconly = 0;

proc phreg data=sulf_n nosummary;
    model fail*cenall(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                                edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
```

```
        indusexp = 'Occupational exposure'
        edulow   = 'Less than high school education'
        age_int  = 'Age at Interview'
        passive  = 'Passive Smoking'
        bmi      = 'Body Mass Index'
        alc      = 'Alcohol Drinking'
        sulfates = 'Sulfate Particles';
   where west in (0,1);

   title1 'Table3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
   title2 'Intervals) by All Cause of Death for the Sulfate
Particles';
   title3 '                  Never-smokers';

proc phreg data=sulf_n nosummary;
   model fail*cenall(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                          edulow indusexp bmi alc sulfates / rl;
   strata age_int (25 to 105 by 5) sex racecat;
   format sex sex. racecat race. ;
   label curcig   = 'Current Smoker'
         smkcpd   = 'Current cigarettes per day'
         smkcyr   = 'Current years smoke'
         xsmkcpd  = 'Former cigarettes per day'
         xsmkcyr  = 'Former years smoked'
         evpconly = 'Pipe/cigar smoker'
         indusexp = 'Occupational exposure'
         edulow   = 'Less than high school education'
         age_int  = 'Age at Interview'
         passive  = 'Passive Smoking'
         bmi      = 'Body Mass Index'
         alc      = 'Alcohol Drinking'
         sulfates = 'Sulfate Particles';
   where west in (0,1) and sex eq 2;

   title1 'Table3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
   title2 'Intervals) by All Cause of Death for the Sulfate
Particles';
   title3 '                  Never-smokers in Women ';

proc phreg data=sulf_n nosummary;
   model fail*cenall(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                          edulow indusexp bmi alc sulfates / rl;
   strata age_int (25 to 105 by 5) sex racecat;
   format sex sex. racecat race. ;
   label curcig   = 'Current Smoker'
         smkcpd   = 'Current cigarettes per day'
```

```
        smkcyr    = 'Current years smoke'
        xsmkcpd   = 'Former cigarettes per day'
        xsmkcyr   = 'Former years smoked'
        evpconly  = 'Pipe/cigar smoker'
        indusexp  = 'Occupational exposure'
        edulow    = 'Less than high school education'
        age_int   = 'Age at Interview'
        passive   = 'Passive Smoking'
        bmi       = 'Body Mass Index'
        alc       = 'Alcohol Drinking'
        sulfates  = 'Sulfate Particles';
   where west in (0,1) and sex eq 1;

   title1 'Table3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
   title2 'Intervals) by All Cause of Death for the Sulfate
Particles';
   title3 '             Never-smokers in Men ';

run;


proc phreg data=sulf_n nosummary;
   model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                         edulow indusexp bmi alc sulfates / rl;
   strata age_int (25 to 105 by 5) sex racecat;
   format sex sex. racecat race. ;
   label curcig   = 'Current Smoker'
         smkcpd   = 'Current cigarettes per day'
         smkcyr   = 'Current years smoke'
         xsmkcpd  = 'Former cigarettes per day'
         xsmkcyr  = 'Former years smoked'
         evpconly = 'Pipe/cigar smoker'
         indusexp = 'Occupational exposure'
         edulow   = 'Less than high school education'
         age_int  = 'Age at Interview'
         passive  = 'Passive Smoking'
         bmi      = 'Body Mass Index'
         alc      = 'Alcohol Drinking'
         sulfates = 'Sulfate Particles';
   where west in (0,1);

   title1 'Table3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
   title2 'Intervals) by Lung Cancer Related Death for the
Sulfate Particles';
   title3 '             Never-smokers';

proc phreg data=sulf_n nosummary;
```

```
      model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                              edulow indusexp bmi alc sulfates / rl;
      strata age_int (25 to 105 by 5) sex racecat;
      format sex sex. racecat race. ;
      label curcig   = 'Current Smoker'
            smkcpd   = 'Current cigarettes per day'
            smkcyr   = 'Current years smoke'
            xsmkcpd  = 'Former cigarettes per day'
            xsmkcyr  = 'Former years smoked'
            evpconly = 'Pipe/cigar smoker'
            indusexp = 'Occupational exposure'
            edulow   = 'Less than high school education'
            age_int  = 'Age at Interview'
            passive  = 'Passive Smoking'
            bmi      = 'Body Mass Index'
            alc      = 'Alcohol Drinking'
            sulfates = 'Sulfate Particles';
      where west in (0,1) and sex eq 2 ;

      title1 'Table3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
      title2 'Intervals) by Lung Cancer Related Death for the
Sulfate Particles';
      title3 '                 Never-smokers in Women ';

proc phreg data=sulf_n nosummary;
      model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                              edulow indusexp bmi alc sulfates / rl;
      strata age_int (25 to 105 by 5) sex racecat;
      format sex sex. racecat race. ;
      label curcig   = 'Current Smoker'
            smkcpd   = 'Current cigarettes per day'
            smkcyr   = 'Current years smoke'
            xsmkcpd  = 'Former cigarettes per day'
            xsmkcyr  = 'Former years smoked'
            evpconly = 'Pipe/cigar smoker'
            indusexp = 'Occupational exposure'
            edulow   = 'Less than high school education'
            age_int  = 'Age at Interview'
            passive  = 'Passive Smoking'
            bmi      = 'Body Mass Index'
            alc      = 'Alcohol Drinking'
            sulfates = 'Sulfate Particles';
      where west in (0,1) and sex eq 1;

      title1 'Table3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
      title2 'Intervals) by Lung Cancer Related Death for the
```

```
Sulfate Particles';
   title3 '            Never-smokers in Men ';
run;


proc phreg data=sulf_n nosummary;
   model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                           edulow indusexp bmi alc sulfates / rl;
   strata age_int (25 to 105 by 5) sex racecat;
   format sex sex. racecat race. ;
   label curcig   = 'Current Smoker'
         smkcpd   = 'Current cigarettes per day'
         smkcyr   = 'Current years smoke'
         xsmkcpd  = 'Former cigarettes per day'
         xsmkcyr  = 'Former years smoked'
         evpconly = 'Pipe/cigar smoker'
         indusexp = 'Occupational exposure'
         edulow   = 'Less than high school education'
         age_int  = 'Age at Interview'
         passive  = 'Passive Smoking'
         bmi      = 'Body Mass Index'
         alc      = 'Alcohol Drinking'
         sulfates = 'Sulfate Particles';
   where west in (0,1) ;

   title1 'Table3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
   title2 'Intervals) by Cardiopulmonary Death for the Sulfate
Particles';
   title3 '             Never-smokers';

proc phreg data=sulf_n nosummary;
   model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                           edulow indusexp bmi alc sulfates / rl;
   strata age_int (25 to 105 by 5) sex racecat;
   format sex sex. racecat race. ;
   label curcig   = 'Current Smoker'
         smkcpd   = 'Current cigarettes per day'
         smkcyr   = 'Current years smoke'
         xsmkcpd  = 'Former cigarettes per day'
         xsmkcyr  = 'Former years smoked'
         evpconly = 'Pipe/cigar smoker'
         indusexp = 'Occupational exposure'
         edulow   = 'Less than high school education'
         age_int  = 'Age at Interview'
         passive  = 'Passive Smoking'
         bmi      = 'Body Mass Index'
         alc      = 'Alcohol Drinking'
```

```
           sulfates = 'Sulfate Particles';
     where west in (0,1) and sex eq 2 ;


     title1 'Table3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
     title2 'Intervals) by Cardiopulmonary Death for the Sulfate
Particles';
     title3 '                  Never-smokers in Women ';


proc phreg data=sulf_n nosummary;
     model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                              edulow indusexp bmi alc sulfates / rl;
     strata age_int (25 to 105 by 5) sex racecat;
     format sex sex. racecat race. ;
     label curcig   = 'Current Smoker'
           smkcpd   = 'Current cigarettes per day'
           smkcyr   = 'Current years smoke'
           xsmkcpd  = 'Former cigarettes per day'
           xsmkcyr  = 'Former years smoked'
           evpconly = 'Pipe/cigar smoker'
           indusexp = 'Occupational exposure'
           edulow   = 'Less than high school education'
           age_int  = 'Age at Interview'
           passive  = 'Passive Smoking'
           bmi      = 'Body Mass Index'
           alc      = 'Alcohol Drinking'
           sulfates = 'Sulfate Particles';
     where west in (0,1) and sex eq 1;


     title1 'Table3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
     title2 'Intervals) by Cardiopulmonary Death for the Sulfate
Particles';
     title3 '                  Never-smokers in Men ';

  run;


data sulf_e;set sulf;

  if curcig = 1 or xsmkcpd gt 0  or xsmkcyr gt 0 or evpconly = 1;

proc phreg data=sulf_e nosummary;
     model fail*cenall(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                              edulow indusexp bmi alc sulfates / rl;
     strata age_int (25 to 105 by 5) sex racecat;
     format sex sex. racecat race. ;
```

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```
      label curcig   = 'Current Smoker'
            smkcpd   = 'Current cigarettes per day'
            smkcyr   = 'Current years smoke'
            xsmkcpd  = 'Former cigarettes per day'
            xsmkcyr  = 'Former years smoked'
            evpconly = 'Pipe/cigar smoker'
            indusexp = 'Occupational exposure'
            edulow   = 'Less than high school education'
            age_int  = 'Age at Interview'
            passive  = 'Passive Smoking'
            bmi      = 'Body Mass Index'
            alc      = 'Alcohol Drinking'
            sulfates = 'Sulfate Particles';
      where west in (0,1);

      title1 'Table3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
      title2 'Intervals) by All Cause of Death for the Sulfate
Particles';
      title3 '              Ever-smokers';

proc phreg data=sulf_e nosummary;
    model fail*cenall(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                           edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          sulfates = 'Sulfate Particles';
    where west in (0,1) and sex eq 2;

      title1 'Table3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
      title2 'Intervals) by All Cause of Death for the Sulfate
Particles';
      title3 '              Ever-smokers in Women ';
run;

proc phreg data=sulf_e nosummary;
```

```
      model fail*cenall(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                                edulow indusexp bmi alc sulfates / rl;
      strata age_int (25 to 105 by 5) sex racecat;
      format sex sex. racecat race. ;
      label curcig   = 'Current Smoker'
            smkcpd   = 'Current cigarettes per day'
            smkcyr   = 'Current years smoke'
            xsmkcpd  = 'Former cigarettes per day'
            xsmkcyr  = 'Former years smoked'
            evpconly = 'Pipe/cigar smoker'
            indusexp = 'Occupational exposure'
            edulow   = 'Less than high school education'
            age_int  = 'Age at Interview'
            passive  = 'Passive Smoking'
            bmi      = 'Body Mass Index'
            alc      = 'Alcohol Drinking'
            sulfates = 'Sulfate Particles';
      where west in (0,1) and sex eq 1;


      title1 'Table3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
      title2 'Intervals) by All Cause of Death for the Sulfate
Particles';
      title3 '                Ever-smokers in Men ';

proc phreg data=sulf_e nosummary;
      model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                                edulow indusexp bmi alc sulfates / rl;
      strata age_int (25 to 105 by 5) sex racecat;
      format sex sex. racecat race. ;
      label curcig   = 'Current Smoker'
            smkcpd   = 'Current cigarettes per day'
            smkcyr   = 'Current years smoke'
            xsmkcpd  = 'Former cigarettes per day'
            xsmkcyr  = 'Former years smoked'
            evpconly = 'Pipe/cigar smoker'
            indusexp = 'Occupational exposure'
            edulow   = 'Less than high school education'
            age_int  = 'Age at Interview'
            passive  = 'Passive Smoking'
            bmi      = 'Body Mass Index'
            alc      = 'Alcohol Drinking'
            sulfates = 'Sulfate Particles';
      where west in (0,1);


      title1 'Table3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
      title2 'Intervals) by Lung Cancer Related Death for the
```

```
Sulfate Particles';
    title3 '                    Ever-smokers';

proc phreg data=sulf_e nosummary;
    model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                            edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig    = 'Current Smoker'
          smkcpd    = 'Current cigarettes per day'
          smkcyr    = 'Current years smoke'
          xsmkcpd   = 'Former cigarettes per day'
          xsmkcyr   = 'Former years smoked'
          evpconly  = 'Pipe/cigar smoker'
          indusexp  = 'Occupational exposure'
          edulow    = 'Less than high school education'
          age_int   = 'Age at Interview'
          passive   = 'Passive Smoking'
          bmi       = 'Body Mass Index'
          alc       = 'Alcohol Drinking'
          sulfates  = 'Sulfate Particles';
    where west in (0,1) and sex eq 2 ;

    title1 'Table3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Lung Cancer Related Death for the
Sulfate Particles';
    title3 '                    Ever-smokers in Women ';

proc phreg data=sulf_e nosummary;
    model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                            edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig    = 'Current Smoker'
          smkcpd    = 'Current cigarettes per day'
          smkcyr    = 'Current years smoke'
          xsmkcpd   = 'Former cigarettes per day'
          xsmkcyr   = 'Former years smoked'
          evpconly  = 'Pipe/cigar smoker'
          indusexp  = 'Occupational exposure'
          edulow    = 'Less than high school education'
          age_int   = 'Age at Interview'
          passive   = 'Passive Smoking'
          bmi       = 'Body Mass Index'
          alc       = 'Alcohol Drinking'
          sulfates  = 'Sulfate Particles';
    where west in (0,1) and sex eq 1;
```

```
    title1 'Table3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Lung Cancer Related Death for the
Sulfate Particles';
    title3 '            Ever-smokers in Men ';

proc phreg data=sulf_e nosummary;
    model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                              edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          sulfates = 'Sulfate Particles';
    where west in (0,1) ;

    title1 'Table3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Cardiopulmonary Death for the Sulfate
Particles';
    title3 '            Ever-smokers';

proc phreg data=sulf_e nosummary;
    model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                              edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
```

```
        alc      = 'Alcohol Drinking'
        sulfates = 'Sulfate Particles';
   where west in (0,1) and sex eq 2 ;


   title1 'Table3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
   title2 'Intervals) by Cardiopulmonary Death for the Sulfate
Particles';
   title3 '              Ever-smokers in Women ';

proc phreg data=sulf_e nosummary;
   model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                         edulow indusexp bmi alc sulfates / rl;
   strata age_int (25 to 105 by 5) sex racecat;
   format sex sex. racecat race. ;
   label curcig    = 'Current Smoker'
         smkcpd    = 'Current cigarettes per day'
         smkcyr    = 'Current years smoke'
         xsmkcpd   = 'Former cigarettes per day'
         xsmkcyr   = 'Former years smoked'
         evpconly  = 'Pipe/cigar smoker'
         indusexp  = 'Occupational exposure'
         edulow    = 'Less than high school education'
         age_int   = 'Age at Interview'
         passive   = 'Passive Smoking'
         bmi       = 'Body Mass Index'
         alc       = 'Alcohol Drinking'
         sulfates  = 'Sulfate Particles';
   where west in (0,1) and sex eq 1;


   title1 'Table3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
   title2 'Intervals) by Cardiopulmonary Death for the Sulfate
Particles';
   title3 '              Ever-smokers in Men ';

 run;


* ACS_tab3.out;
```

```
/****************************
*                          *
*    ACS Sensitivity Phase:  *
*                          *
*    New derdata with --     *
*                          *
*    1.Female Deaths to 89;  *
*    2.Female Former Smokers *
*                          *
*    ACS Study paper (1995)  *
*    --  Table 2 Covariance  *
*                          *.
****************************/

libname acs '/home/yuanli/acss/';
libname her './';

options nocenter ps=64 ls=80 obs=max;

proc format;
     value dead 1 = 'Alive'
                0 = 'Dead'
                ;
     value sex  1 = 'Male'
                2 = 'Female'
                ;
     value race 1 = 'White'
                2 = 'Black'
                3 = 'Other'
                ;
     value ind  0 = 'No.'
                1 = 'Yes'
                ;

data sulf; set acs.dern;

  if flagd = 0 and sulfd = 0 ;

  sulfates = meansulf/19.9;
  smkcpd20 = smkcpd/20;
  smkcyr25 = smkcyr/25;

  if cencomb = 0 or cenasma = 0 then cencoma = 0; else cencoma =
1;

/*
proc phreg data=sulf nosummary covout outest=her.covall;
   model fail*cenall(1) = curcig smkcpd20 smkcyr25 evpconly
xsmkcpd xsmkcyr passive
                          edulow indusexp bmi alc sulfates / rl;
```

```
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd20 = 'Current cigarettes 20 per day'
          smkcyr25 = 'Current 25 years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          sulfates = 'Sulfate Particles';
    where west in (0,1);
    title1 'Table2c: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by All Cause of Death for the Sulfate
Particles';
    title3 '-- with the Female new subcohort';

proc phreg data=sulf nosummary covout outest=her.covlung;
    model fail*cen62(1) = curcig smkcpd20 smkcyr25 evpconly
xsmkcpd xsmkcyr passive
                          edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd20 = 'Current cigarettes 20 per day'
          smkcyr25 = 'Current 25 years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          sulfates = 'Sulfate Particles';
    where west in (0,1);
    title1 'Table2c: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Lung Cancer Related Death for the
Current Smoker';
    title3 '-- with the Female new subcohort';

proc phreg data=sulf nosummary covout outest=her.covcar;
    model fail*cencomb(1) = curcig smkcpd20 smkcyr25 evpconly
```

```
     xsmkcpd xsmkcyr passive
                               edulow indusexp bmi alc sulfates / rl;
        strata age_int (25 to 105 by 5) sex racecat;
        format sex sex. racecat race. ;
        label curcig   = 'Current Smoker'
              smkcpd20 = 'Current cigarettes 20 per day'
              smkcyr25 = 'Current 25 years smoke'
              xsmkcpd  = 'Former cigarettes per day'
              xsmkcyr  = 'Former years smoked'
              evpconly = 'Pipe/cigar smoker'
              indusexp = 'Occupational exposure'
              edulow   = 'Less than high school education'
              age_int  = 'Age at Interview'
              passive  = 'Passive Smoking'
              bmi      = 'Body Mass Index'
              alc      = 'Alcohol Drinking'
              sulfates = 'Sulfate Particles';
        where west in (0,1);
        title1 'Table2c: Adjusted Mortality Risk Ratios (and 95%
     Confidence';
        title2 'Intervals) by Cardiopulmonary Death for the Current
     Smoker';
        title3 '-- with the Female new subcohort';

     proc phreg data=sulf nosummary covout outest=her.covoth;
        model fail*cenrest(1) = curcig smkcpd20 smkcyr25 evpconly
     xsmkcpd xsmkcyr passive
                               edulow indusexp bmi alc sulfates / rl;
        strata age_int (25 to 105 by 5) sex racecat;
        format sex sex. racecat race. ;
        label curcig   = 'Current Smoker'
              smkcpd20 = 'Current cigarettes 20 per day'
              smkcyr25 = 'Current 25 years smoke'
              xsmkcpd  = 'Former cigarettes per day'
              xsmkcyr  = 'Former years smoked'
              evpconly = 'Pipe/cigar smoker'
              indusexp = 'Occupational exposure'
              edulow   = 'Less than high school education'
              age_int  = 'Age at Interview'
              passive  = 'Passive Smoking'
              bmi      = 'Body Mass Index'
              alc      = 'Alcohol Drinking'
              sulfates = 'Sulfate Particles';
        where west in (0,1);
        title1 'Table2c: Adjusted Mortality Risk Ratios (and 95%
     Confidence';
        title2 'Intervals) by All Other Death for the Current Smoker';
        title3 '-- with the Female new subcohort';
     run;
```

```
proc print data=her.covall;
    title1 'Covariance Matrix for All Causes of Death in ACS
Study';
    title2 '-- with the Female new subcohort';

proc print data=her.covcar;
    title1 'Covariance Matrix for Cardiopulmonary Death in ACS
Study';
    title2 '-- with the Female new subcohort';

proc print data=her.covlung;
    title1 'Covariance Matrix for Lung Cancer Death in ACS Study';
    title2 '-- with the Female new subcohort';

proc print data=her.covoth;
    title1 'Covariance Matrix for All Other Death in ACS Study';
    title2 '-- with the Female new subcohort';
 run;   */

proc phreg data=sulf nosummary covout outest=her.covcara;
    model fail*cencoma(1) = curcig smkcpd20 smkcyr25 evpconly
xsmkcpd xsmkcyr passive
                                edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig    = 'Current Smoker'
          smkcpd20 = 'Current cigarettes 20 per day'
          smkcyr25 = 'Current 25 years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          sulfates = 'Sulfate Particles';
    where west in (0,1);
    title1 'Table2c: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Cardiopulmonary+Asthma Death for the
Current Smoker';
    title3 '-- with the Female new subcohort';

proc print data=her.covcara;
    title1 'Covariance Matrix for Cardiopulmonary+Asthma Death in
ACS Study';
    title2 '-- with the Female new subcohort';
run;
```

Output 3a:

Original Data

Table3: Adjusted Mortality Risk Ratios (and 95% Confidence
Intervals) by All Cause of Death for the Sulfate Particles

The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	744467.416	739017.328	5450.088 with 12 DF (p=0.0001)
Score	.	.	5969.967 with 12 DF (p=0.0001)
Wald	.	.	5734.594 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.297361	0.04478	44.08867	0.0001
EVPCONLY	1	0.226345	0.02413	87.95760	0.0001
SMKCPD	1	0.011719	0.0007716	230.67138	0.0001
XSMKCPD	1	0.005072	0.0005337	90.32437	0.0001
SMKCYR	1	0.007760	0.0009304	69.56341	0.0001
XSMKCYR	1	0.012802	0.0004866	692.22879	0.0001
PASSIVE	1	0.001148	0.00146	0.62168	0.4304
EDULOW	1	0.249379	0.01238	405.59584	0.0001
INDUSEXP	1	0.035682	0.01282	7.75116	0.0054
BMI	1	-0.005508	0.00141	15.18944	0.0001
ALC	1	-0.016057	0.00264	37.08966	0.0001
SULFATES	1	0.141239	0.03010	22.01207	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.346	1.233	1.470	Current Smoker
EVPCONLY	1.254	1.196	1.315	Pipe/cigar smoker
SMKCPD	1.012	1.010	1.013	Current cigarettes per day
XSMKCPD	1.005	1.004	1.006	Former cigarettes per day
SMKCYR	1.008	1.006	1.010	Current years smoke
XSMKCYR	1.013	1.012	1.014	Former years smoked
PASSIVE	1.001	0.998	1.004	Passive Smoking
EDULOW	1.283	1.252	1.315	Less than high school education
INDUSEXP	1.036	1.011	1.063	Occupational exposure
BMI	0.995	0.992	0.997	Body Mass Index
ALC	0.984	0.979	0.989	Alcohol Drinking
SULFATES	1.152	1.086	1.222	Sulfate Particles

Table3: Adjusted Mortality Risk Ratios (and 95% Confidence
Intervals) by All Cause of Death for the Sulfate Particles
in Women

The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	266322.047	264670.625	1651.422 with 11 DF (p=0.0001)
Score	.	.	1918.961 with 11 DF (p=0.0001)
Wald	.	.	1836.258 with 11 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.152727	0.06876	4.93330	0.0263
EVPCONLY	0	0	.	.	.
SMKCPD	1	0.017936	0.00147	148.55157	0.0001
XSMKCPD	1	0.010189	0.00144	49.81994	0.0001
SMKCYR	1	0.007158	0.00152	22.07785	0.0001
XSMKCYR	1	0.008680	0.00112	60.59875	0.0001
PASSIVE	1	-0.001396	0.00264	0.28012	0.5966
EDULOW	1	0.232260	0.02089	123.60320	0.0001
INDUSEXP	1	0.064082	0.03072	4.35036	0.0370
BMI	1	-0.002685	0.00203	1.74967	0.1859
ALC	1	-0.036106	0.00685	27.75581	0.0001
SULFATES	1	0.162620	0.05035	10.43145	0.0012

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.165	1.018	1.333	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	1.018	1.015	1.021	Current cigarettes per day
XSMKCPD	1.010	1.007	1.013	Former cigarettes per day
SMKCYR	1.007	1.004	1.010	Current years smoke
XSMKCYR	1.009	1.007	1.011	Former years smoked
PASSIVE	0.999	0.993	1.004	Passive Smoking
EDULOW	1.261	1.211	1.314	Less than high school education
INDUSEXP	1.066	1.004	1.132	Occupational exposure
BMI	0.997	0.993	1.001	Body Mass Index
ALC	0.965	0.952	0.978	Alcohol Drinking
SULFATES	1.177	1.066	1.299	Sulfate Particles

Table3: Adjusted Mortality Risk Ratios (and 95% Confidence
Intervals) by All Cause of Death for the Sulfate Particles
            in Men
The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	478145.369	474264.098	3881.270 with 12 DF (p=0.0001)
Score	.	.	4136.931 with 12 DF (p=0.0001)
Wald	.	.	3951.348 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.456720	0.06166	54.86935	0.0001
EVPCONLY	1	0.255633	0.02518	103.06638	0.0001
SMKCPD	1	0.008839	0.0009191	92.49186	0.0001
XSMKCPD	1	0.004602	0.0005806	62.81946	0.0001
SMKCYR	1	0.006760	0.00122	30.80999	0.0001
XSMKCYR	1	0.014044	0.0005579	633.65072	0.0001
PASSIVE	1	0.001652	0.00175	0.88905	0.3457
EDULOW	1	0.249743	0.01548	260.32740	0.0001
INDUSEXP	1	0.029809	0.01411	4.46085	0.0347
BMI	1	-0.008905	0.00197	20.48636	0.0001
ALC	1	-0.012006	0.00285	17.74509	0.0001
SULFATES	1	0.126380	0.03757	11.31587	0.0008

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and 95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.579	1.399	1.782	Current Smoker
EVPCONLY	1.291	1.229	1.357	Pipe/cigar smoker
SMKCPD	1.009	1.007	1.011	Current cigarettes per day
XSMKCPD	1.005	1.003	1.006	Former cigarettes per day
SMKCYR	1.007	1.004	1.009	Current years smoke
XSMKCYR	1.014	1.013	1.015	Former years smoked
PASSIVE	1.002	0.998	1.005	Passive Smoking
EDULOW	1.284	1.245	1.323	Less than high school education
INDUSEXP	1.030	1.002	1.059	Occupational exposure
BMI	0.991	0.987	0.995	Body Mass Index
ALC	0.988	0.983	0.994	Alcohol Drinking
SULFATES	1.135	1.054	1.221	Sulfate Particles

Table3: Adjusted Mortality Risk Ratios (and 95% Confidence
Intervals) by Lung Cancer Related Death for the Sulfate Particles

The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	69780.314	65223.146	4557.168 with 12 DF (p=0.0001)
Score	.	.	5105.261 with 12 DF (p=0.0001)
Wald	.	.	3453.342 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.951485	0.14197	44.91789	0.0001
EVPCONLY	1	1.235356	0.11783	109.92502	0.0001
SMKCPD	1	0.021890	0.00176	155.21504	0.0001
XSMKCPD	1	0.015410	0.00162	91.03174	0.0001
SMKCYR	1	0.035436	0.00292	147.05165	0.0001
XSMKCYR	1	0.056494	0.00182	965.91483	0.0001
PASSIVE	1	0.004316	0.00392	1.21457	0.2704
EDULOW	1	0.408665	0.04064	101.13842	0.0001
INDUSEXP	1	0.036601	0.03987	0.84279	0.3586
BMI	1	-0.066315	0.00509	169.42136	0.0001
ALC	1	0.004117	0.00665	0.38294	0.5360
SULFATES	1	0.307335	0.10160	9.14955	0.0025

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	2.590	1.961	3.420	Current Smoker
EVPCONLY	3.440	2.730	4.333	Pipe/cigar smoker
SMKCPD	1.022	1.019	1.026	Current cigarettes per day
XSMKCPD	1.016	1.012	1.019	Former cigarettes per day
SMKCYR	1.036	1.030	1.042	Current years smoke
XSMKCYR	1.058	1.054	1.062	Former years smoked
PASSIVE	1.004	0.997	1.012	Passive Smoking
EDULOW	1.505	1.390	1.630	Less than high school education
INDUSEXP	1.037	0.959	1.122	Occupational exposure
BMI	0.936	0.927	0.945	Body Mass Index
ALC	1.004	0.991	1.017	Alcohol Drinking
SULFATES	1.360	1.114	1.659	Sulfate Particles

Table3: Adjusted Mortality Risk Ratios (and 95% Confidence
Intervals) by Lung Cancer Related Death for the Sulfate Particles
in Women

The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	19672.991	18231.600	1441.391 with 11 DF (p=0.0001)
Score	.	.	1955.517 with 11 DF (p=0.0001)
Wald	.	.	1221.740 with 11 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.807161	0.22298	13.10337	0.0003
EVPCONLY	0	0	.	.	.
SMKCPD	1	0.033364	0.00337	97.79312	0.0001
XSMKCPD	1	0.029320	0.00391	56.32602	0.0001
SMKCYR	1	0.028419	0.00486	34.21374	0.0001
XSMKCYR	1	0.043196	0.00375	133.00705	0.0001
PASSIVE	1	-0.000907	0.00766	0.01403	0.9057
EDULOW	1	0.333520	0.08694	14.71501	0.0001
INDUSEXP	1	0.091616	0.10639	0.74161	0.3891
BMI	1	-0.053602	0.00871	37.87799	0.0001
ALC	1	0.000908	0.01676	0.00293	0.9568
SULFATES	1	0.159168	0.19452	0.66953	0.4132

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	2.242	1.448	3.470	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	1.034	1.027	1.041	Current cigarettes per day
XSMKCPD	1.030	1.022	1.038	Former cigarettes per day
SMKCYR	1.029	1.019	1.039	Current years smoke
XSMKCYR	1.044	1.037	1.052	Former years smoked
PASSIVE	0.999	0.984	1.014	Passive Smoking
EDULOW	1.396	1.177	1.655	Less than high school education
INDUSEXP	1.096	0.890	1.350	Occupational exposure
BMI	0.948	0.932	0.964	Body Mass Index
ALC	1.001	0.969	1.034	Alcohol Drinking
SULFATES	1.173	0.801	1.717	Sulfate Particles

Table3: Adjusted Mortality Risk Ratios (and 95% Confidence
Intervals) by Lung Cancer Related Death for the Sulfate Particles
in Men

The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	50107.324	46943.571	3163.753 with 12 DF (p=0.0001)
Score			3353.250 with 12 DF (p=0.0001)
Wald			2270.189 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	1.161542	0.18892	37.80255	0.0001
EVPCONLY	1	1.398197	0.13039	114.99217	0.0001
SMKCPD	1	0.017387	0.00208	70.18017	0.0001
XSMKCPD	1	0.014166	0.00181	61.55163	0.0001
SMKCYR	1	0.037316	0.00373	99.83078	0.0001
XSMKCYR	1	0.061556	0.00225	748.43496	0.0001
PASSIVE	1	0.005352	0.00456	1.37495	0.2410
EDULOW	1	0.410173	0.04635	78.30779	0.0001
INDUSEXP	1	0.023499	0.04297	0.29905	0.5845
BMI	1	-0.072767	0.00622	136.74512	0.0001
ALC	1	0.005394	0.00724	0.55534	0.4561
SULFATES	1	0.359602	0.11915	9.10851	0.0025

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	3.195	2.206	4.627	Current Smoker
EVPCONLY	4.048	3.135	5.227	Pipe/cigar smoker
SMKCPD	1.018	1.013	1.022	Current cigarettes per day
XSMKCPD	1.014	1.011	1.018	Former cigarettes per day
SMKCYR	1.038	1.030	1.046	Current years smoke
XSMKCYR	1.063	1.059	1.068	Former years smoked
PASSIVE	1.005	0.996	1.014	Passive Smoking
EDULOW	1.507	1.376	1.650	Less than high school education
INDUSEXP	1.024	0.941	1.114	Occupational exposure
BMI	0.930	0.919	0.941	Body Mass Index
ALC	1.005	0.991	1.020	Alcohol Drinking
SULFATES	1.433	1.134	1.810	Sulfate Particles

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Table3: Adjusted Mortality Risk Ratios (and 95% Confidence
Intervals) by Cardiopulmonary Death for the Sulfate Particles

The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	357444.550	354830.631	2613.918 with 12 DF (p=0.0001)
Score	.	.	2785.861 with 12 DF (p=0.0001)
Wald	.	.	2708.368 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.622048	0.06697	86.28461	0.0001
EVPCONLY	1	0.244623	0.03286	55.40463	0.0001
SMKCPD	1	0.007175	0.00118	36.73418	0.0001
XSMKCPD	1	0.004718	0.0007518	39.37684	0.0001
SMKCYR	1	0.002367	0.00136	3.02777	0.0819
XSMKCYR	1	0.013060	0.0006657	384.89386	0.0001
PASSIVE	1	0.001661	0.00219	0.57671	0.4476
EDULOW	1	0.292244	0.01698	296.17376	0.0001
INDUSEXP	1	0.032133	0.01831	3.08088	0.0792
BMI	1	0.001377	0.00203	0.46148	0.4969
ALC	1	-0.040877	0.00425	92.69753	0.0001
SULFATES	1	0.231590	0.04284	29.22531	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.863	1.634	2.124	Current Smoker
EVPCONLY	1.277	1.197	1.362	Pipe/cigar smoker
SMKCPD	1.007	1.005	1.010	Current cigarettes per day
XSMKCPD	1.005	1.003	1.006	Former cigarettes per day
SMKCYR	1.002	1.000	1.005	Current years smoke
XSMKCYR	1.013	1.012	1.014	Former years smoked
PASSIVE	1.002	0.997	1.006	Passive Smoking
EDULOW	1.339	1.296	1.385	Less than high school education
INDUSEXP	1.033	0.996	1.070	Occupational exposure
BMI	1.001	0.997	1.005	Body Mass Index
ALC	0.960	0.952	0.968	Alcohol Drinking
SULFATES	1.261	1.159	1.371	Sulfate Particles

Table3: Adjusted Mortality Risk Ratios (and 95% Confidence
Intervals) by Cardiopulmonary Death for the Sulfate Particles
in Women
The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	111859.648	110950.350	909.298 with 11 DF (p=0.0001)
Score			1063.086 with 11 DF (p=0.0001)
Wald			1014.042 with 11 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.461468	0.10624	18.86749	0.0001
EVPCONLY	0	0	.	.	.
SMKCPD	1	0.018229	0.00237	59.07252	0.0001
XSMKCPD	1	0.008118	0.00245	11.02104	0.0009
SMKCYR	1	0.002223	0.00228	0.95409	0.3287
XSMKCYR	1	0.009834	0.00170	33.39941	0.0001
PASSIVE	1	0.004656	0.00431	1.16862	0.2797
EDULOW	1	0.317104	0.02922	117.76507	0.0001
INDUSEXP	1	0.022198	0.05019	0.19558	0.6583
BMI	1	0.000118	0.00306	0.00148	0.9693
ALC	1	-0.068844	0.01212	32.24735	0.0001
SULFATES	1	0.331753	0.07566	19.22434	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.586	1.288	1.954	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	1.018	1.014	1.023	Current cigarettes per day
XSMKCPD	1.008	1.003	1.013	Former cigarettes per day
SMKCYR	1.002	0.998	1.007	Current years smoke
XSMKCYR	1.010	1.007	1.013	Former years smoked
PASSIVE	1.005	0.996	1.013	Passive Smoking
EDULOW	1.373	1.297	1.454	Less than high school education
INDUSEXP	1.022	0.927	1.128	Occupational exposure
BMI	1.000	0.994	1.006	Body Mass Index
ALC	0.933	0.912	0.956	Alcohol Drinking
SULFATES	1.393	1.201	1.616	Sulfate Particles

Table3: Adjusted Mortality Risk Ratios (and 95% Confidence
Intervals) by Cardiopulmonary Death for the Sulfate Particles
in Men

The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	245584.902	243832.934	1751.968 with 12 DF (p=0.0001)
Score	.	.	1819.157 with 12 DF (p=0.0001)
Wald	.	.	1766.290 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.661239	0.08858	55.72218	0.0001
EVPCONLY	1	0.244300	0.03399	51.65221	0.0001
SMKCPD	1	0.004117	0.00139	8.82553	0.0030
XSMKCPD	1	0.004033	0.0007995	25.44359	0.0001
SMKCYR	1	0.002744	0.00173	2.50355	0.1136
XSMKCYR	1	0.013806	0.0007463	342.19903	0.0001
PASSIVE	1	0.000960	0.00254	0.14226	0.7060
EDULOW	1	0.274640	0.02103	170.56520	0.0001
INDUSEXP	1	0.035998	0.01970	3.33819	0.0677
BMI	1	0.002076	0.00272	0.58426	0.4446
ALC	1	-0.036108	0.00452	63.68153	0.0001
SULFATES	1	0.180345	0.05198	12.03882	0.0005

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.937	1.628	2.304	Current Smoker
EVPCONLY	1.277	1.194	1.365	Pipe/cigar smoker
SMKCPD	1.004	1.001	1.007	Current cigarettes per day
XSMKCPD	1.004	1.002	1.006	Former cigarettes per day
SMKCYR	1.003	0.999	1.006	Current years smoke
XSMKCYR	1.014	1.012	1.015	Former years smoked
PASSIVE	1.001	0.996	1.006	Passive Smoking
EDULOW	1.316	1.263	1.371	Less than high school education
INDUSEXP	1.037	0.997	1.077	Occupational exposure
BMI	1.002	0.997	1.007	Body Mass Index
ALC	0.965	0.956	0.973	Alcohol Drinking
SULFATES	1.198	1.082	1.326	Sulfate Particles

Table3: Adjusted Mortality Risk Ratios (and 95% Confidence Intervals) by All Cause of Death for the Sulfate Particles Never-smokers

The PHREG Procedure

Data Set: WORK.SULF_N
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	219244.365	219077.445	166.920 with 6 DF (p=0.0001)
Score			167.776 with 6 DF (p=0.0001)
Wald			167.884 with 6 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0			
EVPCONLY	0	0			
SMKCPD	0	0			
XSMKCPD	0	0			
SMKCYR	0	0			
XSMKCYR	0	0			
PASSIVE	1	0.001421	0.00376	0.14275	0.7056
EDULOW	1	0.223972	0.02099	113.88590	0.0001
INDUSEXP	1	0.007887	0.02706	0.08492	0.7707
BMI	1	0.006155	0.00223	7.59857	0.0058
ALC	1	-0.033732	0.00777	18.85208	0.0001
SULFATES	1	0.163417	0.05101	10.26195	0.0014

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and 95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG				Current Smoker
EVPCONLY				Pipe/cigar smoker
SMKCPD				Current cigarettes per day
XSMKCPD				Former cigarettes per day
SMKCYR				Current years smoke
XSMKCYR				Former years smoked
PASSIVE	1.001	0.994	1.009	Passive Smoking
EDULOW	1.251	1.201	1.304	Less than high school education
INDUSEXP	1.008	0.956	1.063	Occupational exposure
BMI	1.006	1.002	1.011	Body Mass Index
ALC	0.967	0.952	0.982	Alcohol Drinking
SULFATES	1.178	1.065	1.301	Sulfate Particles

Table3: Adjusted Mortality Risk Ratios (and 95% Confidence
Intervals) by All Cause of Death for the Sulfate Particles
Never-smokers in Women

The PHREG Procedure

Data Set: WORK.SULF_N
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	141276.522	141183.527	92.995 with 6 DF (p=0.0001)
Score			90.834 with 6 DF (p=0.0001)
Wald			91.254 with 6 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	0.003857	0.00465	0.68698	0.4072
EDULOW	1	0.186555	0.02595	51.68901	0.0001
INDUSEXP	1	0.058579	0.04411	1.76388	0.1841
BMI	1	0.002916	0.00260	1.25533	0.2625
ALC	1	-0.056983	0.01354	17.71837	0.0001
SULFATES	1	0.184809	0.06543	7.97702	0.0047

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and 95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	.	.	.	Current cigarettes per day
XSMKCPD	.	.	.	Former cigarettes per day
SMKCYR	.	.	.	Current years smoke
XSMKCYR	.	.	.	Former years smoked
PASSIVE	1.004	0.995	1.013	Passive Smoking
EDULOW	1.205	1.145	1.268	Less than high school education
INDUSEXP	1.060	0.973	1.156	Occupational exposure
BMI	1.003	0.998	1.008	Body Mass Index
ALC	0.945	0.920	0.970	Alcohol Drinking
SULFATES	1.203	1.058	1.368	Sulfate Particles

Table3: Adjusted Mortality Risk Ratios (and 95% Confidence
Intervals) by All Cause of Death for the Sulfate Particles
Never-smokers in Men

The PHREG Procedure

Data Set: WORK.SULF_N
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	77967.843	77873.348	94.495 with 6 DF (p=0.0001)
Score	.	.	97.913 with 6 DF (p=0.0001)
Wald	.	.	97.544 with 6 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	-0.003587	0.00639	0.31523	0.5745
EDULOW	1	0.295769	0.03556	69.16637	0.0001
INDUSEXP	1	-0.028119	0.03419	0.67642	0.4108
BMI	1	0.015555	0.00440	12.48400	0.0004
ALC	1	-0.021560	0.00924	5.44518	0.0196
SULFATES	1	0.133129	0.08157	2.66374	0.1027

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	.	.	.	Current cigarettes per day
XSMKCPD	.	.	.	Former cigarettes per day
SMKCYR	.	.	.	Current years smoke
XSMKCYR	.	.	.	Former years smoked
PASSIVE	0.996	0.984	1.009	Passive Smoking
EDULOW	1.344	1.254	1.441	Less than high school education
INDUSEXP	0.972	0.909	1.040	Occupational exposure
BMI	1.016	1.007	1.024	Body Mass Index
ALC	0.979	0.961	0.997	Alcohol Drinking
SULFATES	1.142	0.974	1.340	Sulfate Particles

Table3: Adjusted Mortality Risk Ratios (and 95% Confidence
Intervals) by Lung Cancer Related Death for the Sulfate Particles
             Never-smokers
The PHREG Procedure

Data Set: WORK.SULF_N
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	4462.097	4439.410	22.688 with 6 DF (p=0.0009)
Score	.	.	22.462 with 6 DF (p=0.0010)
Wald	.	.	22.636 with 6 DF (p=0.0009)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	0.004722	0.02475	0.03639	0.8487
EDULOW	1	0.355026	0.15496	5.24916	0.0220
INDUSEXP	1	0.360148	0.17482	4.24408	0.0394
BMI	1	-0.061575	0.01722	12.78509	0.0003
ALC	1	-0.031798	0.05490	0.33550	0.5624
SULFATES	1	0.412453	0.36806	1.25575	0.2625

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	.	.	.	Current cigarettes per day
XSMKCPD	.	.	.	Former cigarettes per day
SMKCYR	.	.	.	Current years smoke
XSMKCYR	.	.	.	Former years smoked
PASSIVE	1.005	0.957	1.055	Passive Smoking
EDULOW	1.426	1.053	1.932	Less than high school education
INDUSEXP	1.434	1.018	2.019	Occupational exposure
BMI	0.940	0.909	0.973	Body Mass Index
ALC	0.969	0.870	1.079	Alcohol Drinking
SULFATES	1.511	0.734	3.108	Sulfate Particles

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Table3: Adjusted Mortality Risk Ratios (and 95% Confidence
Intervals) by Lung Cancer Related Death for the Sulfate Particles
Never-smokers in Women

The PHREG Procedure

Data Set: WORK.SULF_N
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	3128.366	3114.715	13.652 with 6 DF (p=0.0338)
Score	.	.	12.901 with 6 DF (p=0.0446)
Wald	.	.	13.097 with 6 DF (p=0.0415)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	-0.001676	0.03036	0.00305	0.9560
EDULOW	1	0.234628	0.19173	1.49751	0.2211
INDUSEXP	1	0.231220	0.27282	0.71830	0.3967
BMI	1	-0.065333	0.02004	10.63228	0.0011
ALC	1	-0.011611	0.07314	0.02520	0.8739
SULFATES	1	0.474699	0.45429	1.09186	0.2961

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	.	.	.	Current cigarettes per day
XSMKCPD	.	.	.	Former cigarettes per day
SMKCYR	.	.	.	Current years smoke
XSMKCYR	.	.	.	Former years smoked
PASSIVE	0.998	0.941	1.060	Passive Smoking
EDULOW	1.264	0.868	1.841	Less than high school education
INDUSEXP	1.260	0.738	2.151	Occupational exposure
BMI	0.937	0.901	0.974	Body Mass Index
ALC	0.988	0.856	1.141	Alcohol Drinking
SULFATES	1.608	0.660	3.916	Sulfate Particles

Table3: Adjusted Mortality Risk Ratios (and 95% Confidence
Intervals) by Lung Cancer Related Death for the Sulfate Particles
Never-smokers in Men

The PHREG Procedure

Data Set: WORK.SULF_N
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	1333.731	1322.377	11.354 with 6 DF (p=0.0780)
Score	.	.	12.068 with 6 DF (p=0.0605)
Wald	.	.	11.901 with 6 DF (p=0.0642)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	0.019937	0.04286	0.21635	0.6418
EDULOW	1	0.592010	0.26458	5.00666	0.0252
INDUSEXP	1	0.437232	0.23413	3.48737	0.0618
BMI	1	-0.047427	0.03429	1.91356	0.1666
ALC	1	-0.056325	0.08302	0.46034	0.4975
SULFATES	1	0.307581	0.62806	0.23983	0.6243

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	.	.	.	Current cigarettes per day
XSMKCPD	.	.	.	Former cigarettes per day
SMKCYR	.	.	.	Current years smoke
XSMKCYR	.	.	.	Former years smoked
PASSIVE	1.020	0.938	1.110	Passive Smoking
EDULOW	1.808	1.076	3.036	Less than high school education
INDUSEXP	1.548	0.979	2.450	Occupational exposure
BMI	0.954	0.892	1.020	Body Mass Index
ALC	0.945	0.803	1.112	Alcohol Drinking
SULFATES	1.360	0.397	4.658	Sulfate Particles

Table3: Adjusted Mortality Risk Ratios (and 95% Confidence
Intervals) by Cardiopulmonary Death for the Sulfate Particles
Never-smokers

The PHREG Procedure

Data Set: WORK.SULF_N
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	106712.082	106535.194	176.888 with 6 DF (p=0.0001)
Score	.	.	176.766 with 6 DF (p=0.0001)
Wald	.	.	177.133 with 6 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	0.010235	0.00560	3.33441	0.0678
EDULOW	1	0.289471	0.02810	106.14105	0.0001
INDUSEXP	1	-0.037928	0.03891	0.95015	0.3297
BMI	1	0.010172	0.00318	10.23480	0.0014
ALC	1	-0.051334	0.01184	18.80280	0.0001
SULFATES	1	0.318727	0.07150	19.87153	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	.	.	.	Current cigarettes per day
XSMKCPD	.	.	.	Former cigarettes per day
SMKCYR	.	.	.	Current years smoke
XSMKCYR	.	.	.	Former years smoked
PASSIVE	1.010	0.999	1.021	Passive Smoking
EDULOW	1.336	1.264	1.411	Less than high school education
INDUSEXP	0.963	0.892	1.039	Occupational exposure
BMI	1.010	1.004	1.017	Body Mass Index
ALC	0.950	0.928	0.972	Alcohol Drinking
SULFATES	1.375	1.196	1.582	Sulfate Particles

Table3: Adjusted Mortality Risk Ratios (and 95% Confidence
Intervals) by Cardiopulmonary Death for the Sulfate Particles
            Never-smokers in Women

The PHREG Procedure

Data Set: WORK.SULF_N
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	64190.517	64076.973	113.544 with 6 DF (p=0.0001)
Score	.	.	107.832 with 6 DF (p=0.0001)
Wald	.	.	109.147 with 6 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	0.014617	0.00731	3.99725	0.0456
EDULOW	1	0.261147	0.03523	54.93577	0.0001
INDUSEXP	1	-0.002777	0.07018	0.00157	0.9684
BMI	1	0.002921	0.00381	0.58786	0.4432
ALC	1	-0.112273	0.02378	22.29917	0.0001
SULFATES	1	0.373289	0.09464	15.55726	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	.	.	.	Current cigarettes per day
XSMKCPD	.	.	.	Former cigarettes per day
SMKCYR	.	.	.	Current years smoke
XSMKCYR	.	.	.	Former years smoked
PASSIVE	1.015	1.000	1.029	Passive Smoking
EDULOW	1.298	1.212	1.391	Less than high school education
INDUSEXP	0.997	0.869	1.144	Occupational exposure
BMI	1.003	0.995	1.010	Body Mass Index
ALC	0.894	0.853	0.936	Alcohol Drinking
SULFATES	1.453	1.207	1.749	Sulfate Particles

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Table3: Adjusted Mortality Risk Ratios (and 95% Confidence
Intervals) by Cardiopulmonary Death for the Sulfate Particles
Never-smokers in Men
The PHREG Procedure

Data Set: WORK.SULF_N
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	42521.565	42431.999	89.566 with 6 DF (p=0.0001)
Score	.	.	92.950 with 6 DF (p=0.0001)
Wald	.	.	92.675 with 6 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	0.003690	0.00873	0.17848	0.6727
EDULOW	1	0.335106	0.04635	52.26692	0.0001
INDUSEXP	1	-0.058560	0.04675	1.56875	0.2104
BMI	1	0.027536	0.00587	22.01570	0.0001
ALC	1	-0.027828	0.01297	4.60070	0.0320
SULFATES	1	0.242659	0.10931	4.92785	0.0264

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	.	.	.	Current cigarettes per day
XSMKCPD	.	.	.	Former cigarettes per day
SMKCYR	.	.	.	Current years smoke
XSMKCYR	.	.	.	Former years smoked
PASSIVE	1.004	0.987	1.021	Passive Smoking
EDULOW	1.398	1.277	1.531	Less than high school education
INDUSEXP	0.943	0.861	1.034	Occupational exposure
BMI	1.028	1.016	1.040	Body Mass Index
ALC	0.973	0.948	0.998	Alcohol Drinking
SULFATES	1.275	1.029	1.579	Sulfate Particles

Table3: Adjusted Mortality Risk Ratios (and 95% Confidence
Intervals) by All Cause of Death for the Sulfate Particles
                Ever-smokers

The PHREG Procedure

Data Set: WORK.SULF_E
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

                Testing Global Null Hypothesis: BETA=0

| | Without | With | |
Criterion	Covariates	Covariates	Model Chi-Square
-2 LOG L	481785.502	478106.464	3679.038 with 12 DF (p=0.0001)
Score		.	3709.064 with 12 DF (p=0.0001)
Wald	.	.	3591.752 with 12 DF (p=0.0001)

                Analysis of Maximum Likelihood Estimates

| | | Parameter | Standard | Wald | Pr > |
Variable	DF	Estimate	Error	Chi-Square	Chi-Square
CURCIG	1	0.530036	0.05186	104.47710	0.0001
EVPCONLY	1	0.637443	0.03389	353.81975	0.0001
SMKCPD	1	0.010651	0.0007843	184.42744	0.0001
XSMKCPD	1	0.008170	0.0005770	200.50417	0.0001
SMKCYR	1	0.011705	0.00102	132.70043	0.0001
XSMKCYR	1	0.021780	0.0006943	984.07099	0.0001
PASSIVE	1	-0.000559	0.00159	0.12441	0.7243
EDULOW	1	0.234652	0.01544	230.82724	0.0001
INDUSEXP	1	0.046994	0.01459	10.36828	0.0013
BMI	1	-0.014104	0.00182	59.90862	0.0001
ALC	1	-0.012641	0.00279	20.48341	0.0001
SULFATES	1	0.130955	0.03730	12.32574	0.0004

                Analysis of Maximum Likelihood Estimates

                Conditional Risk Ratio and
                   95% Confidence Limits

| | Risk | | | |
Variable	Ratio	Lower	Upper	Label
CURCIG	1.699	1.535	1.881	Current Smoker
EVPCONLY	1.892	1.770	2.022	Pipe/cigar smoker
SMKCPD	1.011	1.009	1.012	Current cigarettes per day
XSMKCPD	1.008	1.007	1.009	Former cigarettes per day
SMKCYR	1.012	1.010	1.014	Current years smoke
XSMKCYR	1.022	1.021	1.023	Former years smoked
PASSIVE	0.999	0.996	1.003	Passive Smoking
EDULOW	1.264	1.227	1.303	Less than high school education
INDUSEXP	1.048	1.019	1.079	Occupational exposure
BMI	0.986	0.982	0.990	Body Mass Index
ALC	0.987	0.982	0.993	Alcohol Drinking
SULFATES	1.140	1.060	1.226	Sulfate Particles

Table3: Adjusted Mortality Risk Ratios (and 95% Confidence Intervals) by All Cause of Death for the Sulfate Particles Ever-smokers in Women

The PHREG Procedure

Data Set: WORK.SULF_E
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	106957.841	106194.982	
Score			762.859 with 11 DF (p=0.0001)
Wald			765.600 with 11 DF (p=0.0001)
			741.395 with 11 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.358525	0.08519	17.71022	0.0001
EVPCONLY	0	0	.	.	.
SMKCPD	1	0.016802	0.00151	124.46233	0.0001
XSMKCPD	1	0.012400	0.00154	65.13297	0.0001
SMKCYR	1	0.010156	0.00170	35.54910	0.0001
XSMKCYR	1	0.016891	0.00164	106.65056	0.0001
PASSIVE	1	-0.004452	0.00320	1.93492	0.1642
EDULOW	1	0.289211	0.03515	67.68283	0.0001
INDUSEXP	1	0.077401	0.04290	3.25471	0.0712
BMI	1	-0.011292	0.00325	12.03590	0.0005
ALC	1	-0.027519	0.00789	12.16517	0.0005
SULFATES	1	0.135632	0.07891	2.95463	0.0856

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and 95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.431	1.211	1.691	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	1.017	1.014	1.020	Current cigarettes per day
XSMKCPD	1.012	1.009	1.016	Former cigarettes per day
SMKCYR	1.010	1.007	1.014	Current years smoke
XSMKCYR	1.017	1.014	1.020	Former years smoked
PASSIVE	0.996	0.989	1.002	Passive Smoking
EDULOW	1.335	1.246	1.431	Less than high school education
INDUSEXP	1.080	0.993	1.175	Occupational exposure
BMI	0.989	0.982	0.995	Body Mass Index
ALC	0.973	0.958	0.988	Alcohol Drinking
SULFATES	1.145	0.981	1.337	Sulfate Particles

Table3: Adjusted Mortality Risk Ratios (and 95% Confidence
Intervals) by All Cause of Death for the Sulfate Particles
            Ever-smokers in Men

The PHREG Procedure

Data Set: WORK.SULF_E
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	374827.661	371853.941	2973.719 with 12 DF (p=0.0001)
Score	.	.	3015.315 with 12 DF (p=0.0001)
Wald	.	.	2916.706 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.650786	0.06768	92.46948	0.0001
EVPCONLY	1	0.672465	0.03652	339.15067	0.0001
SMKCPD	1	0.008146	0.0009267	77.27178	0.0001
XSMKCPD	1	0.007837	0.0006303	154.59892	0.0001
SMKCYR	1	0.011309	0.00130	76.03532	0.0001
XSMKCYR	1	0.022874	0.0007707	880.80351	0.0001
PASSIVE	1	0.000477	0.00183	0.06825	0.7939
EDULOW	1	0.218430	0.01722	160.93737	0.0001
INDUSEXP	1	0.044216	0.01552	8.11689	0.0044
BMI	1	-0.015951	0.00220	52.74477	0.0001
ALC	1	-0.010138	0.00299	11.51405	0.0007
SULFATES	1	0.127613	0.04234	9.08443	0.0026

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
    95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.917	1.679	2.189	Current Smoker
EVPCONLY	1.959	1.824	2.104	Pipe/cigar smoker
SMKCPD	1.008	1.006	1.010	Current cigarettes per day
XSMKCPD	1.008	1.007	1.009	Former cigarettes per day
SMKCYR	1.011	1.009	1.014	Current years smoke
XSMKCYR	1.023	1.022	1.025	Former years smoked
PASSIVE	1.000	0.997	1.004	Passive Smoking
EDULOW	1.244	1.203	1.287	Less than high school education
INDUSEXP	1.045	1.014	1.077	Occupational exposure
BMI	0.984	0.980	0.988	Body Mass Index
ALC	0.990	0.984	0.996	Alcohol Drinking
SULFATES	1.136	1.046	1.234	Sulfate Particles

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Table3: Adjusted Mortality Risk Ratios (and 95% Confidence
Intervals) by Lung Cancer Related Death for the Sulfate Particles
Ever-smokers

The PHREG Procedure

Data Set: WORK.SULF_E
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	61839.449	59159.869	2679.580 with 12 DF (p=0.0001)
Score	.	.	2636.669 with 12 DF (p=0.0001)
Wald	.	.	2162.835 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	1.268388	0.16282	60.68319	0.0001
EVPCONLY	1	1.767248	0.14478	149.00393	0.0001
SMKCPD	1	0.020804	0.00177	138.19485	0.0001
XSMKCPD	1	0.018125	0.00169	114.91906	0.0001
SMKCYR	1	0.041264	0.00314	173.08857	0.0001
XSMKCYR	1	0.068441	0.00252	737.65633	0.0001
PASSIVE	1	0.002649	0.00397	0.44525	0.5046
EDULOW	1	0.382007	0.04228	81.65331	0.0001
INDUSEXP	1	0.018158	0.04092	0.19692	0.6572
BMI	1	-0.067592	0.00533	160.98248	0.0001
ALC	1	0.005035	0.00668	0.56798	0.4511
SULFATES	1	0.298512	0.10572	7.97229	0.0047

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	3.555	2.584	4.892	Current Smoker
EVPCONLY	5.855	4.408	7.776	Pipe/cigar smoker
SMKCPD	1.021	1.017	1.025	Current cigarettes per day
XSMKCPD	1.018	1.015	1.022	Former cigarettes per day
SMKCYR	1.042	1.036	1.049	Current years smoke
XSMKCYR	1.071	1.066	1.076	Former years smoked
PASSIVE	1.003	0.995	1.010	Passive Smoking
EDULOW	1.465	1.349	1.592	Less than high school education
INDUSEXP	1.018	0.940	1.103	Occupational exposure
BMI	0.935	0.925	0.944	Body Mass Index
ALC	1.005	0.992	1.018	Alcohol Drinking
SULFATES	1.348	1.096	1.658	Sulfate Particles

Table3: Adjusted Mortality Risk Ratios (and 95% Confidence
Intervals) by Lung Cancer Related Death for the Sulfate Particles
            Ever-smokers in Women
The PHREG Procedure

Data Set: WORK.SULF_E
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

              Testing Global Null Hypothesis: BETA=0

                 Without   With
Criterion   Covariates   Covariates   Model Chi-Square

-2 LOG L   14851.100   14243.179   607.921 with 11 DF (p=0.0001)
Score   .   .   554.047 with 11 DF (p=0.0001)
Wald   .   .   459.346 with 11 DF (p=0.0001)

              Analysis of Maximum Likelihood Estimates

                        Parameter   Standard   Wald   Pr >
Variable   DF   Estimate   Error   Chi-Square   Chi-Square

CURCIG   1   1.624025   0.30555   28.25026   0.0001
EVPCONLY   0   0   .   .   .
SMKCPD   1   0.031515   0.00342   84.93334   0.0001
XSMKCPD   1   0.034835   0.00407   73.31744   0.0001
SMKCYR   1   0.038601   0.00560   47.59134   0.0001
XSMKCYR   1   0.071584   0.00631   128.50818   0.0001
PASSIVE   1   -0.003161   0.00792   0.15907   0.6900
EDULOW   1   0.318585   0.09760   10.65409   0.0011
INDUSEXP   1   0.079842   0.11557   0.47730   0.4896
BMI   1   -0.052038   0.00967   28.96327   0.0001
ALC   1   0.002875   0.01694   0.02878   0.8653
SULFATES   1   0.094843   0.21522   0.19420   0.6594

              Analysis of Maximum Likelihood Estimates

                 Conditional Risk Ratio and
                    95% Confidence Limits

              Risk
Variable   Ratio   Lower   Upper   Label

CURCIG   5.073   2.788   9.234   Current Smoker
EVPCONLY   .   .   .   Pipe/cigar smoker
SMKCPD   1.032   1.025   1.039   Current cigarettes per day
XSMKCPD   1.035   1.027   1.044   Former cigarettes per day
SMKCYR   1.039   1.028   1.051   Current years smoke
XSMKCYR   1.074   1.061   1.088   Former years smoked
PASSIVE   0.997   0.981   1.012   Passive Smoking
EDULOW   1.375   1.136   1.665   Less than high school education
INDUSEXP   1.083   0.864   1.358   Occupational exposure
BMI   0.949   0.931   0.967   Body Mass Index
ALC   1.003   0.970   1.037   Alcohol Drinking
SULFATES   1.099   0.721   1.676   Sulfate Particles

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Table3: Adjusted Mortality Risk Ratios (and 95% Confidence
Intervals) by Lung Cancer Related Death for the Sulfate Particles
Ever-smokers in Men

The PHREG Procedure

Data Set: WORK.SULF_E
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	46988.349	44876.655	2111.694 with 12 DF (p=0.0001)
Score	.	.	2133.508 with 12 DF (p=0.0001)
Wald	.	.	1734.484 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	1.268797	0.20143	39.67641	0.0001
EVPCONLY	1	1.655210	0.15275	117.41974	0.0001
SMKCPD	1	0.016982	0.00208	66.52089	0.0001
XSMKCPD	1	0.015364	0.00188	66.96111	0.0001
SMKCYR	1	0.040893	0.00386	112.21802	0.0001
XSMKCYR	1	0.067383	0.00276	595.23981	0.0001
PASSIVE	1	0.004489	0.00459	0.95646	0.3281
EDULOW	1	0.393820	0.04710	69.92257	0.0001
INDUSEXP	1	0.008369	0.04371	0.03666	0.8482
BMI	1	-0.073733	0.00632	135.90222	0.0001
ALC	1	0.006187	0.00726	0.72676	0.3939
SULFATES	1	0.363943	0.12135	8.99459	0.0027

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	3.557	2.396	5.278	Current Smoker
EVPCONLY	5.234	3.880	7.061	Pipe/cigar smoker
SMKCPD	1.017	1.013	1.021	Current cigarettes per day
XSMKCPD	1.015	1.012	1.019	Former cigarettes per day
SMKCYR	1.042	1.034	1.050	Current years smoke
XSMKCYR	1.070	1.064	1.076	Former years smoked
PASSIVE	1.004	0.996	1.014	Passive Smoking
EDULOW	1.483	1.352	1.626	Less than high school education
INDUSEXP	1.008	0.926	1.099	Occupational exposure
BMI	0.929	0.917	0.941	Body Mass Index
ALC	1.006	0.992	1.021	Alcohol Drinking
SULFATES	1.439	1.134	1.825	Sulfate Particles

Table3: Adjusted Mortality Risk Ratios (and 95% Confidence
Intervals) by Cardiopulmonary Death for the Sulfate Particles
            Ever-smokers

The PHREG Procedure

Data Set: WORK.SULF_E
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	229818.461	228029.170	1789.290 with 12 DF (p=0.0001)
Score	.	.	1761.849 with 12 DF (p=0.0001)
Wald	.	.	1722.258 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.849362	0.07708	121.43232	0.0001
EVPCONLY	1	0.713241	0.04742	226.18398	0.0001
SMKCPD	1	0.005982	0.00120	24.69643	0.0001
XSMKCPD	1	0.008125	0.0008123	100.07163	0.0001
SMKCYR	1	0.007482	0.00147	25.98225	0.0001
XSMKCYR	1	0.023008	0.0009620	571.97266	0.0001
PASSIVE	1	-0.001705	0.00238	0.51355	0.4736
EDULOW	1	0.264265	0.02150	151.05405	0.0001
INDUSEXP	1	0.057358	0.02083	7.57994	0.0059
BMI	1	-0.005417	0.00263	4.24465	0.0394
ALC	1	-0.037945	0.00453	70.14642	0.0001
SULFATES	1	0.180133	0.05355	11.31615	0.0008

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
  95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	2.338	2.010	2.719	Current Smoker
EVPCONLY	2.041	1.859	2.239	Pipe/cigar smoker
SMKCPD	1.006	1.004	1.008	Current cigarettes per day
XSMKCPD	1.008	1.007	1.010	Former cigarettes per day
SMKCYR	1.008	1.005	1.010	Current years smoke
XSMKCYR	1.023	1.021	1.025	Former years smoked
PASSIVE	0.998	0.994	1.003	Passive Smoking
EDULOW	1.302	1.249	1.359	Less than high school education
INDUSEXP	1.059	1.017	1.103	Occupational exposure
BMI	0.995	0.989	1.000	Body Mass Index
ALC	0.963	0.954	0.971	Alcohol Drinking
SULFATES	1.197	1.078	1.330	Sulfate Particles

Table3: Adjusted Mortality Risk Ratios (and 95% Confidence Intervals) by Cardiopulmonary Death for the Sulfate Particles Ever-smokers in Women

The PHREG Procedure

Data Set: WORK.SULF_E
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	40235.946	39809.145	426.801 with 11 DF (p=0.0001)
Score	.	.	419.040 with 11 DF (p=0.0001)
Wald	.	.	399.325 with 11 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.731217	0.13858	27.84177	0.0001
EVPCONLY	0	0	.	.	.
SMKCPD	1	0.015263	0.00244	39.25719	0.0001
XSMKCPD	1	0.010020	0.00259	14.98846	0.0001
SMKCYR	1	0.007845	0.00254	9.52966	0.0020
XSMKCYR	1	0.021997	0.00259	72.21154	0.0001
PASSIVE	1	-0.001981	0.00531	0.13936	0.7089
EDULOW	1	0.397343	0.05192	58.56942	0.0001
INDUSEXP	1	0.058468	0.07208	0.65793	0.4173
BMI	1	-0.004592	0.00516	0.79191	0.3735
ALC	1	-0.049765	0.01386	12.88759	0.0003
SULFATES	1	0.261294	0.12628	4.28141	0.0385

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and 95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	2.078	1.583	2.726	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	1.015	1.011	1.020	Current cigarettes per day
XSMKCPD	1.010	1.005	1.015	Former cigarettes per day
SMKCYR	1.008	1.003	1.013	Current years smoke
XSMKCYR	1.022	1.017	1.027	Former years smoked
PASSIVE	0.998	0.988	1.008	Passive Smoking
EDULOW	1.488	1.344	1.647	Less than high school education
INDUSEXP	1.060	0.921	1.221	Occupational exposure
BMI	0.995	0.985	1.006	Body Mass Index
ALC	0.951	0.926	0.978	Alcohol Drinking
SULFATES	1.299	1.014	1.663	Sulfate Particles

Table3: Adjusted Mortality Risk Ratios (and 95% Confidence
Intervals) by Cardiopulmonary Death for the Sulfate Particles
          Ever-smokers in Men

The PHREG Procedure

Data Set: WORK.SULF_E
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	189582.515	188186.998	1395.517 with 12 DF (p=0.0001)
Score	.	.	1384.862 with 12 DF (p=0.0001)
Wald	.	.	1357.158 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.880999	0.09673	82.96039	0.0001
EVPCONLY	1	0.701107	0.05007	196.05563	0.0001
SMKCPD	1	0.003393	0.00140	5.90300	0.0151
XSMKCPD	1	0.007624	0.0008669	77.34556	0.0001
SMKCYR	1	0.007520	0.00183	16.83339	0.0001
XSMKCYR	1	0.023275	0.00104	499.33700	0.0001
PASSIVE	1	-0.001347	0.00266	0.25586	0.6130
EDULOW	1	0.236109	0.02364	99.77163	0.0001
INDUSEXP	1	0.060489	0.02178	7.71653	0.0055
BMI	1	-0.005977	0.00306	3.81862	0.0507
ALC	1	-0.035990	0.00479	56.34484	0.0001
SULFATES	1	0.159797	0.05913	7.30302	0.0069

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	2.413	1.997	2.917	Current Smoker
EVPCONLY	2.016	1.828	2.224	Pipe/cigar smoker
SMKCPD	1.003	1.001	1.006	Current cigarettes per day
XSMKCPD	1.008	1.006	1.009	Former cigarettes per day
SMKCYR	1.008	1.004	1.011	Current years smoke
XSMKCYR	1.024	1.021	1.026	Former years smoked
PASSIVE	0.999	0.993	1.004	Passive Smoking
EDULOW	1.266	1.209	1.326	Less than high school education
INDUSEXP	1.062	1.018	1.109	Occupational exposure
BMI	0.994	0.988	1.000	Body Mass Index
ALC	0.965	0.956	0.974	Alcohol Drinking
SULFATES	1.173	1.045	1.317	Sulfate Particles

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Output 3b:

Modified Data

Table2c: Adjusted Mortality Risk Ratios (and 95% Confidence
1
Intervals) by All Cause of Death for the Sulfate Particles
-- with the Female new subcohort
The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	829147.183	823192.894	5954.289 with 12 DF (p=0.0001)
Score			6558.806 with 12 DF (p=0.0001)
Wald			6301.681 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.277415	0.04210	43.41944	0.0001
SMKCPD20	1	0.248098	0.01481	280.48101	0.0001
SMKCYR25	1	0.195622	0.02205	78.67998	0.0001
EVPCONLY	1	0.221992	0.02396	85.86112	0.0001
XSMKCPD	1	0.005252	0.0005171	103.14534	0.0001
XSMKCYR	1	0.012478	0.0004629	726.66995	0.0001
PASSIVE	1	0.001136	0.00139	0.66485	0.4149
EDULOW	1	0.247560	0.01175	444.02462	0.0001
INDUSEXP	1	0.039604	0.01248	10.07614	0.0015
BMI	1	-0.002720	0.00131	4.29467	0.0382
ALC	1	-0.017794	0.00259	47.31403	0.0001
SULFATES	1	0.150844	0.02855	27.91566	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.320	1.215	1.433	Current Smoker
SMKCPD20	1.282	1.245	1.319	Current cigarettes 20 per day
SMKCYR25	1.216	1.165	1.270	Current 25 years smoke
EVPCONLY	1.249	1.191	1.309	Pipe/cigar smoker
XSMKCPD	1.005	1.004	1.006	Former cigarettes per day
XSMKCYR	1.013	1.012	1.013	Former years smoked
PASSIVE	1.001	0.998	1.004	Passive Smoking
EDULOW	1.281	1.252	1.311	Less than high school education
INDUSEXP	1.040	1.015	1.066	Occupational exposure
BMI	0.997	0.995	1.000	Body Mass Index

| ALC | 0.982 | 0.977 | 0.987 | Alcohol Drinking |
| SULFATES | 1.163 | 1.100 | 1.230 | Sulfate Particles |

Table2c: Adjusted Mortality Risk Ratios (and 95% Confidence
2
Intervals) by Lung Cancer Related Death for the Current Smoker
-- with the Female new subcohort

The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	75831.517	70820.661	5010.856 with 12 DF (p=0.0001)
Score	.	.	5705.606 with 12 DF (p=0.0001)
Wald	.	.	3816.474 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.997632	0.13328	56.02591	0.0001
SMKCPD20	1	0.467317	0.03353	194.27245	0.0001
SMKCYR25	1	0.850947	0.06926	150.93196	0.0001
EVPCONLY	1	1.239756	0.11639	113.45428	0.0001
XSMKCPD	1	0.015995	0.00157	103.96630	0.0001
XSMKCYR	1	0.055832	0.00174	1026	0.0001
PASSIVE	1	0.004199	0.00376	1.24769	0.2640
EDULOW	1	0.396354	0.03936	101.41258	0.0001
INDUSEXP	1	0.044867	0.03901	1.32296	0.2501
BMI	1	-0.061222	0.00484	160.13927	0.0001
ALC	1	0.000579	0.00664	0.00760	0.9305
SULFATES	1	0.308890	0.09764	10.00740	0.0016

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and 95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	2.712	2.088	3.521	Current Smoker
SMKCPD20	1.596	1.494	1.704	Current cigarettes 20 per day
SMKCYR25	2.342	2.045	2.682	Current 25 years smoke
EVPCONLY	3.455	2.750	4.340	Pipe/cigar smoker
XSMKCPD	1.016	1.013	1.019	Former cigarettes per day
XSMKCYR	1.057	1.054	1.061	Former years smoked
PASSIVE	1.004	0.997	1.012	Passive Smoking

EDULOW	1.486	1.376	1.606	Less than high school education
INDUSEXP	1.046	0.969	1.129	Occupational exposure
BMI	0.941	0.932	0.950	Body Mass Index
ALC	1.001	0.988	1.014	Alcohol Drinking
SULFATES	1.362	1.125	1.649	Sulfate Particles

Table2c: Adjusted Mortality Risk Ratios (and 95% Confidence
3
Intervals) by Cardiopulmonary Death for the Current Smoker
-- with the Female new subcohort
The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	394021.990	391066.500	2955.491 with 12 DF (p=0.0001)
Score	.	.	3165.167 with 12 DF (p=0.0001)
Wald	.	.	3076.289 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.627590	0.06302	99.18688	0.0001
SMKCPD20	1	0.156209	0.02278	47.00785	0.0001
SMKCYR25	1	0.055142	0.03226	2.92234	0.0874
EVPCONLY	1	0.249394	0.03264	58.38099	0.0001
XSMKCPD	1	0.005048	0.0007307	47.74005	0.0001
XSMKCYR	1	0.012905	0.0006346	413.50527	0.0001
PASSIVE	1	0.001988	0.00210	0.89395	0.3444
EDULOW	1	0.299184	0.01612	344.54437	0.0001
INDUSEXP	1	0.034284	0.01791	3.66332	0.0556
BMI	1	0.003302	0.00189	3.04068	0.0812
ALC	1	-0.043209	0.00418	106.89307	0.0001
SULFATES	1	0.249393	0.04080	37.35791	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.873	1.655	2.119	Current Smoker
SMKCPD20	1.169	1.118	1.222	Current cigarettes 20 per day
SMKCYR25	1.057	0.992	1.126	Current 25 years smoke
EVPCONLY	1.283	1.204	1.368	Pipe/cigar smoker
XSMKCPD	1.005	1.004	1.007	Former cigarettes per day

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XSMKCYR	1.013	1.012	1.014	Former years smoked
PASSIVE	1.002	0.998	1.006	Passive Smoking
EDULOW	1.349	1.307	1.392	Less than high school education
INDUSEXP	1.035	0.999	1.072	Occupational exposure
BMI	1.003	1.000	1.007	Body Mass Index
ALC	0.958	0.950	0.966	Alcohol Drinking
SULFATES	1.283	1.185	1.390	Sulfate Particles

Table2c: Adjusted Mortality Risk Ratios (and 95% Confidence
4
Intervals) by All Other Death for the Current Smoker
-- with the Female new subcohort

The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CENREST
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	358042.829	357115.281	927.548 with 12 DF (p=0.0001)
Score	.	.	1007.755 with 12 DF (p=0.0001)
Wald	.	.	988.599 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.011874	0.06480	0.03358	0.8546
SMKCPD20	1	0.221816	0.02422	83.87970	0.0001
SMKCYR25	1	0.174484	0.03525	24.50032	0.0001
EVPCONLY	1	0.117028	0.03733	9.83008	0.0017
XSMKCPD	1	0.004353	0.0008315	27.41213	0.0001
XSMKCYR	1	0.005979	0.0007653	61.03765	0.0001
PASSIVE	1	-0.001560	0.00215	0.52825	0.4673
EDULOW	1	0.125461	0.01923	42.58584	0.0001
INDUSEXP	1	0.040884	0.01947	4.40818	0.0358
BMI	1	0.001250	0.00196	0.40699	0.5235
ALC	1	0.001591	0.00368	0.18733	0.6651
SULFATES	1	0.017940	0.04385	0.16735	0.6825

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.012	0.891	1.149	Current Smoker
SMKCPD20	1.248	1.190	1.309	Current cigarettes 20 per day

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SMKCYR25	1.191	1.111	1.276	Current 25 years smoke
EVPCONLY	1.124	1.045	1.209	Pipe/cigar smoker
XSMKCPD	1.004	1.003	1.006	Former cigarettes per day
XSMKCYR	1.006	1.004	1.008	Former years smoked
PASSIVE	0.998	0.994	1.003	Passive Smoking
EDULOW	1.134	1.092	1.177	Less than high school education
INDUSEXP	1.042	1.003	1.082	Occupational exposure
BMI	1.001	0.997	1.005	Body Mass Index
ALC	1.002	0.994	1.009	Alcohol Drinking
SULFATES	1.018	0.934	1.109	Sulfate Particles

Covariance Matrix for All Causes of Death in ACS Study
5
-- with the Female new subcohort

OBS	_TIES_	_TYPE_	_NAME_	CURCIG	SMKCPD20	SMKCYR25
1	BRESLOW	PARMS	ESTIMATE	0.27742	0.24810	0.19562
2	BRESLOW	COV	CURCIG	0.00177	-0.00021	-0.00081
3	BRESLOW	COV	SMKCPD20	-0.00021	0.00022	-0.00001
4	BRESLOW	COV	SMKCYR25	-0.00081	-0.00001	0.00049
5	BRESLOW	COV	EVPCONLY	0.00003	0.00001	0.00003
6	BRESLOW	COV	XSMKCPD	0.00000	0.00000	-0.00000
7	BRESLOW	COV	XSMKCYR	-0.00000	-0.00000	0.00000
8	BRESLOW	COV	PASSIVE	-0.00001	-0.00000	0.00000
9	BRESLOW	COV	EDULOW	0.00000	-0.00000	-0.00001
10	BRESLOW	COV	INDUSEXP	0.00001	-0.00000	-0.00000
11	BRESLOW	COV	BMI	0.00000	-0.00000	0.00000
12	BRESLOW	COV	ALC	0.00000	-0.00000	-0.00000
13	BRESLOW	COV	SULFATES	-0.00000	0.00000	-0.00001

OBS	EVPCONLY	XSMKCPD	XSMKCYR	PASSIVE	EDULOW	INDUSEXP
1	0.22199	0.0052516	0.012478	0.0011357	0.24756	0.039604
2	0.00003	0.0000014	-0.000000	-.0000057	0.00000	0.000008
3	0.00001	0.0000004	-0.000000	-.0000038	-0.00000	-0.000002
4	0.00003	-.0000004	0.000001	0.0000012	-0.00001	-0.000005
5	0.00057	0.0000013	0.000002	-.0000008	0.00001	0.000002
6	0.00000	0.0000003	-0.000000	-.0000000	0.00000	-0.000000
7	0.00000	-.0000002	0.000000	-.0000000	-0.00000	-0.000000
8	-0.00000	-.0000000	-0.000000	0.0000019	0.00000	-0.000001
9	0.00001	0.0000002	-0.000000	0.0000002	0.00014	-0.000011
10	0.00000	-.0000001	-0.000000	-.0000005	-0.00001	0.000156
11	-0.00000	-.0000000	0.000000	-.0000000	-0.00000	-0.000000
12	-0.00000	-.0000001	-0.000000	-.0000001	0.00000	0.000000
13	-0.00002	0.0000000	-0.000000	-.0000007	-0.00001	-0.000004

OBS	BMI	ALC	SULFATES	_LNLIKE_
1	-.0027195	-0.017794	0.15084	-411596.45
2	0.0000012	0.000001	-0.00000	-411596.45
3	-.0000006	-0.000002	0.00000	-411596.45
4	0.0000008	-0.000002	-0.00001	-411596.45
5	-.0000003	-0.000002	-0.00002	-411596.45
6	-.0000000	-0.000000	0.00000	-411596.45
7	0.0000000	-0.000000	-0.00000	-411596.45
8	-.0000000	-0.000000	-0.00000	-411596.45
9	-.0000015	0.000002	-0.00001	-411596.45
10	-.0000004	0.000000	-0.00000	-411596.45
11	0.0000017	0.000000	-0.00000	-411596.45
12	0.0000001	0.000007	0.00000	-411596.45
13	-.0000005	0.000001	0.00082	-411596.45

Covariance Matrix for Cardiopulmonary Death in ACS Study
6
-- with the Female new subcohort

OBS	_TIES_	_TYPE_	_NAME_	CURCIG	SMKCPD20	SMKCYR25
1	BRESLOW	PARMS	ESTIMATE	0.62759	0.15621	0.055142
2	BRESLOW	COV	CURCIG	0.00397	-0.00047	-0.001777
3	BRESLOW	COV	SMKCPD20	-0.00047	0.00052	-0.000023
4	BRESLOW	COV	SMKCYR25	-0.00178	-0.00002	0.001040
5	BRESLOW	COV	EVPCONLY	0.00008	0.00002	0.000043
6	BRESLOW	COV	XSMKCPD	0.00000	0.00000	-0.000001
7	BRESLOW	COV	XSMKCYR	0.00000	-0.00000	0.000002
8	BRESLOW	COV	PASSIVE	-0.00001	-0.00001	0.000002
9	BRESLOW	COV	EDULOW	0.00001	-0.00000	-0.000016
10	BRESLOW	COV	INDUSEXP	0.00002	-0.00000	-0.000010
11	BRESLOW	COV	BMI	0.00000	-0.00000	0.000002
12	BRESLOW	COV	ALC	0.00000	-0.00000	-0.000003
13	BRESLOW	COV	SULFATES	-0.00000	0.00000	-0.000011

OBS	EVPCONLY	XSMKCPD	XSMKCYR	PASSIVE	EDULOW	INDUSEXP
1	0.24939	0.0050484	0.012905	0.0019884	0.29918	0.034284
2	0.00008	0.0000029	0.000000	-.0000113	0.00001	0.000018
3	0.00002	0.0000009	-0.000000	-.0000089	-0.00000	-0.000005
4	0.00004	-.0000008	0.000002	0.0000020	-0.00002	-0.000010
5	0.00107	0.0000026	0.000004	-.0000018	0.00001	0.000003
6	0.00000	0.0000005	-0.000000	-.0000000	0.00000	-0.000000
7	0.00000	-.0000003	0.000000	-.0000000	-0.00000	-0.000000
8	-0.00000	-.0000000	-0.000000	0.0000044	0.00000	-0.000001
9	0.00001	0.0000003	-0.000000	0.0000002	0.00026	-0.000022
10	0.00000	-.0000001	-0.000000	-.0000011	-0.00002	0.000321
11	-0.00000	-.0000001	0.000000	-.0000001	-0.00000	-0.000001
12	-0.00001	-.0000002	-0.000000	-.0000004	0.00000	0.000000
13	-0.00003	0.0000000	-0.000000	-.0000016	-0.00002	-0.000009

OBS	BMI	ALC	SULFATES	_LNLIKE_
1	0.0033017	-0.043209	0.24939	-195533.25
2	0.0000024	0.000001	-0.00000	-195533.25
3	-.0000013	-0.000005	0.00000	-195533.25
4	0.0000018	-0.000003	-0.00001	-195533.25
5	-.0000006	-0.000006	-0.00003	-195533.25
6	-.0000001	-0.000000	0.00000	-195533.25
7	0.0000001	-0.000000	-0.00000	-195533.25
8	-.0000001	-0.000000	-0.00000	-195533.25
9	-.0000030	0.000005	-0.00002	-195533.25
10	-.0000008	0.000000	-0.00001	-195533.25
11	0.0000036	0.000000	-0.00000	-195533.25
12	0.0000001	0.000017	0.00000	-195533.25
13	-.0000009	0.000002	0.00166	-195533.25

Covariance Matrix for Lung Cancer Death in ACS Study
7
-- with the Female new subcohort

OBS	_TIES_	_TYPE_	_NAME_	CURCIG	SMKCPD20	SMKCYR25
1	BRESLOW	PARMS	ESTIMATE	0.99763	0.46732	0.85095
2	BRESLOW	COV	CURCIG	0.01776	-0.00119	-0.00776
3	BRESLOW	COV	SMKCPD20	-0.00119	0.00112	-0.00007
4	BRESLOW	COV	SMKCYR25	-0.00776	-0.00007	0.00480
5	BRESLOW	COV	EVPCONLY	0.00183	0.00008	0.00065
6	BRESLOW	COV	XSMKCPD	0.00003	0.00000	-0.00001
7	BRESLOW	COV	XSMKCYR	0.00002	-0.00000	0.00003
8	BRESLOW	COV	PASSIVE	-0.00005	-0.00002	0.00001
9	BRESLOW	COV	EDULOW	0.00011	-0.00000	-0.00019

OBS	_TIES_	_TYPE_	_NAME_		
10	BRESLOW	COV	INDUSEXP	0.00013	-0.00002	-0.00008
11	BRESLOW	COV	BMI	0.00001	-0.00001	0.00001
12	BRESLOW	COV	ALC	0.00001	-0.00002	-0.00001
13	BRESLOW	COV	SULFATES	-0.00006	0.00001	-0.00004

OBS	EVPCONLY	XSMKCPD	XSMKCYR	PASSIVE	EDULOW	INDUSEXP
1	1.23976	0.015995	0.055832	0.0041991	0.39635	0.044867
2	0.00183	0.000031	0.000017	-.0000508	0.00011	0.000127
3	0.00008	0.000003	-0.000002	-.0000230	-0.00000	-0.000019
4	0.00065	-0.000007	0.000027	0.0000075	-0.00019	-0.000078
5	0.01355	0.000024	0.000065	-.0000057	0.00002	0.000026
6	0.00002	0.000002	-0.000001	-.0000000	0.00000	-0.000000
7	0.00007	-0.000001	0.000003	-.0000003	-0.00000	-0.000001
8	-0.00001	-0.000000	-0.000000	0.0000141	0.00000	-0.000004
9	0.00002	0.000002	-0.000005	0.0000044	0.00155	-0.000147
10	0.00003	-0.000000	-0.000001	-.0000041	-0.00015	0.001522
11	-0.00000	-0.000001	0.000000	-.0000002	-0.00001	-0.000004
12	-0.00001	-0.000000	-0.000000	-.0000008	0.00002	-0.000000
13	-0.00017	-0.000000	-0.000002	-.0000040	-0.00010	-0.000064

OBS	BMI	ALC	SULFATES	_LNLIKE_
1	-0.061222	0.00057867	0.30889	-35410.33
2	0.000012	0.00001163	-0.00006	-35410.33
3	-0.000007	-.00001730	0.00001	-35410.33
4	0.000012	-.00001181	-0.00004	-35410.33
5	-0.000002	-.00001315	-0.00017	-35410.33
6	-0.000001	-.00000047	-0.00000	-35410.33
7	0.000000	-.00000026	-0.00000	-35410.33
8	-0.000000	-.00000084	-0.00000	-35410.33
9	-0.000011	0.00001814	-0.00010	-35410.33
10	-0.000004	-.00000028	-0.00006	-35410.33
11	0.000023	0.00000069	-0.00001	-35410.33
12	0.000001	0.00004405	0.00001	-35410.33
13	-0.000007	0.00001266	0.00953	-35410.33

Covariance Matrix for All Other Death in ACS Study
8
-- with the Female new subcohort

OBS	_TIES_	_TYPE_	_NAME_	CURCIG	SMKCPD20	SMKCYR25
1	BRESLOW	PARMS	ESTIMATE	0.011874	0.22182	0.17448
2	BRESLOW	COV	CURCIG	0.004199	-0.00055	-0.00196
3	BRESLOW	COV	SMKCPD20	-0.000554	0.00059	-0.00003
4	BRESLOW	COV	SMKCYR25	-0.001964	-0.00003	0.00124
5	BRESLOW	COV	EVPCONLY	0.000028	0.00003	0.00007
6	BRESLOW	COV	XSMKCPD	0.000003	0.00000	-0.00000
7	BRESLOW	COV	XSMKCYR	-0.000001	-0.00000	0.00000
8	BRESLOW	COV	PASSIVE	-0.000014	-0.00001	0.00000
9	BRESLOW	COV	EDULOW	0.000010	-0.00000	-0.00002
10	BRESLOW	COV	INDUSEXP	0.000018	-0.00001	-0.00001
11	BRESLOW	COV	BMI	0.000003	-0.00000	0.00000
12	BRESLOW	COV	ALC	0.000002	-0.00000	-0.00000
13	BRESLOW	COV	SULFATES	-0.000005	0.00000	-0.00001

OBS	EVPCONLY	XSMKCPD	XSMKCYR	PASSIVE	EDULOW	INDUSEXP
1	0.11703	0.0043532	0.0059788	-.0015603	0.12546	0.040884
2	0.00003	0.0000029	-.0000007	-.0000137	0.00001	0.000018
3	0.00003	0.0000010	-.0000002	-.0000094	-0.00000	-0.000005
4	0.00007	-.0000009	0.0000024	0.0000031	-0.00002	-0.000010
5	0.00139	0.0000029	0.0000043	-.0000018	0.00001	0.000004

6	0.00000	0.0000007	-.0000004	-.0000000	0.00000	-0.000000
7	0.00000	-.0000004	0.0000006	-.0000000	-0.00000	-0.000000
8	-0.00000	-.0000000	-.0000000	0.0000046	0.00000	-0.000001
9	0.00001	0.0000004	-.0000004	0.0000004	0.00037	-0.000023
10	0.00000	-.0000002	-.0000002	-.0000014	-0.00002	0.000379
11	-0.00000	-.0000001	0.0000001	-.0000001	-0.00000	-0.000001
12	-0.00001	-.0000001	-.0000001	-.0000003	0.00000	-0.000000
13	-0.00004	0.0000001	-.0000005	-.0000018	-0.00002	-0.000005

OBS	BMI	ALC	SULFATES	_LNLIKE_
1	0.0012498	0.0015907	0.017940	-178557.64
2	0.0000030	0.0000018	-0.000005	-178557.64
3	-.0000013	-.0000048	0.000003	-178557.64
4	0.0000018	-.0000034	-0.000011	-178557.64
5	-.0000006	-.0000054	-0.000037	-178557.64
6	-.0000001	-.0000001	0.000000	-178557.64
7	0.0000001	-.0000001	-0.000001	-178557.64
8	-.0000001	-.0000003	-0.000002	-178557.64
9	-.0000037	0.0000035	-0.000022	-178557.64
10	-.0000010	-.0000001	-0.000005	-178557.64
11	0.0000038	0.0000002	-0.000001	-178557.64
12	0.0000002	0.0000135	0.000002	-178557.64
13	-.0000014	0.0000019	0.001923	-178557.64

Program #4

```
/*****************************************************************
*   Replicate the results in ACS Study correspondence with      *
*   Pope's paper(1995): Extra -- Table2 Covariance              *
*                                                                *
*****************************************************************/

libname acs '/home/yuanli/acss/';

options nocenter ps=64 ls=80 obs=max;

proc format;
     value dead 1 = 'Alive'
                0 = 'Dead'
                ;
     value sex  1 = 'Male'
                2 = 'Female'
                ;
     value race 1 = 'White'
                2 = 'Black'
                3 = 'Other'
                ;
     value ind  0 = 'No.'
                1 = 'Yes'
                ;

filename derdata '/home/fmo/derdata.cport';

proc cimport data=dertest infile=derdata;

* Cox PH Model by All Cause of Death for the sulfate population ;

data sulf; set dertest;

  if flagdel = 0 and sulfdel = 0 ;

  sulfates = meansulf/19.9;
  smkcpd20 = smkcpd/20;
  smkcyr25 = smkcyr/25;

proc phreg data=sulf nosummary covout outest=acs.covall;
   model fail*cenall(1) = curcig smkcpd20 smkcyr25 evpconly xsmkcpd
xsmkcyr passive edulow indusexp bmi alc sulfates / rl;
   strata age_int (25 to 105 by 5) sex racecat;
   format sex sex. racecat race. ;
   label curcig   = 'Current Smoker'
         smkcpd20 = 'Current cigarettes 20 per day'
         smkcyr25 = 'Current 25 years smoke'
         xsmkcpd  = 'Former cigarettes per day'
         xsmkcyr  = 'Former years smoked'
         evpconly = 'Pipe/cigar smoker'
```

```
                indusexp = 'Occupational exposure'
                edulow   = 'Less than high school education'
                age_int  = 'Age at Interview'
                passive  = 'Passive Smoking'
                bmi      = 'Body Mass Index'
                alc      = 'Alcohol Drinking'
                sulfates = 'Sulfate Particles';
        where west in (0,1);

title1 'Table2: Adjusted Mortality Risk Ratios (and 95%
        Confidence';
title2 'Intervals) by All Cause of Death for the Current Smoker';

* Cox PH Model by Lung Cancer Death for the sulfate population ;

proc phreg data=sulf nosummary covout outest=acs.covlung;
        model fail*cen62(1) = curcig smkcpd20 smkcyr25 evpconly xsmkcpd
xsmkcyr passive edulow indusexp bmi alc sulfates / rl;
        strata age_int (25 to 105 by 5) sex racecat;
        format sex sex. racecat race. ;
        label curcig    = 'Current Smoker'
                smkcpd20 = 'Current cigarettes 20 per day'
                smkcyr25 = 'Current 25 years smoke'
                xsmkcpd  = 'Former cigarettes per day'
                xsmkcyr  = 'Former years smoked'
                evpconly = 'Pipe/cigar smoker'
                indusexp = 'Occupational exposure'
                edulow   = 'Less than high school education'
                age_int  = 'Age at Interview'
                passive  = 'Passive Smoking'
                bmi      = 'Body Mass Index'
                alc      = 'Alcohol Drinking'
                sulfates = 'Sulfate Particles';
        where west in (0,1);

title1 'Table2: Adjusted Mortality Risk Ratios (and 95%
        Confidence';
title2 'Intervals) by Lung Cancer Related Death for the Current
        Smoker';

* Cox PH Model by Cardiopulmonary Death for the sulfate population
;


proc phreg data=sulf nosummary covout outest=acs.covcar;
        model fail*cencomb(1) = curcig smkcpd20 smkcyr25 evpconly
xsmkcpd xsmkcyr passive edulow indusexp bmi alc sulfates / rl;
        strata age_int (25 to 105 by 5) sex racecat;
        format sex sex. racecat race. ;
```

```
       label curcig    = 'Current Smoker'
             smkcpd20 = 'Current cigarettes 20 per day'
             smkcyr25 = 'Current 25 years smoke'
             xsmkcpd  = 'Former cigarettes per day'
             xsmkcyr  = 'Former years smoked'
             evpconly = 'Pipe/cigar smoker'
             indusexp = 'Occupational exposure'
             edulow   = 'Less than high school education'
             age_int  = 'Age at Interview'
             passive  = 'Passive Smoking'
             bmi      = 'Body Mass Index'
             alc      = 'Alcohol Drinking'
             sulfates = 'Sulfate Particles';
       where west in (0,1);

  title1  'Table2:  Adjusted  Mortality  Risk  Ratios  (and  95%
        Confidence';
  title2  'Intervals)  by  Cardiopulmonary  Death  for  the  Current
        Smoker';


* Cox PH Model by All Other Cause Death for the sulfate population
;

proc phreg data=sulf nosummary covout outest=acs.covoth;
     model  fail*cenrest(1)  =  curcig  smkcpd20  smkcyr25  evpconly
xsmkcpd xsmkcyr passive edulow indusexp bmi alc sulfates / rl;
     strata age_int (25 to 105 by 5) sex racecat;
     format sex sex. racecat race. ;
     label curcig    = 'Current Smoker'
             smkcpd20 = 'Current cigarettes 20 per day'
             smkcyr25 = 'Current 25 years smoke'
             xsmkcpd  = 'Former cigarettes per day'
             xsmkcyr  = 'Former years smoked'
             evpconly = 'Pipe/cigar smoker'
             indusexp = 'Occupational exposure'
             edulow   = 'Less than high school education'
             age_int  = 'Age at Interview'
             passive  = 'Passive Smoking'
             bmi      = 'Body Mass Index'
             alc      = 'Alcohol Drinking'
             sulfates = 'Sulfate Particles';
     where west in (0,1);

  title1  'Table2:  Adjusted  Mortality  Risk  Ratios  (and  95%
        Confidence';
  title2 'Intervals) by All Other Death for the Current Smoker';

proc print data=acs.covall;
  title 'Covariance Matrix for All Causes of Death in ACS Study';
```

```
proc print data=acs.covcar;
   title 'Covariance Matrix for Cardiopulmonary Death in ACS Study';

proc print data=acs.covlung;
   title 'Covariance Matrix for Lung Cancer Death in ACS Study';

proc print data=acs.covoth;
   title 'Covariance Matrix for All Other Death in ACS Study';

run;
```

```
/****************************
*                          *
*    ACS Sensitivity Phase: *
*                          *
*    New derdata with --    *
*                          *
*    1.Female Deaths to 89; *
*    2.Female Former Smokers *
*                          *
*    ACS Study paper (1995) *
*       --  Table Three     *
*                          *
****************************/

libname acs '/home/yuanli/acss/';

options nocenter ps=64 ls=80 obs=max;

proc format;
     value dead 1 = 'Alive'
                0 = 'Dead'
                ;
     value sex  1 = 'Male'
                2 = 'Female'
                ;
     value race 1 = 'White'
                2 = 'Black'
                3 = 'Other'
                ;
     value ind  0 = 'No.'
                1 = 'Yes'
                ;

data sulf; set acs.dern;

  if flagd = 0 and sulfd = 0 ;

  sulfates = meansulf/19.9;

  if cencomb = 0 or cenasma = 0 then cencoma = 0; else cencoma =
1;


/*
proc phreg data=sulf nosummary;
   model fail*cenall(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                          edulow indusexp bmi alc sulfates / rl;
   strata age_int (25 to 105 by 5) sex racecat;
   format sex sex. racecat race. ;
```

```
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          sulfates = 'Sulfate Particles';
    where west in (0,1);

    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by All Cause of Death for the Sulfate
Particles';
    title3 '-- with the Female New Subcohort';

proc phreg data=sulf nosummary;
    model fail*cenall(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                            edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          sulfates = 'Sulfate Particles';
    where west in (0,1) and sex eq 2 ;

    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by All Cause of Death for the Sulfate
Particles';
    title3 '              in Women ';
    title4 '  -- with the Female New Subcohort';

proc phreg data=sulf nosummary;
```

```
    model fail*cenall(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                                edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          sulfates = 'Sulfate Particles';
    where west in (0,1) and sex eq 1 ;

    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by All Cause of Death for the Sulfate
Particles';
    title3 '              in Men ';
    title4 '   -- with the Female New Subcohort';
run;


proc phreg data=sulf nosummary;
    model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                                edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          sulfates = 'Sulfate Particles';
    where west in (0,1);
```

```
    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Lung Cancer Related Death for the
Sulfate Particles';
    title3 '   -- with the Female New Subcohort';

proc phreg data=sulf nosummary;
    model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                          edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          sulfates = 'Sulfate Particles';
    where west in (0,1) and sex eq 2 ;

    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Lung Cancer Related Death for the
Sulfate Particles';
    title3 '            in Women ';
    title4 '   -- with the Female New Subcohort';

proc phreg data=sulf nosummary;
    model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                          edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
```

```
         bmi      = 'Body Mass Index'
         alc      = 'Alcohol Drinking'
         sulfates = 'Sulfate Particles';
    where west in (0,1) and sex eq 1;


    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
 Confidence';
    title2 'Intervals) by Lung Cancer Related Death for the
 Sulfate Particles';
    title3 '            in Men ';
    title4 '  -- with the Female New Subcohort';
  run;



proc phreg data=sulf nosummary;
    model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd smkcyr
 xsmkcyr passive
                            edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          sulfates = 'Sulfate Particles';
    where west in (0,1);


    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
 Confidence';
    title2 'Intervals) by Cardiopulmonary Death for the Sulfate
 Particles';
    title3 '  -- with the Female New Subcohort';

proc phreg data=sulf nosummary;
    model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd smkcyr
 xsmkcyr passive
                            edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
```

```
              xsmkcpd   = 'Former cigarettes per day'
              xsmkcyr   = 'Former years smoked'
              evpconly = 'Pipe/cigar smoker'
              indusexp = 'Occupational exposure'
              edulow    = 'Less than high school education'
              age_int  = 'Age at Interview'
              passive  = 'Passive Smoking'
              bmi       = 'Body Mass Index'
              alc       = 'Alcohol Drinking'
              sulfates = 'Sulfate Particles';
       where west in (0,1) and sex eq 2 ;

       title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
   Confidence';
       title2 'Intervals) by Cardiopulmonary Death for the Sulfate
   Particles';
       title3 '                in Women ';
       title4 '  -- with the Female New Subcohort';

   proc phreg data=sulf nosummary;
       model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd smkcyr
   xsmkcyr passive
                                edulow indusexp bmi alc sulfates / rl;
       strata age_int (25 to 105 by 5) sex racecat;
       format sex sex. racecat race. ;
       label curcig   = 'Current Smoker'
             smkcpd    = 'Current cigarettes per day'
             smkcyr    = 'Current years smoke'
             xsmkcpd   = 'Former cigarettes per day'
             xsmkcyr   = 'Former years smoked'
             evpconly = 'Pipe/cigar smoker'
             indusexp = 'Occupational exposure'
             edulow    = 'Less than high school education'
             age_int  = 'Age at Interview'
             passive  = 'Passive Smoking'
             bmi       = 'Body Mass Index'
             alc       = 'Alcohol Drinking'
             sulfates = 'Sulfate Particles';
       where west in (0,1) and sex eq 1;

       title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
   Confidence';
       title2 'Intervals) by Cardiopulmonary Death for the Sulfate
   Particles';
       title3 '                in Men ';
       title4 '  -- with the Female New Subcohort';
    run;


   data sulf_n;set sulf;
```

```
     if curcig = 0 and xsmkcpd = 0 and xsmkcyr = 0 and evpconly = 0;

proc phreg data=sulf_n nosummary;
   model fail*cenall(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                          edulow indusexp bmi alc sulfates / rl;
   strata age_int (25 to 105 by 5) sex racecat;
   format sex sex. racecat race. ;
   label curcig   = 'Current Smoker'
         smkcpd   = 'Current cigarettes per day'
         smkcyr   = 'Current years smoke'
         xsmkcpd  = 'Former cigarettes per day'
         xsmkcyr  = 'Former years smoked'
         evpconly = 'Pipe/cigar smoker'
         indusexp = 'Occupational exposure'
         edulow   = 'Less than high school education'
         age_int  = 'Age at Interview'
         passive  = 'Passive Smoking'
         bmi      = 'Body Mass Index'
         alc      = 'Alcohol Drinking'
         sulfates = 'Sulfate Particles';
   where west in (0,1);

   title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
   title2 'Intervals) by All Cause of Death for the Sulfate
Particles';
   title3 '                Never-smokers';
   title4 '  -- with the Female New Subcohort';

proc phreg data=sulf_n nosummary;
   model fail*cenall(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                          edulow indusexp bmi alc sulfates / rl;
   strata age_int (25 to 105 by 5) sex racecat;
   format sex sex. racecat race. ;
   label curcig   = 'Current Smoker'
         smkcpd   = 'Current cigarettes per day'
         smkcyr   = 'Current years smoke'
         xsmkcpd  = 'Former cigarettes per day'
         xsmkcyr  = 'Former years smoked'
         evpconly = 'Pipe/cigar smoker'
         indusexp = 'Occupational exposure'
         edulow   = 'Less than high school education'
         age_int  = 'Age at Interview'
         passive  = 'Passive Smoking'
         bmi      = 'Body Mass Index'
         alc      = 'Alcohol Drinking'
         sulfates = 'Sulfate Particles';
   where west in (0,1) and sex eq 2;
```

```
    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by All Cause of Death for the Sulfate
Particles';
    title3 '              Never-smokers in Women ';
    title4 '  -- with the Female New Subcohort';

proc phreg data=sulf_n nosummary;
    model fail*cenall(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                              edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          sulfates = 'Sulfate Particles';
    where west in (0,1) and sex eq 1;

    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by All Cause of Death for the Sulfate
Particles';
    title3 '              Never-smokers in Men ';
    title4 '  -- with the Female New Subcohort';

run;


proc phreg data=sulf_n nosummary;
    model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                              edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
```

```
            indusexp = 'Occupational exposure'
            edulow   = 'Less than high school education'
            age_int  = 'Age at Interview'
            passive  = 'Passive Smoking'
            bmi      = 'Body Mass Index'
            alc      = 'Alcohol Drinking'
            sulfates = 'Sulfate Particles';
       where west in (0,1);


    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Lung Cancer Related Death for the
Sulfate Particles';
    title3 '               Never-smokers';
    title4 '  -- with the Female New Subcohort';

proc phreg data=sulf_n nosummary;
    model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                          edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          sulfates = 'Sulfate Particles';
       where west in (0,1) and sex eq 2 ;


    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Lung Cancer Related Death for the
Sulfate Particles';
    title3 '               Never-smokers in Women ';
    title4 '  -- with the Female New Subcohort';

proc phreg data=sulf_n nosummary;
    model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                          edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
```

```
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          sulfates = 'Sulfate Particles';
    where west in (0,1) and sex eq 1;

    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Lung Cancer Related Death for the
Sulfate Particles';
    title3 '                Never-smokers in Men ';
    title4 '  -- with the Female New Subcohort';
run;


proc phreg data=sulf_n nosummary;
    model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                            edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          sulfates = 'Sulfate Particles';
    where west in (0,1) ;

    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Cardiopulmonary Death for the Sulfate
Particles';
    title3 '                Never-smokers';
```

```
      title4 '   -- with the Female New Subcohort';

proc phreg data=sulf_n nosummary;
   model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                              edulow indusexp bmi alc sulfates / rl;
   strata age_int (25 to 105 by 5) sex racecat;
   format sex sex. racecat race. ;
   label curcig    = 'Current Smoker'
         smkcpd    = 'Current cigarettes per day'
         smkcyr    = 'Current years smoke'
         xsmkcpd   = 'Former cigarettes per day'
         xsmkcyr   = 'Former years smoked'
         evpconly  = 'Pipe/cigar smoker'
         indusexp  = 'Occupational exposure'
         edulow    = 'Less than high school education'
         age_int   = 'Age at Interview'
         passive   = 'Passive Smoking'
         bmi       = 'Body Mass Index'
         alc       = 'Alcohol Drinking'
         sulfates  = 'Sulfate Particles';
   where west in (0,1) and sex eq 2 ;

   title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
   title2 'Intervals) by Cardiopulmonary Death for the Sulfate
Particles';
   title3 '               Never-smokers in Women ';
   title4 '   -- with the Female New Subcohort';


proc phreg data=sulf_n nosummary;
   model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                              edulow indusexp bmi alc sulfates / rl;
   strata age_int (25 to 105 by 5) sex racecat;
   format sex sex. racecat race. ;
   label curcig    = 'Current Smoker'
         smkcpd    = 'Current cigarettes per day'
         smkcyr    = 'Current years smoke'
         xsmkcpd   = 'Former cigarettes per day'
         xsmkcyr   = 'Former years smoked'
         evpconly  = 'Pipe/cigar smoker'
         indusexp  = 'Occupational exposure'
         edulow    = 'Less than high school education'
         age_int   = 'Age at Interview'
         passive   = 'Passive Smoking'
         bmi       = 'Body Mass Index'
         alc       = 'Alcohol Drinking'
         sulfates  = 'Sulfate Particles';
```

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```
    where west in (0,1) and sex eq 1;

    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Cardiopulmonary Death for the Sulfate
Particles';
    title3 '               Never-smokers in Men ';
    title4 '  -- with the Female New Subcohort';
  run;


data sulf_e;set sulf;

 if curcig = 1 or xsmkcpd gt 0  or xsmkcyr gt 0 or evpconly = 1;

proc phreg data=sulf_e nosummary;
    model fail*cenall(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                            edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          sulfates = 'Sulfate Particles';
    where west in (0,1);

    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by All Cause of Death for the Sulfate
Particles';
    title3 '               Ever-smokers';
    title4 '  -- with the Female New Subcohort';

proc phreg data=sulf_e nosummary;
    model fail*cenall(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                            edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
```

```
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          sulfates = 'Sulfate Particles';
      where west in (0,1) and sex eq 2;

      title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
      title2 'Intervals) by All Cause of Death for the Sulfate
Particles';
      title3 '               Ever-smokers in Women ';
      title4 '   -- with the Female New Subcohort';
run;

proc phreg data=sulf_e nosummary;
      model fail*cenall(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                             edulow indusexp bmi alc sulfates / rl;
      strata age_int (25 to 105 by 5) sex racecat;
      format sex sex. racecat race. ;
      label curcig   = 'Current Smoker'
            smkcpd   = 'Current cigarettes per day'
            smkcyr   = 'Current years smoke'
            xsmkcpd  = 'Former cigarettes per day'
            xsmkcyr  = 'Former years smoked'
            evpconly = 'Pipe/cigar smoker'
            indusexp = 'Occupational exposure'
            edulow   = 'Less than high school education'
            age_int  = 'Age at Interview'
            passive  = 'Passive Smoking'
            bmi      = 'Body Mass Index'
            alc      = 'Alcohol Drinking'
            sulfates = 'Sulfate Particles';
      where west in (0,1) and sex eq 1;

      title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
      title2 'Intervals) by All Cause of Death for the Sulfate
Particles';
      title3 '               Ever-smokers in Men ';
      title4 '   -- with the Female New Subcohort';
```

```
proc phreg data=sulf_e nosummary;
    model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                                edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          sulfates = 'Sulfate Particles';
    where west in (0,1);

    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Lung Cancer Related Death for the
Sulfate Particles';
    title3 '            Ever-smokers';
    title4 '   -- with the Female New Subcohort';

proc phreg data=sulf_e nosummary;
    model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                                edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          sulfates = 'Sulfate Particles';
    where west in (0,1) and sex eq 2 ;

    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
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```
Confidence';
   title2 'Intervals) by Lung Cancer Related Death for the
Sulfate Particles';
   title3 '                Ever-smokers in Women ';
   title4 '  -- with the Female New Subcohort';

proc phreg data=sulf_e nosummary;
   model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                             edulow indusexp bmi alc sulfates / rl;
   strata age_int (25 to 105 by 5) sex racecat;
   format sex sex. racecat race. ;
   label curcig   = 'Current Smoker'
         smkcpd   = 'Current cigarettes per day'
         smkcyr   = 'Current years smoke'
         xsmkcpd  = 'Former cigarettes per day'
         xsmkcyr  = 'Former years smoked'
         evpconly = 'Pipe/cigar smoker'
         indusexp = 'Occupational exposure'
         edulow   = 'Less than high school education'
         age_int  = 'Age at Interview'
         passive  = 'Passive Smoking'
         bmi      = 'Body Mass Index'
         alc      = 'Alcohol Drinking'
         sulfates = 'Sulfate Particles';
   where west in (0,1) and sex eq 1;

   title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
   title2 'Intervals) by Lung Cancer Related Death for the
Sulfate Particles';
   title3 '                Ever-smokers in Men ';
   title4 '  -- with the Female New Subcohort';

proc phreg data=sulf_e nosummary;
   model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                             edulow indusexp bmi alc sulfates / rl;
   strata age_int (25 to 105 by 5) sex racecat;
   format sex sex. racecat race. ;
   label curcig   = 'Current Smoker'
         smkcpd   = 'Current cigarettes per day'
         smkcyr   = 'Current years smoke'
         xsmkcpd  = 'Former cigarettes per day'
         xsmkcyr  = 'Former years smoked'
         evpconly = 'Pipe/cigar smoker'
         indusexp = 'Occupational exposure'
         edulow   = 'Less than high school education'
         age_int  = 'Age at Interview'
         passive  = 'Passive Smoking'
```

```
          bmi       = 'Body Mass Index'
          alc       = 'Alcohol Drinking'
          sulfates = 'Sulfate Particles';
    where west in (0,1) ;

    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Cardiopulmonary Death for the Sulfate
Particles';
    title3 '                  Ever-smokers';
    title4 '   -- with the Female New Subcohort';

proc phreg data=sulf_e nosummary;
    model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                            edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig    = 'Current Smoker'
          smkcpd    = 'Current cigarettes per day'
          smkcyr    = 'Current years smoke'
          xsmkcpd   = 'Former cigarettes per day'
          xsmkcyr   = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow    = 'Less than high school education'
          age_int   = 'Age at Interview'
          passive   = 'Passive Smoking'
          bmi       = 'Body Mass Index'
          alc       = 'Alcohol Drinking'
          sulfates = 'Sulfate Particles';
    where west in (0,1) and sex eq 2 ;

    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Cardiopulmonary Death for the Sulfate
Particles';
    title3 '                  Ever-smokers in Women ';
    title4 '   -- with the Female New Subcohort';

proc phreg data=sulf_e nosummary;
    model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                            edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig    = 'Current Smoker'
          smkcpd    = 'Current cigarettes per day'
          smkcyr    = 'Current years smoke'
          xsmkcpd   = 'Former cigarettes per day'
```

```
            xsmkcyr  = 'Former years smoked'
            evpconly = 'Pipe/cigar smoker'
            indusexp = 'Occupational exposure'
            edulow   = 'Less than high school education'
            age_int  = 'Age at Interview'
            passive  = 'Passive Smoking'
            bmi      = 'Body Mass Index'
            alc      = 'Alcohol Drinking'
            sulfates = 'Sulfate Particles';
      where west in (0,1) and sex eq 1;

      title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
      title2 'Intervals) by Cardiopulmonary Death for the Sulfate
Particles';
      title3 '              Ever-smokers in Men ';
      title4 '   -- with the Female New Subcohort';
  run;
  */


proc phreg data=sulf nosummary;
    model fail*cencoma(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                            edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          sulfates = 'Sulfate Particles';
    where west in (0,1);

    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Cardiopulmonary+Asthma Death for the
Sulfate Particles';
    title3 '   -- with the Female New Subcohort';

proc phreg data=sulf nosummary;
    model fail*cencoma(1) = curcig evpconly smkcpd xsmkcpd smkcyr
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```
xsmkcyr passive
                            edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig    = 'Current Smoker'
          smkcpd    = 'Current cigarettes per day'
          smkcyr    = 'Current years smoke'
          xsmkcpd   = 'Former cigarettes per day'
          xsmkcyr   = 'Former years smoked'
          evpconly  = 'Pipe/cigar smoker'
          indusexp  = 'Occupational exposure'
          edulow    = 'Less than high school education'
          age_int   = 'Age at Interview'
          passive   = 'Passive Smoking'
          bmi       = 'Body Mass Index'
          alc       = 'Alcohol Drinking'
          sulfates  = 'Sulfate Particles';
    where west in (0,1) and sex eq 2 ;

    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Cardiopulmonary+Asthma Death for the
Sulfate Particles';
    title3 '                in Women ';
    title4 '  -- with the Female New Subcohort';

proc phreg data=sulf nosummary;
    model fail*cencoma(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                            edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig    = 'Current Smoker'
          smkcpd    = 'Current cigarettes per day'
          smkcyr    = 'Current years smoke'
          xsmkcpd   = 'Former cigarettes per day'
          xsmkcyr   = 'Former years smoked'
          evpconly  = 'Pipe/cigar smoker'
          indusexp  = 'Occupational exposure'
          edulow    = 'Less than high school education'
          age_int   = 'Age at Interview'
          passive   = 'Passive Smoking'
          bmi       = 'Body Mass Index'
          alc       = 'Alcohol Drinking'
          sulfates  = 'Sulfate Particles';
    where west in (0,1) and sex eq 1;

    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Cardiopulmonary+Asthma Death for the
```

```
Sulfate Particles';
   title3 '               in Men ';
   title4 '   -- with the Female New Subcohort';
 run;


 data sulf_n;set sulf;

  if curcig = 0 and xsmkcpd = 0 and xsmkcyr = 0 and evpconly = 0;

 proc phreg data=sulf_n nosummary;
    model fail*cencoma(1) = curcig evpconly smkcpd xsmkcpd smkcyr
 xsmkcyr passive
                               edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          sulfates = 'Sulfate Particles';
    where west in (0,1) ;

    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
 Confidence';
    title2 'Intervals) by Cardiopulmonary+Asthma Death for the
 Sulfate Particles';
    title3 '               Never-smokers';
    title4 '  -- with the Female New Subcohort';

 proc phreg data=sulf_n nosummary;
    model fail*cencoma(1) = curcig evpconly smkcpd xsmkcpd smkcyr
 xsmkcyr passive
                               edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
```

```
            indusexp = 'Occupational exposure'
            edulow   = 'Less than high school education'
            age_int  = 'Age at Interview'
            passive  = 'Passive Smoking'
            bmi      = 'Body Mass Index'
            alc      = 'Alcohol Drinking'
            sulfates = 'Sulfate Particles';
      where west in (0,1) and sex eq 2 ;

      title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
   Confidence';
      title2 'Intervals) by Cardiopulmonary+Asthma Death for the
   Sulfate Particles';
      title3 '            Never-smokers in Women ';
      title4 '  -- with the Female New Subcohort';


   proc phreg data=sulf_n nosummary;
      model fail*cencoma(1) = curcig evpconly smkcpd xsmkcpd smkcyr
   xsmkcyr passive
                              edulow indusexp bmi alc sulfates / rl;
      strata age_int (25 to 105 by 5) sex racecat;
      format sex sex. racecat race. ;
      label curcig   = 'Current Smoker'
            smkcpd   = 'Current cigarettes per day'
            smkcyr   = 'Current years smoke'
            xsmkcpd  = 'Former cigarettes per day'
            xsmkcyr  = 'Former years smoked'
            evpconly = 'Pipe/cigar smoker'
            indusexp = 'Occupational exposure'
            edulow   = 'Less than high school education'
            age_int  = 'Age at Interview'
            passive  = 'Passive Smoking'
            bmi      = 'Body Mass Index'
            alc      = 'Alcohol Drinking'
            sulfates = 'Sulfate Particles';
      where west in (0,1) and sex eq 1;

      title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
   Confidence';
      title2 'Intervals) by Cardiopulmonary+Asthma Death for the
   Sulfate Particles';
      title3 '            Never-smokers in Men ';
      title4 '  -- with the Female New Subcohort';
    run;


   data sulf_e;set sulf;

    if curcig = 1 or xsmkcpd gt 0  or xsmkcyr gt 0 or evpconly = 1;
```

```
proc phreg data=sulf_e nosummary;
   model fail*cencoma(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                             edulow indusexp bmi alc sulfates / rl;
   strata age_int (25 to 105 by 5) sex racecat;
   format sex sex. racecat race. ;
   label curcig   = 'Current Smoker'
         smkcpd   = 'Current cigarettes per day'
         smkcyr   = 'Current years smoke'
         xsmkcpd  = 'Former cigarettes per day'
         xsmkcyr  = 'Former years smoked'
         evpconly = 'Pipe/cigar smoker'
         indusexp = 'Occupational exposure'
         edulow   = 'Less than high school education'
         age_int  = 'Age at Interview'
         passive  = 'Passive Smoking'
         bmi      = 'Body Mass Index'
         alc      = 'Alcohol Drinking'
         sulfates = 'Sulfate Particles';
   where west in (0,1) ;


   title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
   title2 'Intervals) by Cardiopulmonary+Asthma Death for the
Sulfate Particles';
   title3 '              Ever-smokers';
   title4 '  -- with the Female New Subcohort';

proc phreg data=sulf_e nosummary;
   model fail*cencoma(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                             edulow indusexp bmi alc sulfates / rl;
   strata age_int (25 to 105 by 5) sex racecat;
   format sex sex. racecat race. ;
   label curcig   = 'Current Smoker'
         smkcpd   = 'Current cigarettes per day'
         smkcyr   = 'Current years smoke'
         xsmkcpd  = 'Former cigarettes per day'
         xsmkcyr  = 'Former years smoked'
         evpconly = 'Pipe/cigar smoker'
         indusexp = 'Occupational exposure'
         edulow   = 'Less than high school education'
         age_int  = 'Age at Interview'
         passive  = 'Passive Smoking'
         bmi      = 'Body Mass Index'
         alc      = 'Alcohol Drinking'
         sulfates = 'Sulfate Particles';
   where west in (0,1) and sex eq 2 ;
```

```
    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Cardiopulmonary+Asthma Death for the
Sulfate Particles';
    title3 '              Ever-smokers in Women ';
    title4 '  -- with the Female New Subcohort';

proc phreg data=sulf_e nosummary;
    model fail*cencoma(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                            edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig    = 'Current Smoker'
          smkcpd    = 'Current cigarettes per day'
          smkcyr    = 'Current years smoke'
          xsmkcpd   = 'Former cigarettes per day'
          xsmkcyr   = 'Former years smoked'
          evpconly  = 'Pipe/cigar smoker'
          indusexp  = 'Occupational exposure'
          edulow    = 'Less than high school education'
          age_int   = 'Age at Interview'
          passive   = 'Passive Smoking'
          bmi       = 'Body Mass Index'
          alc       = 'Alcohol Drinking'
          sulfates  = 'Sulfate Particles';
    where west in (0,1) and sex eq 1;

    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Cardiopulmonary+Asthma Death for the
Sulfate Particles';
    title3 '              Ever-smokers in Men ';
    title4 '  -- with the Female New Subcohort';
 run;
```

Output 4a:

Original Data

Covariance Matrix for All Causes of Death in ACS Study
1

OBS	_TIES_	_TYPE_	_NAME_	CURCIG	SMKCPD20	SMKCYR25
1	BRESLOW	PARMS	ESTIMATE	0.29736	0.23439	0.19399
2	BRESLOW	COV	CURCIG	0.00201	-0.00024	-0.00091
3	BRESLOW	COV	SMKCPD20	-0.00024	0.00024	-0.00001
4	BRESLOW	COV	SMKCYR25	-0.00091	-0.00001	0.00054
5	BRESLOW	COV	EVPCONLY	0.00003	0.00001	0.00003
6	BRESLOW	COV	XSMKCPD	0.00000	0.00000	-0.00000
7	BRESLOW	COV	XSMKCYR	-0.00000	-0.00000	0.00000
8	BRESLOW	COV	PASSIVE	-0.00001	-0.00000	0.00000
9	BRESLOW	COV	EDULOW	0.00001	-0.00000	-0.00001
10	BRESLOW	COV	INDUSEXP	0.00001	-0.00000	-0.00001
11	BRESLOW	COV	BMI	0.00000	-0.00000	0.00000
12	BRESLOW	COV	ALC	0.00000	-0.00000	-0.00000
13	BRESLOW	COV	SULFATES	-0.00000	0.00000	-0.00001

OBS	EVPCONLY	XSMKCPD	XSMKCYR	PASSIVE	EDULOW	INDUSEXP
1	0.22635	0.0050719	0.012802	0.0011485	0.24938	0.035682
2	0.00003	0.0000017	-0.000000	-.0000065	0.00001	0.000009
3	0.00001	0.0000004	-0.000000	-.0000042	-0.00000	-0.000002
4	0.00003	-.0000005	0.000001	0.0000013	-0.00001	-0.000005
5	0.00058	0.0000013	0.000002	-.0000009	0.00000	0.000001
6	0.00000	0.0000003	-0.000000	-.0000000	0.00000	-0.000000
7	0.00000	-.0000002	0.000000	-.0000000	-0.00000	-0.000000
8	-0.00000	-.0000000	-0.000000	0.0000021	0.00000	-0.000001
9	0.00000	0.0000002	-0.000000	0.0000002	0.00015	-0.000012
10	0.00000	-.0000001	-0.000000	-.0000006	-0.00001	0.000164
11	-0.00000	-.0000000	0.000000	-.0000000	-0.00000	-0.000000
12	-0.00000	-.0000001	-0.000000	-.0000001	0.00000	0.000000
13	-0.00002	0.0000000	-0.000000	-.0000008	-0.00001	-0.000004

OBS	BMI	ALC	SULFATES	_LNLIKE_
1	-.0055082	-0.016057	0.14124	-369508.66
2	0.0000013	0.000001	-0.00000	-369508.66
3	-.0000007	-0.000002	0.00000	-369508.66
4	0.0000010	-0.000002	-0.00001	-369508.66
5	-.0000003	-0.000003	-0.00002	-369508.66
6	-.0000000	-0.000000	0.00000	-369508.66
7	0.0000000	-0.000000	-0.00000	-369508.66
8	-.0000000	-0.000000	-0.00000	-369508.66
9	-.0000016	0.000002	-0.00001	-369508.66
10	-.0000004	0.000000	-0.00000	-369508.66
11	0.0000020	0.000000	-0.00000	-369508.66
12	0.0000001	0.000007	0.00000	-369508.66
13	-.0000006	0.000001	0.00091	-369508.66

Covariance Matrix for Cardiopulmonary Death in ACS Study
2

OBS	_TIES_	_TYPE_	_NAME_	CURCIG	SMKCPD20	SMKCYR25
1	BRESLOW	PARMS	ESTIMATE	0.62205	0.14350	0.059183
2	BRESLOW	COV	CURCIG	0.00448	-0.00053	-0.001997
3	BRESLOW	COV	SMKCPD20	-0.00053	0.00056	-0.000017
4	BRESLOW	COV	SMKCYR25	-0.00200	-0.00002	0.001157

OBS	_TIES_	_TYPE_	_NAME_			
5	BRESLOW	COV	EVPCONLY	0.00010	0.00002	0.000045
6	BRESLOW	COV	XSMKCPD	0.00000	0.00000	-0.000001
7	BRESLOW	COV	XSMKCYR	0.00000	-0.00000	0.000002
8	BRESLOW	COV	PASSIVE	-0.00001	-0.00001	0.000002
9	BRESLOW	COV	EDULOW	0.00001	-0.00000	-0.000021
10	BRESLOW	COV	INDUSEXP	0.00002	-0.00000	-0.000011
11	BRESLOW	COV	BMI	0.00000	-0.00000	0.000002
12	BRESLOW	COV	ALC	0.00000	-0.00001	-0.000003
13	BRESLOW	COV	SULFATES	-0.00000	0.00000	-0.000013

OBS	EVPCONLY	XSMKCPD	XSMKCYR	PASSIVE	EDULOW	INDUSEXP
1	0.24462	0.0047176	0.013060	0.0016615	0.29224	0.032133
2	0.00010	0.0000035	0.000000	-.0000128	0.00001	0.000020
3	0.00002	0.0000009	-0.000000	-.0000097	-0.00000	-0.000005
4	0.00004	-.0000011	0.000002	0.0000024	-0.00002	-0.000011
5	0.00108	0.0000027	0.000004	-.0000021	0.00001	0.000003
6	0.00000	0.0000006	-0.000000	-.0000000	0.00000	-0.000000
7	0.00000	-.0000003	0.000000	-.0000000	-0.00000	-0.000000
8	-0.00000	-.0000000	-0.000000	0.0000048	0.00000	-0.000001
9	0.00001	0.0000004	-0.000001	0.0000003	0.00029	-0.000025
10	0.00000	-.0000001	-0.000000	-.0000011	-0.00002	0.000335
11	-0.00000	-.0000001	0.000000	-.0000001	-0.00000	-0.000001
12	-0.00001	-.0000002	-0.000000	-.0000004	0.00000	-0.000001
13	-0.00004	0.0000000	-0.000001	-.0000018	-0.00002	-0.000010

OBS	BMI	ALC	SULFATES	_LNLIKE_
1	0.0013774	-0.040877	0.23159	-177415.32
2	0.0000025	0.000001	-0.00000	-177415.32
3	-.0000014	-0.000005	0.00000	-177415.32
4	0.0000021	-0.000003	-0.00001	-177415.32
5	-.0000007	-0.000006	-0.00004	-177415.32
6	-.0000001	-0.000000	0.00000	-177415.32
7	0.0000001	-0.000000	-0.00000	-177415.32
8	-.0000001	-0.000000	-0.00000	-177415.32
9	-.0000033	0.000005	-0.00002	-177415.32
10	-.0000009	0.000000	-0.00001	-177415.32
11	0.0000041	0.000000	-0.00000	-177415.32
12	0.0000001	0.000018	0.00000	-177415.32
13	-.0000010	0.000002	0.00184	-177415.32

Covariance Matrix for All Other Death in ACS Study
3

OBS	_TIES_	_TYPE_	_NAME_	CURCIG	SMKCPD20	SMKCYR25
1	BRESLOW	PARMS	ESTIMATE	0.049556	0.21617	0.16509
2	BRESLOW	COV	CURCIG	0.004748	-0.00061	-0.00221
3	BRESLOW	COV	SMKCPD20	-0.000614	0.00064	-0.00003
4	BRESLOW	COV	SMKCYR25	-0.002206	-0.00003	0.00138
5	BRESLOW	COV	EVPCONLY	0.000044	0.00003	0.00008
6	BRESLOW	COV	XSMKCPD	0.000003	0.00000	-0.00000
7	BRESLOW	COV	XSMKCYR	-0.000001	-0.00000	0.00000
8	BRESLOW	COV	PASSIVE	-0.000016	-0.00000	0.00000
9	BRESLOW	COV	EDULOW	0.000014	-0.00001	0.00000
10	BRESLOW	COV	INDUSEXP	0.000020	-0.00000	-0.00003
11	BRESLOW	COV	BMI	0.000003	-0.00001	-0.00001
12	BRESLOW	COV	ALC	0.000002	-0.00000	0.00000
13	BRESLOW	COV	SULFATES	-0.000006	0.00000	-0.00001

OBS	EVPCONLY	XSMKCPD	XSMKCYR	PASSIVE	EDULOW	INDUSEXP
1	0.12629	0.0044349	0.0061821	-.0012398	0.13324	0.036039
2	0.00004	0.0000034	-.0000009	-.0000155	0.00001	0.000020
3	0.00003	0.0000010	-.0000002	-.0000104	-0.00000	-0.000006
4	0.00008	-.0000011	0.0000028	0.0000034	-0.00003	-0.000011
5	0.00141	0.0000031	0.0000050	-.0000022	0.00001	0.000004
6	0.00000	0.0000007	-.0000005	-.0000000	0.00000	-0.000000
7	0.00000	-.0000005	0.0000007	-.0000000	-0.00000	-0.000000
8	-0.00000	-.0000000	-.0000000	0.0000051	0.00000	-0.000002
9	0.00001	0.0000004	-.0000006	0.0000005	0.00041	-0.000028
10	0.00000	-.0000002	-.0000002	-.0000015	-0.00003	0.000406
11	-0.00000	-.0000001	0.0000001	-.0000001	-0.00000	-0.000001
12	-0.00001	-.0000002	-.0000001	-.0000003	0.00000	-0.000000
13	-0.00004	0.0000001	-.0000006	-.0000020	-0.00002	-0.000007

OBS	BMI	ALC	SULFATES	_LNLIKE_
1	-.0016524	0.0024933	0.012998	-157754.11
2	0.0000033	0.0000017	-0.000006	-157754.11
3	-.0000015	-.0000052	0.000004	-157754.11
4	0.0000022	-.0000035	-0.000013	-157754.11
5	-.0000007	-.0000057	-0.000043	-157754.11
6	-.0000001	-.0000002	0.000000	-157754.11
7	0.0000001	-.0000001	-0.000001	-157754.11
8	-.0000001	-.0000003	-0.000002	-157754.11
9	-.0000041	0.0000038	-0.000024	-157754.11
10	-.0000011	-.0000000	-0.000007	-157754.11
11	0.0000045	0.0000002	-0.000002	-157754.11
12	0.0000002	0.0000142	0.000002	-157754.11
13	-.0000015	0.0000020	0.002170	-157754.11

Output 4b:

Modified Data

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
1
Intervals) by All Cause of Death for the Sulfate Particles
-- with the Female New Subcohort
The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	829147.183	823192.894	5954.289 with 12 DF (p=0.0001)
Score	.	.	6558.806 with 12 DF (p=0.0001)
Wald	.	.	6301.681 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.277415	0.04210	43.41944	0.0001
EVPCONLY	1	0.221992	0.02396	85.86112	0.0001
SMKCPD	1	0.012405	0.0007407	280.48101	0.0001
XSMKCPD	1	0.005252	0.0005171	103.14534	0.0001
SMKCYR	1	0.007825	0.0008822	78.67998	0.0001
XSMKCYR	1	0.012478	0.0004629	726.66995	0.0001
PASSIVE	1	0.001136	0.00139	0.66485	0.4149
EDULOW	1	0.247560	0.01175	444.02462	0.0001
INDUSEXP	1	0.039604	0.01248	10.07614	0.0015
BMI	1	-0.002720	0.00131	4.29467	0.0382
ALC	1	-0.017794	0.00259	47.31403	0.0001
SULFATES	1	0.150844	0.02855	27.91566	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.320	1.215	1.433	Current Smoker
EVPCONLY	1.249	1.191	1.309	Pipe/cigar smoker
SMKCPD	1.012	1.011	1.014	Current cigarettes per day
XSMKCPD	1.005	1.004	1.006	Former cigarettes per day
SMKCYR	1.008	1.006	1.010	Current years smoke
XSMKCYR	1.013	1.012	1.013	Former years smoked
PASSIVE	1.001	0.998	1.004	Passive Smoking
EDULOW	1.281	1.252	1.311	Less than high school education
INDUSEXP	1.040	1.015	1.066	Occupational exposure
BMI	0.997	0.995	1.000	Body Mass Index

```
ALC            0.982        0.977        0.987     Alcohol Drinking
SULFATES       1.163        1.100        1.230     Sulfate Particles
```

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
2

Intervals) by All Cause of Death for the Sulfate Particles
                in Women
    -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	351001.814	348811.195	2190.619 with 11 DF (p=0.0001)
Score	.	.	2553.290 with 11 DF (p=0.0001)
Wald	.	.	2442.521 with 11 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.139839	0.06071	5.30541	0.0213
EVPCONLY	0	0	.	.	.
SMKCPD	1	0.018708	0.00129	209.52600	0.0001
XSMKCPD	1	0.009653	0.00120	64.27878	0.0001
SMKCYR	1	0.007344	0.00135	29.66399	0.0001
XSMKCYR	1	0.008874	0.0009106	94.95610	0.0001
PASSIVE	1	-0.000985	0.00231	0.18197	0.6697
EDULOW	1	0.228844	0.01824	157.37029	0.0001
INDUSEXP	1	0.076841	0.02672	8.27167	0.0040
BMI	1	0.001515	0.00176	0.74492	0.3881
ALC	1	-0.039281	0.00604	42.28815	0.0001
SULFATES	1	0.179169	0.04395	16.62230	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
    95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.150	1.021	1.295	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	1.019	1.016	1.021	Current cigarettes per day
XSMKCPD	1.010	1.007	1.012	Former cigarettes per day
SMKCYR	1.007	1.005	1.010	Current years smoke
XSMKCYR	1.009	1.007	1.011	Former years smoked

PASSIVE	0.999	0.995	1.004	Passive Smoking
EDULOW	1.257	1.213	1.303	Less than high school education
INDUSEXP	1.080	1.025	1.138	Occupational exposure
BMI	1.002	0.998	1.005	Body Mass Index
ALC	0.961	0.950	0.973	Alcohol Drinking
SULFATES	1.196	1.098	1.304	Sulfate Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
3
Intervals) by All Cause of Death for the Sulfate Particles
in Men
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	478145.369	474264.098	3881.270 with 12 DF (p=0.0001)
Score	.	.	4136.931 with 12 DF (p=0.0001)
Wald	.	.	3951.348 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.456720	0.06166	54.86935	0.0001
EVPCONLY	1	0.255633	0.02518	103.06638	0.0001
SMKCPD	1	0.008839	0.0009191	92.49186	0.0001
XSMKCPD	1	0.004602	0.0005806	62.81946	0.0001
SMKCYR	1	0.006760	0.00122	30.80999	0.0001
XSMKCYR	1	0.014044	0.0005579	633.65072	0.0001
PASSIVE	1	0.001652	0.00175	0.88905	0.3457
EDULOW	1	0.249743	0.01548	260.32740	0.0001
INDUSEXP	1	0.029809	0.01411	4.46085	0.0347
BMI	1	-0.008905	0.00197	20.48636	0.0001
ALC	1	-0.012006	0.00285	17.74509	0.0001
SULFATES	1	0.126380	0.03757	11.31587	0.0008

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.579	1.399	1.782	Current Smoker
EVPCONLY	1.291	1.229	1.357	Pipe/cigar smoker

SMKCPD	1.009	1.007	1.011	Current cigarettes per day
XSMKCPD	1.005	1.003	1.006	Former cigarettes per day
SMKCYR	1.007	1.004	1.009	Current years smoke
XSMKCYR	1.014	1.013	1.015	Former years smoked
PASSIVE	1.002	0.998	1.005	Passive Smoking
EDULOW	1.284	1.245	1.323	Less than high school education
INDUSEXP	1.030	1.002	1.059	Occupational exposure
BMI	0.991	0.987	0.995	Body Mass Index
ALC	0.988	0.983	0.994	Alcohol Drinking
SULFATES	1.135	1.054	1.221	Sulfate Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
4
Intervals) by Lung Cancer Related Death for the Sulfate Particles
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	75831.517	70820.661	5010.856 with 12 DF (p=0.0001)
Score	.	.	5705.606 with 12 DF (p=0.0001)
Wald	.	.	3816.474 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.997632	0.13328	56.02591	0.0001
EVPCONLY	1	1.239756	0.11639	113.45428	0.0001
SMKCPD	1	0.023366	0.00168	194.27245	0.0001
XSMKCPD	1	0.015995	0.00157	103.96630	0.0001
SMKCYR	1	0.034038	0.00277	150.93196	0.0001
XSMKCYR	1	0.055832	0.00174	1026	0.0001
PASSIVE	1	0.004199	0.00376	1.24769	0.2640
EDULOW	1	0.396354	0.03936	101.41258	0.0001
INDUSEXP	1	0.044867	0.03901	1.32296	0.2501
BMI	1	-0.061222	0.00484	160.13927	0.0001
ALC	1	0.000579	0.00664	0.00760	0.9305
SULFATES	1	0.308890	0.09764	10.00740	0.0016

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label

```
CURCIG        2.712      2.088      3.521      Current Smoker
EVPCONLY      3.455      2.750      4.340      Pipe/cigar smoker
SMKCPD        1.024      1.020      1.027      Current cigarettes per day
XSMKCPD       1.016      1.013      1.019      Former cigarettes per day
SMKCYR        1.035      1.029      1.040      Current years smoke
XSMKCYR       1.057      1.054      1.061      Former years smoked
PASSIVE       1.004      0.997      1.012      Passive Smoking
EDULOW        1.486      1.376      1.606      Less than high school education
INDUSEXP      1.046      0.969      1.129      Occupational exposure
BMI           0.941      0.932      0.950      Body Mass Index
ALC           1.001      0.988      1.014      Alcohol Drinking
SULFATES      1.362      1.125      1.649      Sulfate Particles
```

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
5
Intervals) by Lung Cancer Related Death for the Sulfate Particles
          in Women
  -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	25724.193	23811.896	1912.298 with 11 DF (p=0.0001)
Score	.	.	2667.763 with 11 DF (p=0.0001)
Wald	.	.	1621.489 with 11 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.890514	0.19493	20.86938	0.0001
EVPCONLY	0	0			.
SMKCPD	1	0.035863	0.00290	153.19734	0.0001
XSMKCPD	1	0.028013	0.00342	67.01558	0.0001
SMKCYR	1	0.027125	0.00427	40.30737	0.0001
XSMKCYR	1	0.043741	0.00325	181.37516	0.0001
PASSIVE	1	0.000226	0.00664	0.00116	0.9729
EDULOW	1	0.291401	0.07663	14.45914	0.0001
INDUSEXP	1	0.118969	0.09207	1.66971	0.1963
BMI	1	-0.044062	0.00750	34.48125	0.0001
ALC	1	-0.014955	0.01619	0.85352	0.3556
SULFATES	1	0.194593	0.17035	1.30484	0.2533

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

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Variable	Risk Ratio	Lower	Upper	Label
CURCIG	2.436	1.663	3.570	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	1.037	1.031	1.042	Current cigarettes per day
XSMKCPD	1.028	1.022	1.035	Former cigarettes per day
SMKCYR	1.027	1.019	1.036	Current years smoke
XSMKCYR	1.045	1.038	1.051	Former years smoked
PASSIVE	1.000	0.987	1.013	Passive Smoking
EDULOW	1.338	1.152	1.555	Less than high school education
INDUSEXP	1.126	0.940	1.349	Occupational exposure
BMI	0.957	0.943	0.971	Body Mass Index
ALC	0.985	0.954	1.017	Alcohol Drinking
SULFATES	1.215	0.870	1.696	Sulfate Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
6
Intervals) by Lung Cancer Related Death for the Sulfate Particles
in Men
  -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	50107.324	46943.571	3163.753 with 12 DF (p=0.0001)
Score	.	.	3353.250 with 12 DF (p=0.0001)
Wald	.	.	2270.189 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	1.161542	0.18892	37.80255	0.0001
EVPCONLY	1	1.398197	0.13039	114.99217	0.0001
SMKCPD	1	0.017387	0.00208	70.18017	0.0001
XSMKCPD	1	0.014166	0.00181	61.55163	0.0001
SMKCYR	1	0.037316	0.00373	99.83078	0.0001
XSMKCYR	1	0.061556	0.00225	748.43496	0.0001
PASSIVE	1	0.005352	0.00456	1.37495	0.2410
EDULOW	1	0.410173	0.04635	78.30779	0.0001
INDUSEXP	1	0.023499	0.04297	0.29905	0.5845
BMI	1	-0.072767	0.00622	136.74512	0.0001
ALC	1	0.005394	0.00724	0.55534	0.4561
SULFATES	1	0.359602	0.11915	9.10851	0.0025

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	3.195	2.206	4.627	Current Smoker
EVPCONLY	4.048	3.135	5.227	Pipe/cigar smoker
SMKCPD	1.018	1.013	1.022	Current cigarettes per day
XSMKCPD	1.014	1.011	1.018	Former cigarettes per day
SMKCYR	1.038	1.030	1.046	Current years smoke
XSMKCYR	1.063	1.059	1.068	Former years smoked
PASSIVE	1.005	0.996	1.014	Passive Smoking
EDULOW	1.507	1.376	1.650	Less than high school education
INDUSEXP	1.024	0.941	1.114	Occupational exposure
BMI	0.930	0.919	0.941	Body Mass Index
ALC	1.005	0.991	1.020	Alcohol Drinking
SULFATES	1.433	1.134	1.810	Sulfate Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
7
Intervals) by Cardiopulmonary Death for the Sulfate Particles
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	394021.990	391066.500	2955.491 with 12 DF (p=0.0001)
Score	.	.	3165.167 with 12 DF (p=0.0001)
Wald	.	.	3076.289 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.627590	0.06302	99.18688	0.0001
EVPCONLY	1	0.249394	0.03264	58.38099	0.0001
SMKCPD	1	0.007810	0.00114	47.00785	0.0001
XSMKCPD	1	0.005048	0.0007307	47.74005	0.0001
SMKCYR	1	0.002206	0.00129	2.92234	0.0874
XSMKCYR	1	0.012905	0.0006346	413.50527	0.0001
PASSIVE	1	0.001988	0.00210	0.89395	0.3444
EDULOW	1	0.299184	0.01612	344.54437	0.0001
INDUSEXP	1	0.034284	0.01791	3.66332	0.0556
BMI	1	0.003302	0.00189	3.04068	0.0812
ALC	1	-0.043209	0.00418	106.89307	0.0001
SULFATES	1	0.249393	0.04080	37.35791	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and 95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.873	1.655	2.119	Current Smoker
EVPCONLY	1.283	1.204	1.368	Pipe/cigar smoker
SMKCPD	1.008	1.006	1.010	Current cigarettes per day
XSMKCPD	1.005	1.004	1.007	Former cigarettes per day
SMKCYR	1.002	1.000	1.005	Current years smoke
XSMKCYR	1.013	1.012	1.014	Former years smoked
PASSIVE	1.002	0.998	1.006	Passive Smoking
EDULOW	1.349	1.307	1.392	Less than high school education
INDUSEXP	1.035	0.999	1.072	Occupational exposure
BMI	1.003	1.000	1.007	Body Mass Index
ALC	0.958	0.950	0.966	Alcohol Drinking
SULFATES	1.283	1.185	1.390	Sulfate Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
8
Intervals) by Cardiopulmonary Death for the Sulfate Particles
in Women
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	148437.089	147165.823	1271.266 with 11 DF (p=0.0001)
Score	.	.	1480.858 with 11 DF (p=0.0001)
Wald	.	.	1413.937 with 11 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.482226	0.09306	26.85434	0.0001
EVPCONLY	0	0	.	.	.
SMKCPD	1	0.018418	0.00208	78.58714	0.0001
XSMKCPD	1	0.008738	0.00196	19.81375	0.0001
SMKCYR	1	0.002189	0.00200	1.19662	0.2740
XSMKCYR	1	0.010168	0.00135	56.52094	0.0001
PASSIVE	1	0.005233	0.00375	1.94547	0.1631
EDULOW	1	0.327011	0.02544	165.19943	0.0001
INDUSEXP	1	0.044351	0.04334	1.04697	0.3062
BMI	1	0.004010	0.00265	2.29546	0.1298

ALC	1	-0.074935	0.01068	49.22308	0.0001
SULFATES	1	0.352554	0.06588	28.63629	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.620	1.350	1.944	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	1.019	1.014	1.023	Current cigarettes per day
XSMKCPD	1.009	1.005	1.013	Former cigarettes per day
SMKCYR	1.002	0.998	1.006	Current years smoke
XSMKCYR	1.010	1.008	1.013	Former years smoked
PASSIVE	1.005	0.998	1.013	Passive Smoking
EDULOW	1.387	1.319	1.458	Less than high school education
INDUSEXP	1.045	0.960	1.138	Occupational exposure
BMI	1.004	0.999	1.009	Body Mass Index
ALC	0.928	0.909	0.947	Alcohol Drinking
SULFATES	1.423	1.250	1.619	Sulfate Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
9
Intervals) by Cardiopulmonary Death for the Sulfate Particles
            in Men
  -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	245584.902	243832.934	1751.968 with 12 DF (p=0.0001)
Score	.	.	1819.157 with 12 DF (p=0.0001)
Wald	.	.	1766.290 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.661239	0.08858	55.72218	0.0001
EVPCONLY	1	0.244300	0.03399	51.65221	0.0001
SMKCPD	1	0.004117	0.00139	8.82553	0.0030
XSMKCPD	1	0.004033	0.0007995	25.44359	0.0001
SMKCYR	1	0.002744	0.00173	2.50355	0.1136
XSMKCYR	1	0.013806	0.0007463	342.19903	0.0001

PASSIVE	1	0.000960	0.00254	0.14226	0.7060
EDULOW	1	0.274640	0.02103	170.56520	0.0001
INDUSEXP	1	0.035998	0.01970	3.33819	0.0677
BMI	1	0.002076	0.00272	0.58426	0.4446
ALC	1	-0.036108	0.00452	63.68153	0.0001
SULFATES	1	0.180345	0.05198	12.03882	0.0005

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and 95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.937	1.628	2.304	Current Smoker
EVPCONLY	1.277	1.194	1.365	Pipe/cigar smoker
SMKCPD	1.004	1.001	1.007	Current cigarettes per day
XSMKCPD	1.004	1.002	1.006	Former cigarettes per day
SMKCYR	1.003	0.999	1.006	Current years smoke
XSMKCYR	1.014	1.012	1.015	Former years smoked
PASSIVE	1.001	0.996	1.006	Passive Smoking
EDULOW	1.316	1.263	1.371	Less than high school education
INDUSEXP	1.037	0.997	1.077	Occupational exposure
BMI	1.002	0.997	1.007	Body Mass Index
ALC	0.965	0.956	0.973	Alcohol Drinking
SULFATES	1.198	1.082	1.326	Sulfate Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence Intervals) by All Cause of Death for the Sulfate Particles Never-smokers
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF_N
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	258686.072	258480.094	205.978 with 6 DF (p=0.0001)
Score	.	.	206.306 with 6 DF (p=0.0001)
Wald	.	.	206.633 with 6 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.

SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	0.001526	0.00346	0.19458	0.6591
EDULOW	1	0.214445	0.01933	123.09842	0.0001
INDUSEXP	1	0.014997	0.02572	0.34005	0.5598
BMI	1	0.008913	0.00202	19.42995	0.0001
ALC	1	-0.037215	0.00748	24.73406	0.0001
SULFATES	1	0.171442	0.04716	13.21356	0.0003

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	.	.	.	Current cigarettes per day
XSMKCPD	.	.	.	Former cigarettes per day
SMKCYR	.	.	.	Current years smoke
XSMKCYR	.	.	.	Former years smoked
PASSIVE	1.002	0.995	1.008	Passive Smoking
EDULOW	1.239	1.193	1.287	Less than high school education
INDUSEXP	1.015	0.965	1.068	Occupational exposure
BMI	1.009	1.005	1.013	Body Mass Index
ALC	0.963	0.949	0.978	Alcohol Drinking
SULFATES	1.187	1.082	1.302	Sulfate Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
11
Intervals) by All Cause of Death for the Sulfate Particles
Never-smokers in Women
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF_N
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	180718.229	180586.102	132.127 with 6 DF (p=0.0001)
Score	.	.	128.914 with 6 DF (p=0.0001)
Wald	.	.	129.577 with 6 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

	Parameter	Standard	Wald	Pr >

Variable	DF	Estimate	Error	Chi-Square	Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	0.003466	0.00412	0.70948	0.3996
EDULOW	1	0.180978	0.02299	61.94529	0.0001
INDUSEXP	1	0.064051	0.03885	2.71833	0.0992
BMI	1	0.007097	0.00228	9.65954	0.0019
ALC	1	-0.060055	0.01205	24.84356	0.0001
SULFATES	1	0.191894	0.05785	11.00222	0.0009

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	.	.	.	Current cigarettes per day
XSMKCPD	.	.	.	Former cigarettes per day
SMKCYR	.	.	.	Current years smoke
XSMKCYR	.	.	.	Former years smoked
PASSIVE	1.003	0.995	1.012	Passive Smoking
EDULOW	1.198	1.146	1.254	Less than high school education
INDUSEXP	1.066	0.988	1.150	Occupational exposure
BMI	1.007	1.003	1.012	Body Mass Index
ALC	0.942	0.920	0.964	Alcohol Drinking
SULFATES	1.212	1.082	1.357	Sulfate Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
12
Intervals) by All Cause of Death for the Sulfate Particles
Never-smokers in Men
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF_N
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	77967.843	77873.348	94.495 with 6 DF (p=0.0001)
Score	.	.	97.913 with 6 DF (p=0.0001)
Wald	.	.	97.544 with 6 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	-0.003587	0.00639	0.31523	0.5745
EDULOW	1	0.295769	0.03556	69.16637	0.0001
INDUSEXP	1	-0.028119	0.03419	0.67642	0.4108
BMI	1	0.015555	0.00440	12.48400	0.0004
ALC	1	-0.021560	0.00924	5.44518	0.0196
SULFATES	1	0.133129	0.08157	2.66374	0.1027

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	.	.	.	Current cigarettes per day
XSMKCPD	.	.	.	Former cigarettes per day
SMKCYR	.	.	.	Current years smoke
XSMKCYR	.	.	.	Former years smoked
PASSIVE	0.996	0.984	1.009	Passive Smoking
EDULOW	1.344	1.254	1.441	Less than high school education
INDUSEXP	0.972	0.909	1.040	Occupational exposure
BMI	1.016	1.007	1.024	Body Mass Index
ALC	0.979	0.961	0.997	Alcohol Drinking
SULFATES	1.142	0.974	1.340	Sulfate Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
13
Intervals) by Lung Cancer Related Death for the Sulfate Particles
        Never-smokers
  -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF_N
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	5092.097	5067.017	25.080 with 6 DF (p=0.0003)

```
Score                                      25.266 with 6 DF (p=0.0003)
Wald                                       25.328 with 6 DF (p=0.0003)
```

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	-0.003104	0.02382	0.01698	0.8963
EDULOW	1	0.339883	0.14484	5.50645	0.0189
INDUSEXP	1	0.410455	0.16540	6.15857	0.0131
BMI	1	-0.053363	0.01592	11.24153	0.0008
ALC	1	-0.027659	0.05157	0.28769	0.5917
SULFATES	1	0.628187	0.34552	3.30540	0.0691

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	.	.	.	Current cigarettes per day
XSMKCPD	.	.	.	Former cigarettes per day
SMKCYR	.	.	.	Current years smoke
XSMKCYR	.	.	.	Former years smoked
PASSIVE	0.997	0.951	1.045	Passive Smoking
EDULOW	1.405	1.058	1.866	Less than high school education
INDUSEXP	1.508	1.090	2.085	Occupational exposure
BMI	0.948	0.919	0.978	Body Mass Index
ALC	0.973	0.879	1.076	Alcohol Drinking
SULFATES	1.874	0.952	3.689	Sulfate Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
14
Intervals) by Lung Cancer Related Death for the Sulfate Particles
          Never-smokers in Women
  -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF_N
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

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Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	3758.366	3742.289	16.076 with 6 DF (p=0.0134)
Score	.	.	15.739 with 6 DF (p=0.0152)
Wald	.	.	15.847 with 6 DF (p=0.0146)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	-0.011903	0.02870	0.17199	0.6784
EDULOW	1	0.235889	0.17359	1.84654	0.1742
INDUSEXP	1	0.360834	0.23769	2.30467	0.1290
BMI	1	-0.054197	0.01802	9.04679	0.0026
ALC	1	-0.007173	0.06567	0.01193	0.9130
SULFATES	1	0.774241	0.41385	3.50006	0.0614

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and 95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	.	.	.	Current cigarettes per day
XSMKCPD	.	.	.	Former cigarettes per day
SMKCYR	.	.	.	Current years smoke
XSMKCYR	.	.	.	Former years smoked
PASSIVE	0.988	0.934	1.045	Passive Smoking
EDULOW	1.266	0.901	1.779	Less than high school education
INDUSEXP	1.435	0.900	2.286	Occupational exposure
BMI	0.947	0.914	0.981	Body Mass Index
ALC	0.993	0.873	1.129	Alcohol Drinking
SULFATES	2.169	0.964	4.881	Sulfate Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
15
Intervals) by Lung Cancer Related Death for the Sulfate Particles
Never-smokers in Men
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF_N
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	1333.731	1322.377	11.354 with 6 DF (p=0.0780)
Score			12.068 with 6 DF (p=0.0605)
Wald			11.901 with 6 DF (p=0.0642)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	0.019937	0.04286	0.21635	0.6418
EDULOW	1	0.592010	0.26458	5.00666	0.0252
INDUSEXP	1	0.437232	0.23413	3.48737	0.0618
BMI	1	-0.047427	0.03429	1.91356	0.1666
ALC	1	-0.056325	0.08302	0.46034	0.4975
SULFATES	1	0.307581	0.62806	0.23983	0.6243

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	.	.	.	Current cigarettes per day
XSMKCPD	.	.	.	Former cigarettes per day
SMKCYR	.	.	.	Current years smoke
XSMKCYR	.	.	.	Former years smoked
PASSIVE	1.020	0.938	1.110	Passive Smoking
EDULOW	1.808	1.076	3.036	Less than high school education
INDUSEXP	1.548	0.979	2.450	Occupational exposure
BMI	0.954	0.892	1.020	Body Mass Index
ALC	0.945	0.803	1.112	Alcohol Drinking
SULFATES	1.360	0.397	4.658	Sulfate Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
16
Intervals) by Cardiopulmonary Death for the Sulfate Particles
        Never-smokers
  -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF_N
Dependent Variable: FAIL
Censoring Variable: CENCOMB

Censoring Value(s): 1
Ties Handling: BRESLOW

                    Testing Global Null Hypothesis: BETA=0

                   Without   With
Criterion   Covariates   Covariates   Model Chi-Square

-2 LOG L   124500.565   124281.571   218.994 with 6 DF (p=0.0001)
Score   .   .   217.420 with 6 DF (p=0.0001)
Wald   .   .   218.370 with 6 DF (p=0.0001)

                    Analysis of Maximum Likelihood Estimates

                       Parameter   Standard   Wald   Pr >
Variable   DF   Estimate   Error   Chi-Square   Chi-Square

CURCIG   0   0   .   .   .
EVPCONLY   0   0   .   .   .
SMKCPD   0   0   .   .   .
XSMKCPD   0   0   .   .   .
SMKCYR   0   0   .   .   .
XSMKCYR   0   0   .   .   .
PASSIVE   1   0.011942   0.00517   5.32592   0.0210
EDULOW   1   0.285391   0.02597   120.78666   0.0001
INDUSEXP   1   -0.032249   0.03729   0.74771   0.3872
BMI   1   0.012314   0.00290   18.04075   0.0001
ALC   1   -0.059979   0.01165   26.52597   0.0001
SULFATES   1   0.310930   0.06646   21.88875   0.0001

                    Analysis of Maximum Likelihood Estimates

                    Conditional Risk Ratio and
                        95% Confidence Limits

               Risk
Variable   Ratio   Lower   Upper   Label

CURCIG   .   .   .   Current Smoker
EVPCONLY   .   .   .   Pipe/cigar smoker
SMKCPD   .   .   .   Current cigarettes per day
XSMKCPD   .   .   .   Former cigarettes per day
SMKCYR   .   .   .   Current years smoke
XSMKCYR   .   .   .   Former years smoked
PASSIVE   1.012   1.002   1.022   Passive Smoking
EDULOW   1.330   1.264   1.400   Less than high school education
INDUSEXP   0.968   0.900   1.042   Occupational exposure
BMI   1.012   1.007   1.018   Body Mass Index
ALC   0.942   0.921   0.964   Alcohol Drinking
SULFATES   1.365   1.198   1.555   Sulfate Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
17
Intervals) by Cardiopulmonary Death for the Sulfate Particles
            Never-smokers in Women
   -- with the Female New Subcohort

The PHREG Procedure

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```
Data Set: WORK.SULF_N
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW
```

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	81979.000	81821.090	157.910 with 6 DF (p=0.0001)
Score	.	.	148.387 with 6 DF (p=0.0001)
Wald	.	.	150.667 with 6 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	0.016316	0.00643	6.44647	0.0111
EDULOW	1	0.260336	0.03129	69.22620	0.0001
INDUSEXP	1	0.006546	0.06174	0.01124	0.9156
BMI	1	0.007209	0.00335	4.62453	0.0315
ALC	1	-0.125045	0.02155	33.68240	0.0001
SULFATES	1	0.347874	0.08381	17.22790	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	.	.	.	Current cigarettes per day
XSMKCPD	.	.	.	Former cigarettes per day
SMKCYR	.	.	.	Current years smoke
XSMKCYR	.	.	.	Former years smoked
PASSIVE	1.016	1.004	1.029	Passive Smoking
EDULOW	1.297	1.220	1.379	Less than high school education
INDUSEXP	1.007	0.892	1.136	Occupational exposure
BMI	1.007	1.001	1.014	Body Mass Index
ALC	0.882	0.846	0.921	Alcohol Drinking
SULFATES	1.416	1.202	1.669	Sulfate Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
18
Intervals) by Cardiopulmonary Death for the Sulfate Particles
Never-smokers in Men

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-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF_N
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	42521.565	42431.999	89.566 with 6 DF (p=0.0001)
Score	.	.	92.950 with 6 DF (p=0.0001)
Wald	.	.	92.675 with 6 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	0.003690	0.00873	0.17848	0.6727
EDULOW	1	0.335106	0.04635	52.26692	0.0001
INDUSEXP	1	-0.058560	0.04675	1.56875	0.2104
BMI	1	0.027536	0.00587	22.01570	0.0001
ALC	1	-0.027828	0.01297	4.60070	0.0320
SULFATES	1	0.242659	0.10931	4.92785	0.0264

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	.	.	.	Current cigarettes per day
XSMKCPD	.	.	.	Former cigarettes per day
SMKCYR	.	.	.	Current years smoke
XSMKCYR	.	.	.	Former years smoked
PASSIVE	1.004	0.987	1.021	Passive Smoking
EDULOW	1.398	1.277	1.531	Less than high school education
INDUSEXP	0.943	0.861	1.034	Occupational exposure
BMI	1.028	1.016	1.040	Body Mass Index
ALC	0.973	0.948	0.998	Alcohol Drinking
SULFATES	1.275	1.029	1.579	Sulfate Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
19
Intervals) by All Cause of Death for the Sulfate Particles
          Ever-smokers
  -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF_E
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	521083.348	517121.478	3961.869 with 12 DF (p=0.0001)
Score	.	.	4003.990 with 12 DF (p=0.0001)
Wald	.	.	3873.285 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.495598	0.04863	103.84641	0.0001
EVPCONLY	1	0.617461	0.03291	352.05301	0.0001
SMKCPD	1	0.011389	0.0007530	228.71825	0.0001
XSMKCPD	1	0.008142	0.0005575	213.31287	0.0001
SMKCYR	1	0.011635	0.0009632	145.92228	0.0001
XSMKCYR	1	0.021239	0.0006636	1024	0.0001
PASSIVE	1	-0.000529	0.00153	0.12027	0.7287
EDULOW	1	0.238244	0.01490	255.49780	0.0001
INDUSEXP	1	0.050352	0.01431	12.37853	0.0004
BMI	1	-0.011813	0.00172	47.07720	0.0001
ALC	1	-0.013910	0.00275	25.67107	0.0001
SULFATES	1	0.140687	0.03588	15.37528	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
   95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.641	1.492	1.806	Current Smoker
EVPCONLY	1.854	1.738	1.978	Pipe/cigar smoker
SMKCPD	1.011	1.010	1.013	Current cigarettes per day
XSMKCPD	1.008	1.007	1.009	Former cigarettes per day
SMKCYR	1.012	1.010	1.014	Current years smoke
XSMKCYR	1.021	1.020	1.023	Former years smoked
PASSIVE	0.999	0.996	1.002	Passive Smoking
EDULOW	1.269	1.232	1.307	Less than high school education

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INDUSEXP	1.052	1.023	1.082	Occupational exposure
BMI	0.988	0.985	0.992	Body Mass Index
ALC	0.986	0.981	0.992	Alcohol Drinking
SULFATES	1.151	1.073	1.235	Sulfate Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence 20 Intervals) by All Cause of Death for the Sulfate Particles Ever-smokers in Women -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF_E
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	146255.687	145181.322	1074.365 with 11 DF (p=0.0001)
Score	.	.	1092.454 with 11 DF (p=0.0001)
Wald	.	.	1056.228 with 11 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.322341	0.07320	19.38917	0.0001
EVPCONLY	0	0	.	.	.
SMKCPD	1	0.017622	0.00132	177.88364	0.0001
XSMKCPD	1	0.011547	0.00128	81.49321	0.0001
SMKCYR	1	0.010079	0.00149	45.51839	0.0001
XSMKCYR	1	0.016493	0.00133	153.57017	0.0001
PASSIVE	1	-0.003673	0.00279	1.73469	0.1878
EDULOW	1	0.282706	0.02995	89.12855	0.0001
INDUSEXP	1	0.095914	0.03687	6.76895	0.0093
BMI	1	-0.006499	0.00275	5.56573	0.0183
ALC	1	-0.030485	0.00693	19.32408	0.0001
SULFATES	1	0.167403	0.06763	6.12634	0.0133

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and 95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.380	1.196	1.593	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	1.018	1.015	1.020	Current cigarettes per day
XSMKCPD	1.012	1.009	1.014	Former cigarettes per day

SMKCYR	1.010	1.007	1.013	Current years smoke
XSMKCYR	1.017	1.014	1.019	Former years smoked
PASSIVE	0.996	0.991	1.002	Passive Smoking
EDULOW	1.327	1.251	1.407	Less than high school education
INDUSEXP	1.101	1.024	1.183	Occupational exposure
BMI	0.994	0.988	0.999	Body Mass Index
ALC	0.970	0.957	0.983	Alcohol Drinking
SULFATES	1.182	1.035	1.350	Sulfate Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
21
Intervals) by All Cause of Death for the Sulfate Particles
Ever-smokers in Men
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF_E
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	374827.661	371853.941	2973.719 with 12 DF (p=0.0001)
Score			3015.315 with 12 DF (p=0.0001)
Wald			2916.706 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.650786	0.06768	92.46948	0.0001
EVPCONLY	1	0.672465	0.03652	339.15067	0.0001
SMKCPD	1	0.008146	0.0009267	77.27178	0.0001
XSMKCPD	1	0.007837	0.0006303	154.59892	0.0001
SMKCYR	1	0.011309	0.00130	76.03532	0.0001
XSMKCYR	1	0.022874	0.0007707	880.80351	0.0001
PASSIVE	1	0.000477	0.00183	0.06825	0.7939
EDULOW	1	0.218430	0.01722	160.93737	0.0001
INDUSEXP	1	0.044216	0.01552	8.11689	0.0044
BMI	1	-0.015951	0.00220	52.74477	0.0001
ALC	1	-0.010138	0.00299	11.51405	0.0007
SULFATES	1	0.127613	0.04234	9.08443	0.0026

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label

CURCIG	1.917	1.679	2.189	Current Smoker	
EVPCONLY	1.959	1.824	2.104	Pipe/cigar smoker	
SMKCPD	1.008	1.006	1.010	Current cigarettes per day	
XSMKCPD	1.008	1.007	1.009	Former cigarettes per day	
SMKCYR	1.011	1.009	1.014	Current years smoke	
XSMKCYR	1.023	1.022	1.025	Former years smoked	
PASSIVE	1.000	0.997	1.004	Passive Smoking	
EDULOW	1.244	1.203	1.287	Less than high school education	
INDUSEXP	1.045	1.014	1.077	Occupational exposure	
BMI	0.984	0.980	0.988	Body Mass Index	
ALC	0.990	0.984	0.996	Alcohol Drinking	
SULFATES	1.136	1.046	1.234	Sulfate Particles	

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
22
Intervals) by Lung Cancer Related Death for the Sulfate Particles
        Ever-smokers
  -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF_E
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	66818.233	63920.155	2898.078 with 12 DF (p=0.0001)
Score	.	.	2866.920 with 12 DF (p=0.0001)
Wald	.	.	2326.904 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	1.286718	0.15379	70.00073	0.0001
EVPCONLY	1	1.775017	0.14210	156.02726	0.0001
SMKCPD	1	0.022310	0.00169	174.51987	0.0001
XSMKCPD	1	0.018519	0.00164	127.36757	0.0001
SMKCYR	1	0.040434	0.00298	183.77327	0.0001
XSMKCYR	1	0.068106	0.00244	777.95177	0.0001
PASSIVE	1	0.002710	0.00381	0.50575	0.4770
EDULOW	1	0.369763	0.04106	81.09688	0.0001
INDUSEXP	1	0.023233	0.04010	0.33568	0.5623
BMI	1	-0.062777	0.00507	153.10457	0.0001
ALC	1	0.001439	0.00667	0.04650	0.8293
SULFATES	1	0.281993	0.10180	7.67374	0.0056

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	3.621	2.679	4.895	Current Smoker
EVPCONLY	5.900	4.466	7.795	Pipe/cigar smoker
SMKCPD	1.023	1.019	1.026	Current cigarettes per day
XSMKCPD	1.019	1.015	1.022	Former cigarettes per day
SMKCYR	1.041	1.035	1.047	Current years smoke
XSMKCYR	1.070	1.065	1.076	Former years smoked
PASSIVE	1.003	0.995	1.010	Passive Smoking
EDULOW	1.447	1.335	1.569	Less than high school education
INDUSEXP	1.024	0.946	1.107	Occupational exposure
BMI	0.939	0.930	0.949	Body Mass Index
ALC	1.001	0.988	1.015	Alcohol Drinking
SULFATES	1.326	1.086	1.619	Sulfate Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
23
Intervals) by Lung Cancer Related Death for the Sulfate Particles
Ever-smokers in Women
  -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF_E
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	19829.884	18989.164	840.720 with 11 DF (p=0.0001)
Score	.	.	807.555 with 11 DF (p=0.0001)
Wald	.	.	638.768 with 11 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	1.519117	0.26020	34.08465	0.0001
EVPCONLY	0	0	.	.	.
SMKCPD	1	0.034161	0.00294	135.39539	0.0001
XSMKCPD	1	0.032154	0.00356	81.58215	0.0001
SMKCYR	1	0.037012	0.00487	57.87789	0.0001
XSMKCYR	1	0.068465	0.00535	163.66951	0.0001
PASSIVE	1	-0.001375	0.00685	0.04033	0.8408
EDULOW	1	0.267489	0.08561	9.76280	0.0018
INDUSEXP	1	0.088271	0.09987	0.78123	0.3768
BMI	1	-0.042891	0.00826	26.96913	0.0001
ALC	1	-0.014212	0.01659	0.73416	0.3915
SULFATES	1	0.082321	0.18687	0.19407	0.6596

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and 95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	4.568	2.743	7.607	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	1.035	1.029	1.041	Current cigarettes per day
XSMKCPD	1.033	1.025	1.040	Former cigarettes per day
SMKCYR	1.038	1.028	1.048	Current years smoke
XSMKCYR	1.071	1.060	1.082	Former years smoked
PASSIVE	0.999	0.985	1.012	Passive Smoking
EDULOW	1.307	1.105	1.545	Less than high school education
INDUSEXP	1.092	0.898	1.328	Occupational exposure
BMI	0.958	0.943	0.974	Body Mass Index
ALC	0.986	0.954	1.018	Alcohol Drinking
SULFATES	1.086	0.753	1.566	Sulfate Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
24
Intervals) by Lung Cancer Related Death for the Sulfate Particles
Ever-smokers in Men
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF_E
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	46988.349	44876.655	2111.694 with 12 DF (p=0.0001)
Score	.	.	2133.508 with 12 DF (p=0.0001)
Wald	.	.	1734.484 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	1.268797	0.20143	39.67641	0.0001
EVPCONLY	1	1.655210	0.15275	117.41974	0.0001
SMKCPD	1	0.016982	0.00208	66.52089	0.0001
XSMKCPD	1	0.015364	0.00188	66.96111	0.0001
SMKCYR	1	0.040893	0.00386	112.21802	0.0001
XSMKCYR	1	0.067383	0.00276	595.23981	0.0001
PASSIVE	1	0.004489	0.00459	0.95646	0.3281
EDULOW	1	0.393820	0.04710	69.92257	0.0001
INDUSEXP	1	0.008369	0.04371	0.03666	0.8482
BMI	1	-0.073733	0.00632	135.90222	0.0001
ALC	1	0.006187	0.00726	0.72676	0.3939
SULFATES	1	0.363943	0.12135	8.99459	0.0027

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	3.557	2.396	5.278	Current Smoker
EVPCONLY	5.234	3.880	7.061	Pipe/cigar smoker
SMKCPD	1.017	1.013	1.021	Current cigarettes per day
XSMKCPD	1.015	1.012	1.019	Former cigarettes per day
SMKCYR	1.042	1.034	1.050	Current years smoke
XSMKCYR	1.070	1.064	1.076	Former years smoked
PASSIVE	1.004	0.996	1.014	Passive Smoking
EDULOW	1.483	1.352	1.626	Less than high school education
INDUSEXP	1.008	0.926	1.099	Occupational exposure
BMI	0.929	0.917	0.941	Body Mass Index
ALC	1.006	0.992	1.021	Alcohol Drinking
SULFATES	1.439	1.134	1.825	Sulfate Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
25
Intervals) by Cardiopulmonary Death for the Sulfate Particles
         Ever-smokers
  -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF_E
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	245942.855	243970.580	1972.275 with 12 DF (p=0.0001)
Score	.	.	1943.378 with 12 DF (p=0.0001)
Wald	.	.	1896.782 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.844405	0.07251	135.63080	0.0001
EVPCONLY	1	0.707327	0.04619	234.52074	0.0001
SMKCPD	1	0.006773	0.00116	34.19882	0.0001
XSMKCPD	1	0.008300	0.0007871	111.19983	0.0001
SMKCYR	1	0.007108	0.00139	26.14515	0.0001
XSMKCYR	1	0.022658	0.0009238	601.58484	0.0001
PASSIVE	1	-0.001702	0.00230	0.54626	0.4598
EDULOW	1	0.278513	0.02075	180.22250	0.0001
INDUSEXP	1	0.059653	0.02051	8.45829	0.0036

BMI	1	-0.003934	0.00250	2.48424	0.1150
ALC	1	-0.039042	0.00446	76.77252	0.0001
SULFATES	1	0.210491	0.05174	16.55140	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	2.327	2.018	2.682	Current Smoker
EVPCONLY	2.029	1.853	2.221	Pipe/cigar smoker
SMKCPD	1.007	1.005	1.009	Current cigarettes per day
XSMKCPD	1.008	1.007	1.010	Former cigarettes per day
SMKCYR	1.007	1.004	1.010	Current years smoke
XSMKCYR	1.023	1.021	1.025	Former years smoked
PASSIVE	0.998	0.994	1.003	Passive Smoking
EDULOW	1.321	1.269	1.376	Less than high school education
INDUSEXP	1.061	1.020	1.105	Occupational exposure
BMI	0.996	0.991	1.001	Body Mass Index
ALC	0.962	0.953	0.970	Alcohol Drinking
SULFATES	1.234	1.115	1.366	Sulfate Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
26
Intervals) by Cardiopulmonary Death for the Sulfate Particles
Ever-smokers in Women
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF_E
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	56360.341	55731.515	628.825 with 11 DF (p=0.0001)
Score	.	.	626.899 with 11 DF (p=0.0001)
Wald	.	.	598.780 with 11 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.716171	0.11642	37.84306	0.0001
EVPCONLY	0	0	.	.	.
SMKCPD	1	0.016011	0.00213	56.63032	0.0001
XSMKCPD	1	0.010365	0.00207	24.98719	0.0001
SMKCYR	1	0.006883	0.00220	9.76915	0.0018

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XSMKCYR	1	0.020854	0.00205	103.35144	0.0001
PASSIVE	1	-0.001897	0.00460	0.17011	0.6800
EDULOW	1	0.416999	0.04341	92.29599	0.0001
INDUSEXP	1	0.092752	0.06106	2.30729	0.1288
BMI	1	-0.000987	0.00432	0.05223	0.8192
ALC	1	-0.053031	0.01205	19.35874	0.0001
SULFATES	1	0.366315	0.10690	11.74211	0.0006

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and 95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	2.047	1.629	2.571	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	1.016	1.012	1.020	Current cigarettes per day
XSMKCPD	1.010	1.006	1.015	Former cigarettes per day
SMKCYR	1.007	1.003	1.011	Current years smoke
XSMKCYR	1.021	1.017	1.025	Former years smoked
PASSIVE	0.998	0.989	1.007	Passive Smoking
EDULOW	1.517	1.394	1.652	Less than high school education
INDUSEXP	1.097	0.973	1.237	Occupational exposure
BMI	0.999	0.991	1.008	Body Mass Index
ALC	0.948	0.926	0.971	Alcohol Drinking
SULFATES	1.442	1.170	1.779	Sulfate Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
27
Intervals) by Cardiopulmonary Death for the Sulfate Particles
Ever-smokers in Men
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF_E
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	189582.515	188186.998	1395.517 with 12 DF (p=0.0001)
Score	.	.	1384.862 with 12 DF (p=0.0001)
Wald	.	.	1357.158 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.880999	0.09673	82.96039	0.0001

EVPCONLY	1	0.701107	0.05007	196.05563	0.0001
SMKCPD	1	0.003393	0.00140	5.90300	0.0151
XSMKCPD	1	0.007624	0.0008669	77.34556	0.0001
SMKCYR	1	0.007520	0.00183	16.83339	0.0001
XSMKCYR	1	0.023275	0.00104	499.33700	0.0001
PASSIVE	1	-0.001347	0.00266	0.25586	0.6130
EDULOW	1	0.236109	0.02364	99.77163	0.0001
INDUSEXP	1	0.060489	0.02178	7.71653	0.0055
BMI	1	-0.005977	0.00306	3.81862	0.0507
ALC	1	-0.035990	0.00479	56.34484	0.0001
SULFATES	1	0.159797	0.05913	7.30302	0.0069

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	2.413	1.997	2.917	Current Smoker
EVPCONLY	2.016	1.828	2.224	Pipe/cigar smoker
SMKCPD	1.003	1.001	1.006	Current cigarettes per day
XSMKCPD	1.008	1.006	1.009	Former cigarettes per day
SMKCYR	1.008	1.004	1.011	Current years smoke
XSMKCYR	1.024	1.021	1.026	Former years smoked
PASSIVE	0.999	0.993	1.004	Passive Smoking
EDULOW	1.266	1.209	1.326	Less than high school education
INDUSEXP	1.062	1.018	1.109	Occupational exposure
BMI	0.994	0.988	1.000	Body Mass Index
ALC	0.965	0.956	0.974	Alcohol Drinking
SULFATES	1.173	1.045	1.317	Sulfate Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence 1
Intervals) by Cardiopulmonary+Asthma Death for the Sulfate Particles
  -- with the Female New Subcohort
The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	395272.837	392324.662	2948.176 with 12 DF (p=0.0001)
Score	.	.	3155.784 with 12 DF (p=0.0001)
Wald	.	.	3067.965 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.615399	0.06299	95.44964	0.0001
EVPCONLY	1	0.248016	0.03262	57.81483	0.0001
SMKCPD	1	0.007740	0.00114	46.18555	0.0001
XSMKCPD	1	0.005026	0.0007295	47.46993	0.0001
SMKCYR	1	0.002438	0.00129	3.57379	0.0587
XSMKCYR	1	0.012938	0.0006336	416.97564	0.0001
PASSIVE	1	0.002111	0.00210	1.01044	0.3148
EDULOW	1	0.298705	0.01610	344.28708	0.0001
INDUSEXP	1	0.034626	0.01789	3.74734	0.0529
BMI	1	0.003305	0.00189	3.05878	0.0803
ALC	1	-0.043238	0.00417	107.27348	0.0001
SULFATES	1	0.240555	0.04074	34.86216	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.850	1.635	2.094	Current Smoker
EVPCONLY	1.281	1.202	1.366	Pipe/cigar smoker
SMKCPD	1.008	1.006	1.010	Current cigarettes per day
XSMKCPD	1.005	1.004	1.006	Former cigarettes per day
SMKCYR	1.002	1.000	1.005	Current years smoke
XSMKCYR	1.013	1.012	1.014	Former years smoked
PASSIVE	1.002	0.998	1.006	Passive Smoking
EDULOW	1.348	1.306	1.391	Less than high school education
INDUSEXP	1.035	1.000	1.072	Occupational exposure
BMI	1.003	1.000	1.007	Body Mass Index

```
ALC              0.958       0.950       0.966      Alcohol Drinking
SULFATES         1.272       1.174       1.378      Sulfate Particles
```
Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
2
Intervals) by Cardiopulmonary+Asthma Death for the Sulfate Particles
            in Women
   -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

            Testing Global Null Hypothesis: BETA=0

             Without   With
Criterion   Covariates   Covariates   Model Chi-Square

-2 LOG L   149232.637   147970.703   1261.934 with 11 DF (p=0.0001)
Score   1466.665 with 11 DF (p=0.0001)
Wald   1401.962 with 11 DF (p=0.0001)

            Analysis of Maximum Likelihood Estimates

                    Parameter   Standard   Wald   Pr >
Variable   DF   Estimate   Error   Chi-Square Chi-Square

CURCIG   1   0.466090   0.09308   25.07584   0.0001
EVPCONLY   0   0   .   .   .
SMKCPD   1   0.018243   0.00208   77.10431   0.0001
XSMKCPD   1   0.008683   0.00195   19.75523   0.0001
SMKCYR   1   0.002452   0.00200   1.50096   0.2205
XSMKCYR   1   0.010306   0.00135   58.64122   0.0001
PASSIVE   1   0.005767   0.00374   2.38074   0.1228
EDULOW   1   0.325632   0.02540   164.39893   0.0001
INDUSEXP   1   0.044343   0.04320   1.05356   0.3047
BMI   1   0.004162   0.00264   2.48782   0.1147
ALC   1   -0.075125   0.01066   49.67760   0.0001
SULFATES   1   0.343328   0.06572   27.28877   0.0001

            Analysis of Maximum Likelihood Estimates

            Conditional Risk Ratio and
              95% Confidence Limits

            Risk
Variable   Ratio   Lower   Upper   Label

CURCIG   1.594   1.328   1.913   Current Smoker
EVPCONLY   .   .   .   Pipe/cigar smoker
SMKCPD   1.018   1.014   1.023   Current cigarettes per day
XSMKCPD   1.009   1.005   1.013   Former cigarettes per day
SMKCYR   1.002   0.999   1.006   Current years smoke
XSMKCYR   1.010   1.008   1.013   Former years smoked
```

PASSIVE	1.006	0.998	1.013	Passive Smoking
EDULOW	1.385	1.318	1.456	Less than high school education
INDUSEXP	1.045	0.960	1.138	Occupational exposure
BMI	1.004	0.999	1.009	Body Mass Index
ALC	0.928	0.908	0.947	Alcohol Drinking
SULFATES	1.410	1.239	1.603	Sulfate Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence 3
Intervals) by Cardiopulmonary+Asthma Death for the Sulfate Particles in Men
   -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	246040.200	244287.282	1752.918 with 12 DF (p=0.0001)
Score	.	.	1820.001 with 12 DF (p=0.0001)
Wald	.	.	1767.140 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.656415	0.08853	54.97581	0.0001
EVPCONLY	1	0.243627	0.03397	51.42714	0.0001
SMKCPD	1	0.004046	0.00139	8.52997	0.0035
XSMKCPD	1	0.004046	0.0007987	25.66718	0.0001
SMKCYR	1	0.002883	0.00173	2.76823	0.0962
XSMKCYR	1	0.013811	0.0007456	343.07457	0.0001
PASSIVE	1	0.000851	0.00254	0.11194	0.7379
EDULOW	1	0.274680	0.02101	170.91598	0.0001
INDUSEXP	1	0.036378	0.01968	3.41596	0.0646
BMI	1	0.001893	0.00271	0.48630	0.4856
ALC	1	-0.036085	0.00452	63.72681	0.0001
SULFATES	1	0.171631	0.05193	10.92394	0.0009

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
   95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.928	1.621	2.293	Current Smoker
EVPCONLY	1.276	1.194	1.364	Pipe/cigar smoker

SMKCPD	1.004	1.001	1.007	Current cigarettes per day
XSMKCPD	1.004	1.002	1.006	Former cigarettes per day
SMKCYR	1.003	0.999	1.006	Current years smoke
XSMKCYR	1.014	1.012	1.015	Former years smoked
PASSIVE	1.001	0.996	1.006	Passive Smoking
EDULOW	1.316	1.263	1.371	Less than high school education
INDUSEXP	1.037	0.998	1.078	Occupational exposure
BMI	1.002	0.997	1.007	Body Mass Index
ALC	0.965	0.956	0.973	Alcohol Drinking
SULFATES	1.187	1.072	1.314	Sulfate Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
4
Intervals) by Cardiopulmonary+Asthma Death for the Sulfate Particles
            Never-smokers
  -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF_N
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	124993.647	124775.284	218.363 with 6 DF (p=0.0001)
Score	.	.	216.907 with 6 DF (p=0.0001)
Wald	.	.	217.830 with 6 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	0.012522	0.00515	5.91261	0.0150
EDULOW	1	0.284389	0.02593	120.25597	0.0001
INDUSEXP	1	-0.032111	0.03723	0.74388	0.3884
BMI	1	0.012429	0.00289	18.46931	0.0001
ALC	1	-0.059550	0.01161	26.32058	0.0001
SULFATES	1	0.304465	0.06635	21.05869	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
   95% Confidence Limits

      Risk

Variable	Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	.	.	.	Current cigarettes per day
XSMKCPD	.	.	.	Former cigarettes per day
SMKCYR	.	.	.	Current years smoke
XSMKCYR	.	.	.	Former years smoked
PASSIVE	1.013	1.002	1.023	Passive Smoking
EDULOW	1.329	1.263	1.398	Less than high school education
INDUSEXP	0.968	0.900	1.042	Occupational exposure
BMI	1.013	1.007	1.018	Body Mass Index
ALC	0.942	0.921	0.964	Alcohol Drinking
SULFATES	1.356	1.191	1.544	Sulfate Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
5
Intervals) by Cardiopulmonary+Asthma Death for the Sulfate Particles
Never-smokers in Women
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF_N
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	82417.255	82259.147	158.108 with 6 DF (p=0.0001)
Score	.	.	148.597 with 6 DF (p=0.0001)
Wald	.	.	150.893 with 6 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	0.017083	0.00638	7.15930	0.0075
EDULOW	1	0.259151	0.03123	68.84752	0.0001
INDUSEXP	1	0.006144	0.06153	0.00997	0.9205
BMI	1	0.007460	0.00334	4.98524	0.0256
ALC	1	-0.124803	0.02147	33.79779	0.0001
SULFATES	1	0.339958	0.08361	16.53079	0.0001

Analysis of Maximum Likelihood Estimates

```
                    Conditional Risk Ratio and
                      95% Confidence Limits

                    Risk
Variable            Ratio       Lower       Upper       Label

CURCIG                .           .           .         Current Smoker
EVPCONLY              .           .           .         Pipe/cigar smoker
SMKCPD                :           .           .         Current cigarettes per day
XSMKCPD               .           .           .         Former cigarettes per day
SMKCYR                .           .           .         Current years smoke
XSMKCYR               .           .           .         Former years smoked
PASSIVE             1.017       1.005       1.030       Passive Smoking
EDULOW              1.296       1.219       1.378       Less than high school education
INDUSEXP            1.006       0.892       1.135       Occupational exposure
BMI                 1.007       1.001       1.014       Body Mass Index
ALC                 0.883       0.846       0.921       Alcohol Drinking
SULFATES            1.405       1.193       1.655       Sulfate Particles
```

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
6
Intervals) by Cardiopulmonary+Asthma Death for the Sulfate Particles
           Never-smokers in Men
 -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF_N
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

                    Testing Global Null Hypothesis: BETA=0

                    Without   With
Criterion   Covariates   Covariates   Model Chi-Square

-2 LOG L   42576.392   42487.751   88.642 with 6 DF (p=0.0001)
Score   .   .   92.029 with 6 DF (p=0.0001)
Wald   .   .   91.745 with 6 DF (p=0.0001)

                    Analysis of Maximum Likelihood Estimates

                        Parameter   Standard   Wald   Pr >
Variable   DF   Estimate   Error   Chi-Square   Chi-Square

CURCIG   0   0   .   .   .
EVPCONLY   0   0   .   .   .
SMKCPD   0   0   .   .   .
XSMKCPD   0   0   .   .   .
SMKCYR   0   0   .   .   .
XSMKCYR   0   0   .   .   .
PASSIVE   1   0.003885   0.00872   0.19842   0.6560
EDULOW   1   0.334582   0.04634   52.12362   0.0001
INDUSEXP   1   -0.058183   0.04672   1.55089   0.2130
BMI   1   0.027290   0.00587   21.63316   0.0001
ALC   1   -0.027208   0.01292   4.43801   0.0351
SULFATES   1   0.238437   0.10925   4.76292   0.0291
```

## Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

| Variable | Risk Ratio | Lower | Upper | Label |
|---|---|---|---|---|
| CURCIG | . | . | . | Current Smoker |
| EVPCONLY | . | . | . | Pipe/cigar smoker |
| SMKCPD | . | . | . | Current cigarettes per day |
| XSMKCPD | . | . | . | Former cigarettes per day |
| SMKCYR | . | . | . | Current years smoke |
| XSMKCYR | . | . | . | Former years smoked |
| PASSIVE | 1.004 | 0.987 | 1.021 | Passive Smoking |
| EDULOW | 1.397 | 1.276 | 1.530 | Less than high school education |
| INDUSEXP | 0.943 | 0.861 | 1.034 | Occupational exposure |
| BMI | 1.028 | 1.016 | 1.040 | Body Mass Index |
| ALC | 0.973 | 0.949 | 0.998 | Alcohol Drinking |
| SULFATES | 1.269 | 1.025 | 1.572 | Sulfate Particles |

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
7
Intervals) by Cardiopulmonary+Asthma Death for the Sulfate Particles
        Ever-smokers
  -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF_E
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

### Testing Global Null Hypothesis: BETA=0

| Criterion | Without Covariates | With Covariates | Model Chi-Square |
|---|---|---|---|
| -2 LOG L | 246622.457 | 244659.076 | 1963.381 with 12 DF (p=0.0001) |
| Score | . | . | 1934.924 with 12 DF (p=0.0001) |
| Wald | . | . | 1889.071 with 12 DF (p=0.0001) |

### Analysis of Maximum Likelihood Estimates

| Variable | DF | Parameter Estimate | Standard Error | Wald Chi-Square | Pr > Chi-Square |
|---|---|---|---|---|---|
| CURCIG | 1 | 0.829727 | 0.07243 | 131.22107 | 0.0001 |
| EVPCONLY | 1 | 0.701792 | 0.04611 | 231.64238 | 0.0001 |
| SMKCPD | 1 | 0.006718 | 0.00116 | 33.66027 | 0.0001 |
| XSMKCPD | 1 | 0.008247 | 0.0007860 | 110.10184 | 0.0001 |
| SMKCYR | 1 | 0.007311 | 0.00139 | 27.68672 | 0.0001 |
| XSMKCYR | 1 | 0.022608 | 0.0009219 | 601.32268 | 0.0001 |
| PASSIVE | 1 | -0.001671 | 0.00230 | 0.52742 | 0.4677 |
| EDULOW | 1 | 0.278460 | 0.02072 | 180.58403 | 0.0001 |
| INDUSEXP | 1 | 0.059972 | 0.02048 | 8.57150 | 0.0034 |

| | | | | | |
|---|---|---|---|---|---|
| BMI | 1 | -0.004019 | 0.00249 | 2.60029 | 0.1068 |
| ALC | 1 | -0.039155 | 0.00445 | 77.32033 | 0.0001 |
| SULFATES | 1 | 0.200063 | 0.05167 | 14.99402 | 0.0001 |

### Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

| Variable | Risk Ratio | Lower | Upper | Label |
|---|---|---|---|---|
| CURCIG | 2.293 | 1.989 | 2.642 | Current Smoker |
| EVPCONLY | 2.017 | 1.843 | 2.208 | Pipe/cigar smoker |
| SMKCPD | 1.007 | 1.004 | 1.009 | Current cigarettes per day |
| XSMKCPD | 1.008 | 1.007 | 1.010 | Former cigarettes per day |
| SMKCYR | 1.007 | 1.005 | 1.010 | Current years smoke |
| XSMKCYR | 1.023 | 1.021 | 1.025 | Former years smoked |
| PASSIVE | 0.998 | 0.994 | 1.003 | Passive Smoking |
| EDULOW | 1.321 | 1.269 | 1.376 | Less than high school education |
| INDUSEXP | 1.062 | 1.020 | 1.105 | Occupational exposure |
| BMI | 0.996 | 0.991 | 1.001 | Body Mass Index |
| ALC | 0.962 | 0.953 | 0.970 | Alcohol Drinking |
| SULFATES | 1.221 | 1.104 | 1.352 | Sulfate Particles |

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
8
Intervals) by Cardiopulmonary+Asthma Death for the Sulfate Particles
Ever-smokers in Women
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF_E
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

### Testing Global Null Hypothesis: BETA=0

| Criterion | Without Covariates | With Covariates | Model Chi-Square |
|---|---|---|---|
| -2 LOG L | 56662.084 | 56040.785 | 621.299 with 11 DF (p=0.0001) |
| Score | . | | 618.879 with 11 DF (p=0.0001) |
| Wald | . | | 591.902 with 11 DF (p=0.0001) |

### Analysis of Maximum Likelihood Estimates

| Variable | DF | Parameter Estimate | Standard Error | Wald Chi-Square | Pr > Chi-Square |
|---|---|---|---|---|---|
| CURCIG | 1 | 0.698071 | 0.11619 | 36.09381 | 0.0001 |
| EVPCONLY | 0 | 0 | . | . | . |
| SMKCPD | 1 | 0.015871 | 0.00213 | 55.65403 | 0.0001 |
| XSMKCPD | 1 | 0.010287 | 0.00206 | 24.84456 | 0.0001 |
| SMKCYR | 1 | 0.007085 | 0.00220 | 10.35117 | 0.0013 |

| Variable | DF | Parameter Estimate | Standard Error | Wald Chi-Square | Pr > Chi-Square |
|---|---|---|---|---|---|
| XSMKCYR | 1 | 0.020887 | 0.00204 | 104.71643 | 0.0001 |
| PASSIVE | 1 | -0.001465 | 0.00459 | 0.10196 | 0.7495 |
| EDULOW | 1 | 0.415509 | 0.04333 | 91.94115 | 0.0001 |
| INDUSEXP | 1 | 0.092793 | 0.06086 | 2.32431 | 0.1274 |
| BMI | 1 | -0.000994 | 0.00430 | 0.05332 | 0.8174 |
| ALC | 1 | -0.053365 | 0.01204 | 19.64784 | 0.0001 |
| SULFATES | 1 | 0.354919 | 0.10663 | 11.07817 | 0.0009 |

### Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

| Variable | Risk Ratio | Lower | Upper | Label |
|---|---|---|---|---|
| CURCIG | 2.010 | 1.601 | 2.524 | Current Smoker |
| EVPCONLY | . | . | . | Pipe/cigar smoker |
| SMKCPD | 1.016 | 1.012 | 1.020 | Current cigarettes per day |
| XSMKCPD | 1.010 | 1.006 | 1.014 | Former cigarettes per day |
| SMKCYR | 1.007 | 1.003 | 1.011 | Current years smoke |
| XSMKCYR | 1.021 | 1.017 | 1.025 | Former years smoked |
| PASSIVE | 0.999 | 0.990 | 1.008 | Passive Smoking |
| EDULOW | 1.515 | 1.392 | 1.649 | Less than high school education |
| INDUSEXP | 1.097 | 0.974 | 1.236 | Occupational exposure |
| BMI | 0.999 | 0.991 | 1.007 | Body Mass Index |
| ALC | 0.948 | 0.926 | 0.971 | Alcohol Drinking |
| SULFATES | 1.426 | 1.157 | 1.758 | Sulfate Particles |

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
9
Intervals) by Cardiopulmonary+Asthma Death for the Sulfate Particles
Ever-smokers in Men
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF_E
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

### Testing Global Null Hypothesis: BETA=0

| Criterion | Without Covariates | With Covariates | Model Chi-Square |
|---|---|---|---|
| -2 LOG L | 189960.373 | 188567.298 | 1393.075 with 12 DF (p=0.0001) |
| Score | . | . | 1382.815 with 12 DF (p=0.0001) |
| Wald | . | . | 1355.204 with 12 DF (p=0.0001) |

### Analysis of Maximum Likelihood Estimates

| Variable | DF | Parameter Estimate | Standard Error | Wald Chi-Square | Pr > Chi-Square |
|---|---|---|---|---|---|
| CURCIG | 1 | 0.872353 | 0.09664 | 81.48206 | 0.0001 |

| | | | | | |
|---|---|---|---|---|---|
| EVPCONLY | 1 | 0.696625 | 0.05001 | 194.05882 | 0.0001 |
| SMKCPD | 1 | 0.003334 | 0.00140 | 5.70311 | 0.0169 |
| XSMKCPD | 1 | 0.007605 | 0.0008660 | 77.11526 | 0.0001 |
| SMKCYR | 1 | 0.007659 | 0.00183 | 17.49479 | 0.0001 |
| XSMKCYR | 1 | 0.023205 | 0.00104 | 497.64559 | 0.0001 |
| PASSIVE | 1 | -0.001477 | 0.00266 | 0.30788 | 0.5790 |
| EDULOW | 1 | 0.236453 | 0.02361 | 100.27440 | 0.0001 |
| INDUSEXP | 1 | 0.060799 | 0.02175 | 7.81267 | 0.0052 |
| BMI | 1 | -0.006127 | 0.00306 | 4.01976 | 0.0450 |
| ALC | 1 | -0.036067 | 0.00479 | 56.65270 | 0.0001 |
| SULFATES | 1 | 0.149650 | 0.05907 | 6.41855 | 0.0113 |

### Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

| Variable | Risk Ratio | Lower | Upper | Label |
|---|---|---|---|---|
| CURCIG | 2.393 | 1.980 | 2.891 | Current Smoker |
| EVPCONLY | 2.007 | 1.820 | 2.214 | Pipe/cigar smoker |
| SMKCPD | 1.003 | 1.001 | 1.006 | Current cigarettes per day |
| XSMKCPD | 1.008 | 1.006 | 1.009 | Former cigarettes per day |
| SMKCYR | 1.008 | 1.004 | 1.011 | Current years smoke |
| XSMKCYR | 1.023 | 1.021 | 1.026 | Former years smoked |
| PASSIVE | 0.999 | 0.993 | 1.004 | Passive Smoking |
| EDULOW | 1.267 | 1.209 | 1.327 | Less than high school education |
| INDUSEXP | 1.063 | 1.018 | 1.109 | Occupational exposure |
| BMI | 0.994 | 0.988 | 1.000 | Body Mass Index |
| ALC | 0.965 | 0.956 | 0.974 | Alcohol Drinking |
| SULFATES | 1.161 | 1.034 | 1.304 | Sulfate Particles |

# Program #5

```
/**************************************************************
*                                                            *
*      Replicate the results in ACS Study Pope's paper (1995) *
*                                                            *
*      Tab2 Extra -- Adjusted Mortality Risk Ratios (and 95% CI) *
*                    restricted to use data only from 47 areas *
*                                                            *
**************************************************************/

libname acs '/home/yuanli/acss/';

options nocenter ps=64 ls=80 obs=max;

proc format;
     value dead 1 = 'Alive'
                0 = 'Dead'
                ;
     value sex  1 = 'Male'
                2 = 'Female'
                ;
     value race 1 = 'White'
                2 = 'Black'
                3 = 'Other'
                ;
     value ind  0 = 'No.'
                1 = 'Yes'
                ;

filename derdata '/home/fmo/derdata.cport';

proc cimport data=dertest infile=derdata;

* Cox PH Model by Lung Cancer Death for 47 areas ;

data sulff; set dertest;

   if flagdel = 0 and sulfdel = 0 and fpfdel = 0;

   sulfates = meansulf/19.9;

proc phreg data=sulff nosummary;
    model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                           edulow indusexp bmi alc sulfates / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
```

```
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          sulfates = 'Sulfate Particles';
     where west in (0,1);

       title1 'Tab2_Extra: Adjusted Mortality Risk Ratios (and 95%
   Confidence';
       title2 'Intervals) by Lung Cancer Related Death for the Sulfate
   Particles';
       title3 '                    in 47 Areas with both Sulfate and Fine
   Particles';


   * Cox PH Model by Cardiopulmonary Death for 47 areas ;

   proc phreg data=sulff nosummary;
       model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd smkcyr
   xsmkcyr passive
                               edulow indusexp bmi alc sulfates / rl;
       strata age_int (25 to 105 by 5) sex racecat;
       format sex sex. racecat race. ;
       label curcig   = 'Current Smoker'
             smkcpd   = 'Current cigarettes per day'
             smkcyr   = 'Current years smoke'
             xsmkcpd  = 'Former cigarettes per day'
             xsmkcyr  = 'Former years smoked'
             evpconly = 'Pipe/cigar smoker'
             indusexp = 'Occupational exposure'
             edulow   = 'Less than high school education'
             age_int  = 'Age at Interview'
             passive  = 'Passive Smoking'
             bmi      = 'Body Mass Index'
             alc      = 'Alcohol Drinking'
             sulfates = 'Sulfate Particles';
     where west in (0,1);

       title1 'Tab2_Extra: Adjusted Mortality Risk Ratios (and 95%
   Confidence';
       title2 'Intervals) by Cardiopulmonary Death for the Sulfate
   Particles';
       title3 '                    in 47 Areas with both Sulfate and Fine
   Particles';

   run;
   * ACS_tab2_Extra.out
```

```
/******************************
*                            *
*    ACS Sensitivity Phase:   *
*                            *
*    New derdata with --      *
*                            *
*    1.Female Deaths to 89;   *
*    2.Female Former Smokers  *
*                            *
*    ACS Study paper (1995)   *
*    - Table Three for FineP  *
*                            *
******************************/

libname acs '/home/yuanli/acss/';

options nocenter ps=64 ls=80 obs=max;

proc format;
     value dead 1 = 'Alive'
                0 = 'Dead'
                ;
     value sex  1 = 'Male'
                2 = 'Female'
                ;
     value race 1 = 'White'
                2 = 'Black'
                3 = 'Other'
                ;
     value ind  0 = 'No.'
                1 = 'Yes'
                ;


data fpf; set acs.dern;

  if flagd = 0 and fpfd = 0 ;

  fine = fpf/24.5;

  if cencomb = 0 or cenasma = 0 then cencoma = 0;else cencoma =
1;

/*
proc phreg data=fpf nosummary;
    model fail*cenall(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                           edulow indusexp bmi alc fine / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
```

```
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          fine     = 'Fine Particles';
    where west in (0,1);

    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by All Cause of Death for the Fine
Particles';
    title3 '  -- with the Female New Subcohort';

proc phreg data=fpf nosummary;
    model fail*cenall(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                            edulow indusexp bmi alc fine / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          fine     = 'Fine Particles';
    where west in (0,1) and sex eq 2 ;

    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by All Cause of Death for the Fine
Particles';
    title3 '              in Women ';
    title4 '  -- with the Female New Subcohort';

proc phreg data=fpf nosummary;
```

```
    model fail*cenall(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                             edulow indusexp bmi alc fine / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig    = 'Current Smoker'
          smkcpd    = 'Current cigarettes per day'
          smkcyr    = 'Current years smoke'
          xsmkcpd   = 'Former cigarettes per day'
          xsmkcyr   = 'Former years smoked'
          evpconly  = 'Pipe/cigar smoker'
          indusexp  = 'Occupational exposure'
          edulow    = 'Less than high school education'
          age_int   = 'Age at Interview'
          passive   = 'Passive Smoking'
          bmi       = 'Body Mass Index'
          alc       = 'Alcohol Drinking'
          fine      = 'Fine Particles';
    where west in (0,1) and sex eq 1 ;

    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by All Cause of Death for the Fine
Particles';
    title3 '              in Men ';
    title4 '  -- with the Female New Subcohort';
run;


proc phreg data=fpf nosummary;
    model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                             edulow indusexp bmi alc fine / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig    = 'Current Smoker'
          smkcpd    = 'Current cigarettes per day'
          smkcyr    = 'Current years smoke'
          xsmkcpd   = 'Former cigarettes per day'
          xsmkcyr   = 'Former years smoked'
          evpconly  = 'Pipe/cigar smoker'
          indusexp  = 'Occupational exposure'
          edulow    = 'Less than high school education'
          age_int   = 'Age at Interview'
          passive   = 'Passive Smoking'
          bmi       = 'Body Mass Index'
          alc       = 'Alcohol Drinking'
          fine      = 'Fine Particles';
    where west in (0,1);
```

```
    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Lung Cancer Related Death for the Fine
Particles';
    title3 '   -- with the Female New Subcohort';

proc phreg data=fpf nosummary;
    model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                           edulow indusexp bmi alc fine / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          fine     = 'Fine Particles';
    where west in (0,1) and sex eq 2 ;

    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Lung Cancer Related Death for the Fine
Particles';
    title3 '              in Women ';
    title4 '   -- with the Female New Subcohort';

proc phreg data=fpf nosummary;
    model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                           edulow indusexp bmi alc fine / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
```

```
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          fine     = 'Fine Particles';
     where west in (0,1) and sex eq 1;

     title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
     title2 'Intervals) by Lung Cancer Related Death for the Fine
Particles';
     title3 '              in Men ';
     title4 '   -- with the Female New Subcohort';
 run;


proc phreg data=fpf nosummary;
     model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                                   edulow indusexp bmi alc fine / rl;
     strata age_int (25 to 105 by 5) sex racecat;
     format sex sex. racecat race. ;
     label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          fine     = 'Fine Particles';
     where west in (0,1);

     title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
     title2 'Intervals) by Cardiopulmonary Death for the Fine
Particles';
     title3 '   -- with the Female New Subcohort';

proc phreg data=fpf nosummary;
     model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                                   edulow indusexp bmi alc fine / rl;
     strata age_int (25 to 105 by 5) sex racecat;
     format sex sex. racecat race. ;
     label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
```

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```
              xsmkcpd  = 'Former cigarettes per day'
              xsmkcyr  = 'Former years smoked'
              evpconly = 'Pipe/cigar smoker'
              indusexp = 'Occupational exposure'
              edulow   = 'Less than high school education'
              age_int  = 'Age at Interview'
              passive  = 'Passive Smoking'
              bmi      = 'Body Mass Index'
              alc      = 'Alcohol Drinking'
              fine     = 'Fine Particles';
       where west in (0,1) and sex eq 2 ;

          title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
   Confidence';
          title2 'Intervals) by Cardiopulmonary Death for the Fine
   Particles';
          title3 '              in Women ';
          title4 '  -- with the Female New Subcohort';

   proc phreg data=fpf nosummary;
       model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd smkcyr
   xsmkcyr passive
                               edulow indusexp bmi alc fine / rl;
       strata age_int (25 to 105 by 5) sex racecat;
       format sex sex. racecat race. ;
       label curcig   = 'Current Smoker'
             smkcpd   = 'Current cigarettes per day'
             smkcyr   = 'Current years smoke'
             xsmkcpd  = 'Former cigarettes per day'
             xsmkcyr  = 'Former years smoked'
             evpconly = 'Pipe/cigar smoker'
             indusexp = 'Occupational exposure'
             edulow   = 'Less than high school education'
             age_int  = 'Age at Interview'
             passive  = 'Passive Smoking'
             bmi      = 'Body Mass Index'
             alc      = 'Alcohol Drinking'
             fine     = 'Fine Particles';
       where west in (0,1) and sex eq 1;

          title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
   Confidence';
          title2 'Intervals) by Cardiopulmonary Death for the Fine
   Particles';
          title3 '              in Men ';
          title4 '  -- with the Female New Subcohort';
    run;


   data fpf_n;set fpf;
```

```
if curcig = 0 and xsmkcpd = 0 and xsmkcyr = 0 and evpconly = 0;

proc phreg data=fpf_n nosummary;
    model fail*cenall(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                            edulow indusexp bmi alc fine / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig    = 'Current Smoker'
          smkcpd    = 'Current cigarettes per day'
          smkcyr    = 'Current years smoke'
          xsmkcpd   = 'Former cigarettes per day'
          xsmkcyr   = 'Former years smoked'
          evpconly  = 'Pipe/cigar smoker'
          indusexp  = 'Occupational exposure'
          edulow    = 'Less than high school education'
          age_int   = 'Age at Interview'
          passive   = 'Passive Smoking'
          bmi       = 'Body Mass Index'
          alc       = 'Alcohol Drinking'
          fine      = 'Fine Particles';
    where west in (0,1);

    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by All Cause of Death for the Fine
Particles';
    title3 '               Never-smokers';
    title4 '  -- with the Female New Subcohort';

proc phreg data=fpf_n nosummary;
    model fail*cenall(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                            edulow indusexp bmi alc fine / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig    = 'Current Smoker'
          smkcpd    = 'Current cigarettes per day'
          smkcyr    = 'Current years smoke'
          xsmkcpd   = 'Former cigarettes per day'
          xsmkcyr   = 'Former years smoked'
          evpconly  = 'Pipe/cigar smoker'
          indusexp  = 'Occupational exposure'
          edulow    = 'Less than high school education'
          age_int   = 'Age at Interview'
          passive   = 'Passive Smoking'
          bmi       = 'Body Mass Index'
          alc       = 'Alcohol Drinking'
          fine      = 'Fine Particles';
    where west in (0,1) and sex eq 2;
```

```
    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by All Cause of Death for the Fine
Particles';
    title3 '                   Never-smokers in Women ';
    title4 '   -- with the Female New Subcohort';

proc phreg data=fpf_n nosummary;
    model fail*cenall(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                             edulow indusexp bmi alc fine / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          fine     = 'Fine Particles';
    where west in (0,1) and sex eq 1;

    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by All Cause of Death for the Fine
Particles';
    title3 '                   Never-smokers in Men ';
    title4 '   -- with the Female New Subcohort';
run;


proc phreg data=fpf_n nosummary;
    model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                             edulow indusexp bmi alc fine / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
```

```
               edulow    = 'Less than high school education'
               age_int   = 'Age at Interview'
               passive   = 'Passive Smoking'
               bmi       = 'Body Mass Index'
               alc       = 'Alcohol Drinking'
               fine      = 'Fine Particles';
       where west in (0,1);

       title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
       title2 'Intervals) by Lung Cancer Related Death for the Fine
Particles';
       title3 '                Never-smokers';
       title4 '  -- with the Female New Subcohort';

proc phreg data=fpf_n nosummary;
    model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                          edulow indusexp bmi alc fine / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig    = 'Current Smoker'
          smkcpd    = 'Current cigarettes per day'
          smkcyr    = 'Current years smoke'
          xsmkcpd   = 'Former cigarettes per day'
          xsmkcyr   = 'Former years smoked'
          evpconly  = 'Pipe/cigar smoker'
          indusexp  = 'Occupational exposure'
          edulow    = 'Less than high school education'
          age_int   = 'Age at Interview'
          passive   = 'Passive Smoking'
          bmi       = 'Body Mass Index'
          alc       = 'Alcohol Drinking'
          fine      = 'Fine Particles';
    where west in (0,1) and sex eq 2 ;

       title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
       title2 'Intervals) by Lung Cancer Related Death for the Fine
Particles';
       title3 '                Never-smokers in Women ';
       title4 '  -- with the Female New Subcohort';

proc phreg data=fpf_n nosummary;
    model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                          edulow indusexp bmi alc fine / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig    = 'Current Smoker'
```

```
        smkcpd   = 'Current cigarettes per day'
        smkcyr   = 'Current years smoke'
        xsmkcpd  = 'Former cigarettes per day'
        xsmkcyr  = 'Former years smoked'
        evpconly = 'Pipe/cigar smoker'
        indusexp = 'Occupational exposure'
        edulow   = 'Less than high school education'
        age_int  = 'Age at Interview'
        passive  = 'Passive Smoking'
        bmi      = 'Body Mass Index'
        alc      = 'Alcohol Drinking'
        fine     = 'Fine Particles';
    where west in (0,1) and sex eq 1;

    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Lung Cancer Related Death for the Fine
Particles';
    title3 '              Never-smokers in Men ';
    title4 '  -- with the Female New Subcohort';
run;


proc phreg data=fpf_n nosummary;
    model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                            edulow indusexp bmi alc fine / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          fine     = 'Fine Particles';
    where west in (0,1) ;

    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Cardiopulmonary Death for the Fine
Particles';
    title3 '              Never-smokers';
    title4 '  -- with the Female New Subcohort';
```

```
proc phreg data=fpf_n nosummary;
   model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                              edulow indusexp bmi alc fine / rl;
   strata age_int (25 to 105 by 5) sex racecat;
   format sex sex. racecat race. ;
   label curcig   = 'Current Smoker'
         smkcpd   = 'Current cigarettes per day'
         smkcyr   = 'Current years smoke'
         xsmkcpd  = 'Former cigarettes per day'
         xsmkcyr  = 'Former years smoked'
         evpconly = 'Pipe/cigar smoker'
         indusexp = 'Occupational exposure'
         edulow   = 'Less than high school education'
         age_int  = 'Age at Interview'
         passive  = 'Passive Smoking'
         bmi      = 'Body Mass Index'
         alc      = 'Alcohol Drinking'
         fine     = 'Fine Particles';
   where west in (0,1) and sex eq 2 ;


   title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
   title2 'Intervals) by Cardiopulmonary Death for the Fine
Particles';
   title3 '              Never-smokers in Women ';
   title4 '   -- with the Female New Subcohort';


proc phreg data=fpf_n nosummary;
   model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                              edulow indusexp bmi alc fine / rl;
   strata age_int (25 to 105 by 5) sex racecat;
   format sex sex. racecat race. ;
   label curcig   = 'Current Smoker'
         smkcpd   = 'Current cigarettes per day'
         smkcyr   = 'Current years smoke'
         xsmkcpd  = 'Former cigarettes per day'
         xsmkcyr  = 'Former years smoked'
         evpconly = 'Pipe/cigar smoker'
         indusexp = 'Occupational exposure'
         edulow   = 'Less than high school education'
         age_int  = 'Age at Interview'
         passive  = 'Passive Smoking'
         bmi      = 'Body Mass Index'
         alc      = 'Alcohol Drinking'
         fine     = 'Fine Particles';
   where west in (0,1) and sex eq 1;
```

```
    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Cardiopulmonary Death for the Fine
Particles';
    title3 '              Never-smokers in Men ';
    title4 '  -- with the Female New Subcohort';
  run;


data fpf_e;set fpf;

  if curcig = 1 or xsmkcpd gt 0  or xsmkcyr gt 0 or evpconly = 1;

proc phreg data=fpf_e nosummary;
    model fail*cenall(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                            edulow indusexp bmi alc fine / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          fine     = 'Fine Particles';
    where west in (0,1);

    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by All Cause of Death for the Fine
Particles';
    title3 '              Ever-smokers';
    title4 '  -- with the Female New Subcohort';

proc phreg data=fpf_e nosummary;
    model fail*cenall(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                            edulow indusexp bmi alc fine / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
```

```
        xsmkcpd  = 'Former cigarettes per day'
        xsmkcyr  = 'Former years smoked'
        evpconly = 'Pipe/cigar smoker'
        indusexp = 'Occupational exposure'
        edulow   = 'Less than high school education'
        age_int  = 'Age at Interview'
        passive  = 'Passive Smoking'
        bmi      = 'Body Mass Index'
        alc      = 'Alcohol Drinking'
        fine     = 'Fine Particles';
    where west in (0,1) and sex eq 2;

    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by All Cause of Death for the Fine
Particles';
    title3 '             Ever-smokers in Women ';
    title4 '  -- with the Female New Subcohort';
run;

proc phreg data=fpf_e nosummary;
    model fail*cenall(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                           edulow indusexp bmi alc fine / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
        smkcpd   = 'Current cigarettes per day'
        smkcyr   = 'Current years smoke'
        xsmkcpd  = 'Former cigarettes per day'
        xsmkcyr  = 'Former years smoked'
        evpconly = 'Pipe/cigar smoker'
        indusexp = 'Occupational exposure'
        edulow   = 'Less than high school education'
        age_int  = 'Age at Interview'
        passive  = 'Passive Smoking'
        bmi      = 'Body Mass Index'
        alc      = 'Alcohol Drinking'
        fine     = 'Fine Particles';
    where west in (0,1) and sex eq 1;

    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by All Cause of Death for the Fine
Particles';
    title3 '             Ever-smokers in Men ';
    title4 '  -- with the Female New Subcohort';

proc phreg data=fpf_e nosummary;
    model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
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```
xsmkcyr passive
                          edulow indusexp bmi alc fine / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          fine     = 'Fine Particles';
    where west in (0,1);

    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Lung Cancer Related Death for the Fine
Particles';
    title3 '                   Ever-smokers';
    title4 '  -- with the Female New Subcohort';

proc phreg data=fpf_e nosummary;
    model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                          edulow indusexp bmi alc fine / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          fine     = 'Fine Particles';
    where west in (0,1) and sex eq 2 ;

    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Lung Cancer Related Death for the Fine
```

```
Particles';
   title3 '              Ever-smokers in Women ';
   title4 '  -- with the Female New Subcohort';

proc phreg data=fpf_e nosummary;
   model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                         edulow indusexp bmi alc fine / rl;
   strata age_int (25 to 105 by 5) sex racecat;
   format sex sex. racecat race. ;
   label curcig   = 'Current Smoker'
         smkcpd   = 'Current cigarettes per day'
         smkcyr   = 'Current years smoke'
         xsmkcpd  = 'Former cigarettes per day'
         xsmkcyr  = 'Former years smoked'
         evpconly = 'Pipe/cigar smoker'
         indusexp = 'Occupational exposure'
         edulow   = 'Less than high school education'
         age_int  = 'Age at Interview'
         passive  = 'Passive Smoking'
         bmi      = 'Body Mass Index'
         alc      = 'Alcohol Drinking'
         fine     = 'Fine Particles';
   where west in (0,1) and sex eq 1;

   title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
   title2 'Intervals) by Lung Cancer Related Death for the Fine
Particles';
   title3 '              Ever-smokers in Men ';
   title4 '  -- with the Female New Subcohort';

proc phreg data=fpf_e nosummary;
   model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                         edulow indusexp bmi alc fine / rl;
   strata age_int (25 to 105 by 5) sex racecat;
   format sex sex. racecat race. ;
   label curcig   = 'Current Smoker'
         smkcpd   = 'Current cigarettes per day'
         smkcyr   = 'Current years smoke'
         xsmkcpd  = 'Former cigarettes per day'
         xsmkcyr  = 'Former years smoked'
         evpconly = 'Pipe/cigar smoker'
         indusexp = 'Occupational exposure'
         edulow   = 'Less than high school education'
         age_int  = 'Age at Interview'
         passive  = 'Passive Smoking'
         bmi      = 'Body Mass Index'
         alc      = 'Alcohol Drinking'
```

```
                fine      = 'Fine Particles';
      where west in (0,1) ;

          title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
      Confidence';
          title2 'Intervals) by Cardiopulmonary Death for the Fine
      Particles';
          title3 '              Ever-smokers';
          title4 '  -- with the Female New Subcohort';

      proc phreg data=fpf_e nosummary;
          model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd smkcyr
      xsmkcyr passive
                                    edulow indusexp bmi alc fine / rl;
          strata age_int (25 to 105 by 5) sex racecat;
          format sex sex. racecat race. ;
          label curcig   = 'Current Smoker'
                smkcpd   = 'Current cigarettes per day'
                smkcyr   = 'Current years smoke'
                xsmkcpd  = 'Former cigarettes per day'
                xsmkcyr  = 'Former years smoked'
                evpconly = 'Pipe/cigar smoker'
                indusexp = 'Occupational exposure'
                edulow   = 'Less than high school education'
                age_int  = 'Age at Interview'
                passive  = 'Passive Smoking'
                bmi      = 'Body Mass Index'
                alc      = 'Alcohol Drinking'
                fine     = 'Fine Particles';
      where west in (0,1) and sex eq 2 ;

          title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
      Confidence';
          title2 'Intervals) by Cardiopulmonary Death for the Fine
      Particles';
          title3 '              Ever-smokers in Women ';
          title4 '  -- with the Female New Subcohort';

      proc phreg data=fpf_e nosummary;
          model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd smkcyr
      xsmkcyr passive
                                    edulow indusexp bmi alc fine / rl;
          strata age_int (25 to 105 by 5) sex racecat;
          format sex sex. racecat race. ;
          label curcig   = 'Current Smoker'
                smkcpd   = 'Current cigarettes per day'
                smkcyr   = 'Current years smoke'
                xsmkcpd  = 'Former cigarettes per day'
                xsmkcyr  = 'Former years smoked'
                evpconly = 'Pipe/cigar smoker'
```

```
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          fine     = 'Fine Particles';
   where west in (0,1) and sex eq 1;

     title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
     title2 'Intervals) by Cardiopulmonary Death for the Fine
Particles';
     title3 '              Ever-smokers in Men ';
     title4 '  -- with the Female New Subcohort';
 run;
*/


proc phreg data=fpf nosummary;
    model fail*cencoma(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                            edulow indusexp bmi alc fine / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          fine     = 'Fine Particles';
   where west in (0,1);

     title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
     title2 'Intervals) by Cardiopulmonary+Asthma Death for the
Fine Particles';
     title3 '  -- with the Female New Subcohort';

proc phreg data=fpf nosummary;
    model fail*cencoma(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                            edulow indusexp bmi alc fine / rl;
```

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```
   strata age_int (25 to 105 by 5) sex racecat;
   format sex sex. racecat race. ;
   label curcig   = 'Current Smoker'
         smkcpd   = 'Current cigarettes per day'
         smkcyr   = 'Current years smoke'
         xsmkcpd  = 'Former cigarettes per day'
         xsmkcyr  = 'Former years smoked'
         evpconly = 'Pipe/cigar smoker'
         indusexp = 'Occupational exposure'
         edulow   = 'Less than high school education'
         age_int  = 'Age at Interview'
         passive  = 'Passive Smoking'
         bmi      = 'Body Mass Index'
         alc      = 'Alcohol Drinking'
         fine     = 'Fine Particles';
   where west in (0,1) and sex eq 2 ;


   title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
   title2 'Intervals) by Cardiopulmonary+Asthma Death for the
Fine Particles';
   title3 '               in Women ';
   title4 '  -- with the Female New Subcohort';


proc phreg data=fpf nosummary;
   model fail*cencoma(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                              edulow indusexp bmi alc fine / rl;
   strata age_int (25 to 105 by 5) sex racecat;
   format sex sex. racecat race. ;
   label curcig   = 'Current Smoker'
         smkcpd   = 'Current cigarettes per day'
         smkcyr   = 'Current years smoke'
         xsmkcpd  = 'Former cigarettes per day'
         xsmkcyr  = 'Former years smoked'
         evpconly = 'Pipe/cigar smoker'
         indusexp = 'Occupational exposure'
         edulow   = 'Less than high school education'
         age_int  = 'Age at Interview'
         passive  = 'Passive Smoking'
         bmi      = 'Body Mass Index'
         alc      = 'Alcohol Drinking'
         fine     = 'Fine Particles';
   where west in (0,1) and sex eq 1;


   title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
   title2 'Intervals) by Cardiopulmonary+Asthma Death for the
Fine Particles';
   title3 '               in Men ';
```

```
      title4 '   -- with the Female New Subcohort';
   run;


   data fpf_n;set fpf;

   if curcig = 0 and xsmkcpd = 0 and xsmkcyr = 0 and evpconly = 0;

   proc phreg data=fpf_n nosummary;
      model fail*cencoma(1) = curcig evpconly smkcpd xsmkcpd smkcyr
   xsmkcyr passive
                                 edulow indusexp bmi alc fine / rl;
      strata age_int (25 to 105 by 5) sex racecat;
      format sex sex. racecat race. ;
      label curcig  = 'Current Smoker'
            smkcpd  = 'Current cigarettes per day'
            smkcyr  = 'Current years smoke'
            xsmkcpd = 'Former cigarettes per day'
            xsmkcyr = 'Former years smoked'
            evpconly = 'Pipe/cigar smoker'
            indusexp = 'Occupational exposure'
            edulow  = 'Less than high school education'
            age_int = 'Age at Interview'
            passive = 'Passive Smoking'
            bmi     = 'Body Mass Index'
            alc     = 'Alcohol Drinking'
            fine    = 'Fine Particles';
      where west in (0,1) ;

      title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
   Confidence';
      title2 'Intervals) by Cardiopulmonary+Asthma Death for the
   Fine Particles';
      title3 '               Never-smokers';
      title4 '   -- with the Female New Subcohort';

   proc phreg data=fpf_n nosummary;
      model fail*cencoma(1) = curcig evpconly smkcpd xsmkcpd smkcyr
   xsmkcyr passive
                                 edulow indusexp bmi alc fine / rl;
      strata age_int (25 to 105 by 5) sex racecat;
      format sex sex. racecat race. ;
      label curcig   = 'Current Smoker'
            smkcpd   = 'Current cigarettes per day'
            smkcyr   = 'Current years smoke'
            xsmkcpd  = 'Former cigarettes per day'
            xsmkcyr  = 'Former years smoked'
            evpconly = 'Pipe/cigar smoker'
            indusexp = 'Occupational exposure'
            edulow   = 'Less than high school education'
```

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```
                age_int  = 'Age at Interview'
                passive  = 'Passive Smoking'
                bmi      = 'Body Mass Index'
                alc      = 'Alcohol Drinking'
                fine     = 'Fine Particles';
        where west in (0,1) and sex eq 2 ;


    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Cardiopulmonary+Asthma Death for the
Fine Particles';
    title3 '              Never-smokers in Women ';
    title4 '   -- with the Female New Subcohort';



proc phreg data=fpf_n nosummary;
    model fail*cencoma(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                                edulow indusexp bmi alc fine / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          fine     = 'Fine Particles';
    where west in (0,1) and sex eq 1;


    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Cardiopulmonary+Asthma Death for the
Fine Particles';
    title3 '              Never-smokers in Men ';
    title4 '   -- with the Female New Subcohort';
 run;


data fpf_e;set fpf;

 if curcig = 1 or xsmkcpd gt 0  or xsmkcyr gt 0 or evpconly = 1;

proc phreg data=fpf_e nosummary;
```

```
    model fail*cencoma(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                                edulow indusexp bmi alc fine / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          fine     = 'Fine Particles';
    where west in (0,1) ;

    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Cardiopulmonary+Asthma Death for the
Fine Particles';
    title3 '                    Ever-smokers';
    title4 '  -- with the Female New Subcohort';

proc phreg data=fpf_e nosummary;
    model fail*cencoma(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                                edulow indusexp bmi alc fine / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          fine     = 'Fine Particles';
    where west in (0,1) and sex eq 2 ;

    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
```

```
    title2 'Intervals) by Cardiopulmonary+Asthma Death for the
Fine Particles';
    title3 '              Ever-smokers in Women ';
    title4 '   -- with the Female New Subcohort';

proc phreg data=fpf_e nosummary;
    model fail*cencoma(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                            edulow indusexp bmi alc fine / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig    = 'Current Smoker'
          smkcpd    = 'Current cigarettes per day'
          smkcyr    = 'Current years smoke'
          xsmkcpd   = 'Former cigarettes per day'
          xsmkcyr   = 'Former years smoked'
          evpconly  = 'Pipe/cigar smoker'
          indusexp  = 'Occupational exposure'
          edulow    = 'Less than high school education'
          age_int   = 'Age at Interview'
          passive   = 'Passive Smoking'
          bmi       = 'Body Mass Index'
          alc       = 'Alcohol Drinking'
          fine      = 'Fine Particles';
    where west in (0,1) and sex eq 1;

    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Cardiopulmonary+Asthma Death for the
Fine Particles';
    title3 '              Ever-smokers in Men ';
    title4 '   -- with the Female New Subcohort';
 run;
```

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Output 5a:

Original Data

Tab2_Extra: Adjusted Mortality Risk Ratios (and 95% Confidence
3
Intervals) by Lung Cancer Related Death for the Sulfate Particles
in 47 Areas with both Sulfate and Fine Particles

The PHREG Procedure

Data Set: WORK.SULFF
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	31345.556	29020.458	2325.098 with 12 DF (p=0.0001)
Score			2600.843 with 12 DF (p=0.0001)
Wald			1746.917 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	1.035267	0.20342	25.90082	0.0001
EVPCONLY	1	1.298804	0.17204	56.99543	0.0001
SMKCPD	1	0.022666	0.00252	80.84229	0.0001
XSMKCPD	1	0.013501	0.00233	33.49041	0.0001
SMKCYR	1	0.034049	0.00420	65.65211	0.0001
XSMKCYR	1	0.060405	0.00258	548.57251	0.0001
PASSIVE	1	0.002002	0.00568	0.12422	0.7245
EDULOW	1	0.449239	0.05927	57.45744	0.0001
INDUSEXP	1	0.099618	0.05725	3.02748	0.0819
BMI	1	-0.072714	0.00737	97.37422	0.0001
ALC	1	-0.006501	0.01012	0.41284	0.5205
SULFATES	1	0.365087	0.13030	7.85014	0.0051

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	2.816	1.890	4.195	Current Smoker
EVPCONLY	3.665	2.616	5.135	Pipe/cigar smoker
SMKCPD	1.023	1.018	1.028	Current cigarettes per day
XSMKCPD	1.014	1.009	1.018	Former cigarettes per day
SMKCYR	1.035	1.026	1.043	Current years smoke
XSMKCYR	1.062	1.057	1.068	Former years smoked
PASSIVE	1.002	0.991	1.013	Passive Smoking
EDULOW	1.567	1.395	1.760	Less than high school education
INDUSEXP	1.105	0.987	1.236	Occupational exposure

BMI	0.930	0.917	0.943	Body Mass Index
ALC	0.994	0.974	1.013	Alcohol Drinking
SULFATES	1.441	1.116	1.860	Sulfate Particles

Tab2_Extra: Adjusted Mortality Risk Ratios (and 95% Confidence
4
Intervals) by Cardiopulmonary Death for the Sulfate Particles
in 47 Areas with both Sulfate and Fine Particles

The PHREG Procedure

Data Set: WORK.SULFF
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	155778.175	154557.785	1220.389 with 12 DF (p=0.0001)
Score	.	.	1311.306 with 12 DF (p=0.0001)
Wald	.	.	1272.576 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.598800	0.09876	36.76329	0.0001
EVPCONLY	1	0.249778	0.04830	26.74349	0.0001
SMKCPD	1	0.005769	0.00174	11.00198	0.0009
XSMKCPD	1	0.005067	0.00109	21.44304	0.0001
SMKCYR	1	0.003359	0.00200	2.81346	0.0935
XSMKCYR	1	0.011981	0.0009737	151.39866	0.0001
PASSIVE	1	0.004396	0.00320	1.89077	0.1691
EDULOW	1	0.294738	0.02514	137.46663	0.0001
INDUSEXP	1	0.061543	0.02657	5.36342	0.0206
BMI	1	-0.003598	0.00299	1.44514	0.2293
ALC	1	-0.039172	0.00606	41.78087	0.0001
SULFATES	1	0.183415	0.05508	11.08785	0.0009

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.820	1.500	2.209	Current Smoker
EVPCONLY	1.284	1.168	1.411	Pipe/cigar smoker
SMKCPD	1.006	1.002	1.009	Current cigarettes per day
XSMKCPD	1.005	1.003	1.007	Former cigarettes per day
SMKCYR	1.003	0.999	1.007	Current years smoke

XSMKCYR	1.012	1.010	1.014	Former years smoked
PASSIVE	1.004	0.998	1.011	Passive Smoking
EDULOW	1.343	1.278	1.411	Less than high school education
INDUSEXP	1.063	1.010	1.120	Occupational exposure
BMI	0.996	0.991	1.002	Body Mass Index
ALC	0.962	0.950	0.973	Alcohol Drinking
SULFATES	1.201	1.078	1.338	Sulfate Particles

Output 5b:

Modified Data

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
28
Intervals) by All Cause of Death for the Fine Particles
 -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	412146.044	408975.491	3170.553 with 12 DF (p=0.0001)
Score	.	.	3471.612 with 12 DF (p=0.0001)
Wald	.	.	3341.331 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.262766	0.05852	20.16104	0.0001
EVPCONLY	1	0.221210	0.03343	43.79841	0.0001
SMKCPD	1	0.010512	0.00103	103.55119	0.0001
XSMKCPD	1	0.005836	0.0006996	69.57174	0.0001
SMKCYR	1	0.009032	0.00122	54.49050	0.0001
XSMKCYR	1	0.012344	0.0006321	381.30492	0.0001
PASSIVE	1	0.001890	0.00192	0.97386	0.3237
EDULOW	1	0.253270	0.01639	238.76793	0.0001
INDUSEXP	1	0.061154	0.01712	12.76536	0.0004
BMI	1	-0.003111	0.00181	2.95727	0.0855
ALC	1	-0.017242	0.00346	24.77760	0.0001
FINE	1	0.167046	0.03670	20.72320	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.301	1.160	1.459	Current Smoker
EVPCONLY	1.248	1.168	1.332	Pipe/cigar smoker
SMKCPD	1.011	1.009	1.013	Current cigarettes per day
XSMKCPD	1.006	1.004	1.007	Former cigarettes per day
SMKCYR	1.009	1.007	1.011	Current years smoke
XSMKCYR	1.012	1.011	1.014	Former years smoked
PASSIVE	1.002	0.998	1.006	Passive Smoking
EDULOW	1.288	1.248	1.330	Less than high school education
INDUSEXP	1.063	1.028	1.099	Occupational exposure

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BMI	0.997	0.993	1.000	Body Mass Index
ALC	0.983	0.976	0.990	Alcohol Drinking
FINE	1.182	1.100	1.270	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
29
Intervals) by All Cause of Death for the Fine Particles
             in Women
  -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

               Testing Global Null Hypothesis: BETA=0

              Without   With
Criterion   Covariates   Covariates   Model Chi-Square

-2 LOG L   172682.448   171562.322   1120.126 with 11 DF (p=0.0001)
Score   1282.316 with 11 DF (p=0.0001)
Wald   1233.616 with 11 DF (p=0.0001)

                 Analysis of Maximum Likelihood Estimates

| | | Parameter | Standard | Wald | Pr > |
Variable	DF	Estimate	Error	Chi-Square	Chi-Square
CURCIG	1	0.111726	0.08508	1.72436	0.1891
EVPCONLY	0	0		.	.
SMKCPD	1	0.014796	0.00186	63.43581	0.0001
XSMKCPD	1	0.008736	0.00163	28.64519	0.0001
SMKCYR	1	0.009662	0.00188	26.38491	0.0001
XSMKCYR	1	0.010017	0.00122	67.11676	0.0001
PASSIVE	1	0.002420	0.00318	0.57920	0.4466
EDULOW	1	0.224241	0.02546	77.58707	0.0001
INDUSEXP	1	0.102231	0.03674	7.74232	0.0054
BMI	1	0.001620	0.00243	0.44265	0.5058
ALC	1	-0.040487	0.00809	25.04207	0.0001
FINE	1	0.170204	0.05673	9.00244	0.0027

                 Analysis of Maximum Likelihood Estimates

                 Conditional Risk Ratio and
                    95% Confidence Limits

| | Risk | | | |
Variable	Ratio	Lower	Upper	Label
CURCIG	1.118	0.946	1.321	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	1.015	1.011	1.019	Current cigarettes per day
XSMKCPD	1.009	1.006	1.012	Former cigarettes per day
SMKCYR	1.010	1.006	1.013	Current years smoke

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XSMKCYR	1.010	1.008	1.012	Former years smoked
PASSIVE	1.002	0.996	1.009	Passive Smoking
EDULOW	1.251	1.190	1.315	Less than high school education
INDUSEXP	1.108	1.031	1.190	Occupational exposure
BMI	1.002	0.997	1.006	Body Mass Index
ALC	0.960	0.945	0.976	Alcohol Drinking
FINE	1.186	1.061	1.325	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
30
Intervals) by All Cause of Death for the Fine Particles
in Men
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	239463.596	237360.825	2102.771 with 12 DF (p=0.0001)
Score	.	.	2237.819 with 12 DF (p=0.0001)
Wald	.	.	2139.378 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.468904	0.08517	30.30846	0.0001
EVPCONLY	1	0.252506	0.03497	52.13872	0.0001
SMKCPD	1	0.007941	0.00127	39.37520	0.0001
XSMKCPD	1	0.005588	0.0007850	50.67435	0.0001
SMKCYR	1	0.006961	0.00168	17.11591	0.0001
XSMKCYR	1	0.013441	0.0007642	309.37879	0.0001
PASSIVE	1	0.000823	0.00241	0.11694	0.7324
EDULOW	1	0.265517	0.02157	151.51833	0.0001
INDUSEXP	1	0.050041	0.01933	6.69881	0.0096
BMI	1	-0.009763	0.00269	13.15077	0.0003
ALC	1	-0.010883	0.00383	8.07736	0.0045
FINE	1	0.163628	0.04813	11.55949	0.0007

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.598	1.353	1.889	Current Smoker

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EVPCONLY	1.287	1.202	1.379	Pipe/cigar smoker
SMKCPD	1.008	1.005	1.010	Current cigarettes per day
XSMKCPD	1.006	1.004	1.007	Former cigarettes per day
SMKCYR	1.007	1.004	1.010	Current years smoke
XSMKCYR	1.014	1.012	1.015	Former years smoked
PASSIVE	1.001	0.996	1.006	Passive Smoking
EDULOW	1.304	1.250	1.360	Less than high school education
INDUSEXP	1.051	1.012	1.092	Occupational exposure
BMI	0.990	0.985	0.996	Body Mass Index
ALC	0.989	0.982	0.997	Alcohol Drinking
FINE	1.178	1.072	1.294	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
31
Intervals) by Lung Cancer Related Death for the Fine Particles
  -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	37302.126	34588.620	2713.507 with 12 DF (p=0.0001)
Score	.	.	3071.615 with 12 DF (p=0.0001)
Wald	.	.	2063.364 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.959785	0.18451	27.05806	0.0001
EVPCONLY	1	1.250382	0.16379	58.27932	0.0001
SMKCPD	1	0.023391	0.00234	100.24927	0.0001
XSMKCPD	1	0.013918	0.00217	41.12524	0.0001
SMKCYR	1	0.034609	0.00383	81.52196	0.0001
XSMKCYR	1	0.058978	0.00237	621.02922	0.0001
PASSIVE	1	0.004428	0.00522	0.71914	0.3964
EDULOW	1	0.448474	0.05488	66.78425	0.0001
INDUSEXP	1	0.098079	0.05383	3.32018	0.0684
BMI	1	-0.071920	0.00673	114.32971	0.0001
ALC	1	-0.009376	0.00955	0.96437	0.3261
FINE	1	0.017144	0.12329	0.01934	0.8894

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
  95% Confidence Limits

Risk

Variable	Ratio	Lower	Upper	Label
CURCIG	2.611	1.819	3.749	Current Smoker
EVPCONLY	3.492	2.533	4.813	Pipe/cigar smoker
SMKCPD	1.024	1.019	1.028	Current cigarettes per day
XSMKCPD	1.014	1.010	1.018	Former cigarettes per day
SMKCYR	1.035	1.027	1.043	Current years smoke
XSMKCYR	1.061	1.056	1.066	Former years smoked
PASSIVE	1.004	0.994	1.015	Passive Smoking
EDULOW	1.566	1.406	1.744	Less than high school education
INDUSEXP	1.103	0.993	1.226	Occupational exposure
BMI	0.931	0.918	0.943	Body Mass Index
ALC	0.991	0.972	1.009	Alcohol Drinking
FINE	1.017	0.799	1.295	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
32
Intervals) by Lung Cancer Related Death for the Fine Particles
in Women
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	12981.086	11965.671	1015.415 with 11 DF (p=0.0001)
Score	.	.	1382.170 with 11 DF (p=0.0001)
Wald	.	.	862.479 with 11 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.981010	0.26383	13.82632	0.0002
EVPCONLY	0	0	.	.	.
SMKCPD	1	0.035140	0.00405	75.10857	0.0001
XSMKCPD	1	0.024809	0.00473	27.50520	0.0001
SMKCYR	1	0.023240	0.00580	16.08058	0.0001
XSMKCYR	1	0.046311	0.00431	115.42672	0.0001
PASSIVE	1	0.005152	0.00905	0.32379	0.5693
EDULOW	1	0.361578	0.10514	11.82717	0.0006
INDUSEXP	1	0.225641	0.12075	3.49203	0.0617
BMI	1	-0.057246	0.01049	29.75303	0.0001
ALC	1	-0.020665	0.02217	0.86857	0.3514
FINE	1	-0.122531	0.21128	0.33632	0.5620

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and 95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	2.667	1.590	4.473	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	1.036	1.028	1.044	Current cigarettes per day
XSMKCPD	1.025	1.016	1.035	Former cigarettes per day
SMKCYR	1.024	1.012	1.035	Current years smoke
XSMKCYR	1.047	1.039	1.056	Former years smoked
PASSIVE	1.005	0.987	1.023	Passive Smoking
EDULOW	1.436	1.168	1.764	Less than high school education
INDUSEXP	1.253	0.989	1.588	Occupational exposure
BMI	0.944	0.925	0.964	Body Mass Index
ALC	0.980	0.938	1.023	Alcohol Drinking
FINE	0.885	0.585	1.339	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
33
Intervals) by Lung Cancer Related Death for the Fine Particles
in Men
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	24321.041	22584.639	1736.402 with 12 DF (p=0.0001)
Score	.	.	1833.463 with 12 DF (p=0.0001)
Wald	.	.	1233.467 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	1.031942	0.26483	15.18333	0.0001
EVPCONLY	1	1.470972	0.18361	64.18507	0.0001
SMKCPD	1	0.017690	0.00289	37.39764	0.0001
XSMKCPD	1	0.012433	0.00250	24.68884	0.0001
SMKCYR	1	0.041665	0.00523	63.50460	0.0001
XSMKCYR	1	0.066320	0.00311	455.22974	0.0001
PASSIVE	1	0.003139	0.00639	0.24098	0.6235
EDULOW	1	0.450948	0.06505	48.05769	0.0001
INDUSEXP	1	0.061316	0.05981	1.05116	0.3052
BMI	1	-0.081762	0.00863	89.76524	0.0001
ALC	1	-0.005083	0.01052	0.23346	0.6290
FINE	1	0.091064	0.15170	0.36033	0.5483

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and 95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	2.807	1.670	4.716	Current Smoker
EVPCONLY	4.353	3.038	6.239	Pipe/cigar smoker
SMKCPD	1.018	1.012	1.024	Current cigarettes per day
XSMKCPD	1.013	1.008	1.017	Former cigarettes per day
SMKCYR	1.043	1.032	1.053	Current years smoke
XSMKCYR	1.069	1.062	1.075	Former years smoked
PASSIVE	1.003	0.991	1.016	Passive Smoking
EDULOW	1.570	1.382	1.783	Less than high school education
INDUSEXP	1.063	0.946	1.195	Occupational exposure
BMI	0.921	0.906	0.937	Body Mass Index
ALC	0.995	0.975	1.016	Alcohol Drinking
FINE	1.095	0.814	1.475	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
34
Intervals) by Cardiopulmonary Death for the Fine Particles
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	194480.995	192929.578	1551.417 with 12 DF (p=0.0001)
Score	.	.	1672.019 with 12 DF (p=0.0001)
Wald	.	.	1623.234 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.544053	0.08867	37.64750	0.0001
EVPCONLY	1	0.222319	0.04586	23.49728	0.0001
SMKCPD	1	0.006097	0.00159	14.71249	0.0001
XSMKCPD	1	0.005690	0.0009969	32.57854	0.0001
SMKCYR	1	0.004643	0.00180	6.64480	0.0099
XSMKCYR	1	0.011844	0.0008744	183.48717	0.0001
PASSIVE	1	0.003808	0.00290	1.72804	0.1887
EDULOW	1	0.307022	0.02245	187.01698	0.0001
INDUSEXP	1	0.064200	0.02462	6.79730	0.0091
BMI	1	0.000175	0.00263	0.00441	0.9470

| ALC | 1 | -0.037996 | 0.00551 | 47.52896 | 0.0001 |
| FINE | 1 | 0.274734 | 0.05282 | 27.05804 | 0.0001 |

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and 95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.723	1.448	2.050	Current Smoker
EVPCONLY	1.249	1.142	1.366	Pipe/cigar smoker
SMKCPD	1.006	1.003	1.009	Current cigarettes per day
XSMKCPD	1.006	1.004	1.008	Former cigarettes per day
SMKCYR	1.005	1.001	1.008	Current years smoke
XSMKCYR	1.012	1.010	1.014	Former years smoked
PASSIVE	1.004	0.998	1.010	Passive Smoking
EDULOW	1.359	1.301	1.421	Less than high school education
INDUSEXP	1.066	1.016	1.119	Occupational exposure
BMI	1.000	0.995	1.005	Body Mass Index
ALC	0.963	0.952	0.973	Alcohol Drinking
FINE	1.316	1.187	1.460	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
35
Intervals) by Cardiopulmonary Death for the Fine Particles
in Women
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	72454.763	71790.200	664.563 with 11 DF (p=0.0001)
Score	.	.	773.874 with 11 DF (p=0.0001)
Wald	.	.	740.520 with 11 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.314213	0.13373	5.52064	0.0188
EVPCONLY	0	0	.	.	.
SMKCPD	1	0.016868	0.00299	31.77269	0.0001
XSMKCPD	1	0.007067	0.00269	6.90190	0.0086
SMKCYR	1	0.006465	0.00283	5.20418	0.0225
XSMKCYR	1	0.010704	0.00182	34.70367	0.0001

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PASSIVE	1	0.010862	0.00517	4.40865	0.0358
EDULOW	1	0.332936	0.03527	89.10416	0.0001
INDUSEXP	1	0.085558	0.05977	2.04888	0.1523
BMI	1	0.001187	0.00370	0.10267	0.7486
ALC	1	-0.071141	0.01410	25.47255	0.0001
FINE	1	0.370150	0.08574	18.63590	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.369	1.053	1.779	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	1.017	1.011	1.023	Current cigarettes per day
XSMKCPD	1.007	1.002	1.012	Former cigarettes per day
SMKCYR	1.006	1.001	1.012	Current years smoke
XSMKCYR	1.011	1.007	1.014	Former years smoked
PASSIVE	1.011	1.001	1.021	Passive Smoking
EDULOW	1.395	1.302	1.495	Less than high school education
INDUSEXP	1.089	0.969	1.225	Occupational exposure
BMI	1.001	0.994	1.008	Body Mass Index
ALC	0.931	0.906	0.957	Alcohol Drinking
FINE	1.448	1.224	1.713	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
36
Intervals) by Cardiopulmonary Death for the Fine Particles
in Men
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	122026.232	121102.513	923.719 with 12 DF (p=0.0001)
Score	.	.	967.172 with 12 DF (p=0.0001)
Wald	.	.	937.900 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.640239	0.12303	27.07900	0.0001
EVPCONLY	1	0.214765	0.04754	20.40995	0.0001

SMKCPD	1	0.002635	0.00192	1.89250	0.1689
XSMKCPD	1	0.005125	0.00109	22.09603	0.0001
SMKCYR	1	0.003795	0.00240	2.49986	0.1139
XSMKCYR	1	0.012289	0.00103	141.85025	0.0001
PASSIVE	1	0.000897	0.00350	0.06556	0.7979
EDULOW	1	0.286662	0.02937	95.25274	0.0001
INDUSEXP	1	0.063347	0.02704	5.48961	0.0191
BMI	1	-0.001228	0.00374	0.10767	0.7428
ALC	1	-0.030618	0.00599	26.17138	0.0001
FINE	1	0.212235	0.06710	10.00392	0.0016

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.897	1.490	2.414	Current Smoker
EVPCONLY	1.240	1.129	1.361	Pipe/cigar smoker
SMKCPD	1.003	0.999	1.006	Current cigarettes per day
XSMKCPD	1.005	1.003	1.007	Former cigarettes per day
SMKCYR	1.004	0.999	1.009	Current years smoke
XSMKCYR	1.012	1.010	1.014	Former years smoked
PASSIVE	1.001	0.994	1.008	Passive Smoking
EDULOW	1.332	1.257	1.411	Less than high school education
INDUSEXP	1.065	1.010	1.123	Occupational exposure
BMI	0.999	0.991	1.006	Body Mass Index
ALC	0.970	0.959	0.981	Alcohol Drinking
FINE	1.236	1.084	1.410	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
37
Intervals) by All Cause of Death for the Fine Particles
        Never-smokers
  -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_N
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	128702.967	128570.749	132.218 with 6 DF (p=0.0001)
Score	.	.	131.185 with 6 DF (p=0.0001)
Wald	.	.	131.545 with 6 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

	Parameter	Standard	Wald	Pr >

Variable	DF	Estimate	Error	Chi-Square	Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	0.002357	0.00472	0.24964	0.6173
EDULOW	1	0.217252	0.02678	65.82422	0.0001
INDUSEXP	1	0.070484	0.03454	4.16500	0.0413
BMI	1	0.010031	0.00277	13.10481	0.0003
ALC	1	-0.046065	0.01025	20.19234	0.0001
FINE	1	0.215120	0.06304	11.64593	0.0006

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	.	.	.	Current cigarettes per day
XSMKCPD	.	.	.	Former cigarettes per day
SMKCYR	.	.	.	Current years smoke
XSMKCYR	.	.	.	Former years smoked
PASSIVE	1.002	0.993	1.012	Passive Smoking
EDULOW	1.243	1.179	1.310	Less than high school education
INDUSEXP	1.073	1.003	1.148	Occupational exposure
BMI	1.010	1.005	1.016	Body Mass Index
ALC	0.955	0.936	0.974	Alcohol Drinking
FINE	1.240	1.096	1.403	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
38
Intervals) by All Cause of Death for the Fine Particles
Never-smokers in Women
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_N
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	88709.677	88632.150	77.527 with 6 DF (p=0.0001)
Score	.	.	72.689 with 6 DF (p=0.0001)
Wald	.	.	73.746 with 6 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	0.006116	0.00563	1.17857	0.2776
EDULOW	1	0.161667	0.03203	25.47423	0.0001
INDUSEXP	1	0.121162	0.05280	5.26674	0.0217
BMI	1	0.006237	0.00316	3.88919	0.0486
ALC	1	-0.075231	0.01687	19.87808	0.0001
FINE	1	0.220539	0.07663	8.28341	0.0040

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	.	.	.	Current cigarettes per day
XSMKCPD	.	.	.	Former cigarettes per day
SMKCYR	.	.	.	Current years smoke
XSMKCYR	.	.	.	Former years smoked
PASSIVE	1.006	0.995	1.017	Passive Smoking
EDULOW	1.175	1.104	1.252	Less than high school education
INDUSEXP	1.129	1.018	1.252	Occupational exposure
BMI	1.006	1.000	1.013	Body Mass Index
ALC	0.928	0.897	0.959	Alcohol Drinking
FINE	1.247	1.073	1.449	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
39
Intervals) by All Cause of Death for the Fine Particles
Never-smokers in Men
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_N
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	39993.290	39912.554	80.736 with 6 DF (p=0.0001)

Score		84.396 with 6 DF (p=0.0001)
Wald		84.012 with 6 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	-0.006539	0.00863	0.57462	0.4484
EDULOW	1	0.349096	0.04844	51.94538	0.0001
INDUSEXP	1	0.026555	0.04546	0.34119	0.5591
BMI	1	0.023707	0.00584	16.48115	0.0001
ALC	1	-0.027089	0.01274	4.51766	0.0335
FINE	1	0.214646	0.11104	3.73694	0.0532

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	.	.	.	Current cigarettes per day
XSMKCPD	.	.	.	Former cigarettes per day
SMKCYR	.	.	.	Current years smoke
XSMKCYR	.	.	.	Former years smoked
PASSIVE	0.993	0.977	1.010	Passive Smoking
EDULOW	1.418	1.289	1.559	Less than high school education
INDUSEXP	1.027	0.939	1.123	Occupational exposure
BMI	1.024	1.012	1.036	Body Mass Index
ALC	0.973	0.949	0.998	Alcohol Drinking
FINE	1.239	0.997	1.541	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
40
Intervals) by Lung Cancer Related Death for the Fine Particles
        Never-smokers
  -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_N
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	2593.402	2574.167	19.236 with 6 DF (p=0.0038)
Score	.	.	18.102 with 6 DF (p=0.0060)
Wald	.	.	18.526 with 6 DF (p=0.0050)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	-0.034324	0.03610	0.90386	0.3417
EDULOW	1	0.296292	0.20449	2.09930	0.1474
INDUSEXP	1	0.361748	0.22909	2.49351	0.1143
BMI	1	-0.078709	0.02238	12.37025	0.0004
ALC	1	-0.084673	0.08575	0.97495	0.3234
FINE	1	-0.312896	0.45809	0.46655	0.4946

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	.	.	.	Current cigarettes per day
XSMKCPD	.	.	.	Former cigarettes per day
SMKCYR	.	.	.	Current years smoke
XSMKCYR	.	.	.	Former years smoked
PASSIVE	0.966	0.900	1.037	Passive Smoking
EDULOW	1.345	0.901	2.008	Less than high school education
INDUSEXP	1.436	0.916	2.250	Occupational exposure
BMI	0.924	0.885	0.966	Body Mass Index
ALC	0.919	0.777	1.087	Alcohol Drinking
FINE	0.731	0.298	1.795	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
41
Intervals) by Lung Cancer Related Death for the Fine Particles
Never-smokers in Women
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_N
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	1902.875	1888.586	14.290 with 6 DF (p=0.0266)
Score	.	.	13.251 with 6 DF (p=0.0392)
Wald	.	.	13.552 with 6 DF (p=0.0351)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	-0.041969	0.04329	0.93987	0.3323
EDULOW	1	0.184701	0.24662	0.56089	0.4539
INDUSEXP	1	0.418815	0.32111	1.70116	0.1921
BMI	1	-0.084206	0.02565	10.77652	0.0010
ALC	1	-0.021838	0.09177	0.05662	0.8119
FINE	1	-0.135929	0.54149	0.06302	0.8018

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	.	.	.	Current cigarettes per day
XSMKCPD	.	.	.	Former cigarettes per day
SMKCYR	.	.	.	Current years smoke
XSMKCYR	.	.	.	Former years smoked
PASSIVE	0.959	0.881	1.044	Passive Smoking
EDULOW	1.203	0.742	1.950	Less than high school education
INDUSEXP	1.520	0.810	2.852	Occupational exposure
BMI	0.919	0.874	0.967	Body Mass Index
ALC	0.978	0.817	1.171	Alcohol Drinking
FINE	0.873	0.302	2.523	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
42
Intervals) by Lung Cancer Related Death for the Fine Particles
Never-smokers in Men
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_N
Dependent Variable: FAIL
Censoring Variable: CEN62

Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	690.527	682.822	7.705 with 6 DF (p=0.2605)
Score	.	.	7.095 with 6 DF (p=0.3121)
Wald	.	.	7.210 with 6 DF (p=0.3019)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	-0.013142	0.06556	0.04019	0.8411
EDULOW	1	0.584048	0.36805	2.51821	0.1125
INDUSEXP	1	0.279845	0.32421	0.74506	0.3880
BMI	1	-0.055505	0.04661	1.41828	0.2337
ALC	1	-0.212081	0.16737	1.60572	0.2051
FINE	1	-0.710666	0.86192	0.67982	0.4096

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and 95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	.	.	.	Current cigarettes per day
XSMKCPD	.	.	.	Former cigarettes per day
SMKCYR	.	.	.	Current years smoke
XSMKCYR	.	.	.	Former years smoked
PASSIVE	0.987	0.868	1.122	Passive Smoking
EDULOW	1.793	0.872	3.689	Less than high school education
INDUSEXP	1.323	0.701	2.497	Occupational exposure
BMI	0.946	0.863	1.036	Body Mass Index
ALC	0.809	0.583	1.123	Alcohol Drinking
FINE	0.491	0.091	2.661	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
43
Intervals) by Cardiopulmonary Death for the Fine Particles
        Never-smokers
  -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_N
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	61917.801	61794.694	123.107 with 6 DF (p=0.0001)
Score	.	.	123.270 with 6 DF (p=0.0001)
Wald	.	.	123.318 with 6 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	0.012192	0.00706	2.97807	0.0844
EDULOW	1	0.297340	0.03570	69.36217	0.0001
INDUSEXP	1	0.040395	0.04977	0.65862	0.4170
BMI	1	0.010574	0.00399	7.01289	0.0081
ALC	1	-0.055287	0.01499	13.60658	0.0002
FINE	1	0.356269	0.08915	15.96866	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	.	.	.	Current cigarettes per day
XSMKCPD	.	.	.	Former cigarettes per day
SMKCYR	.	.	.	Current years smoke
XSMKCYR	.	.	.	Former years smoked
PASSIVE	1.012	0.998	1.026	Passive Smoking
EDULOW	1.346	1.255	1.444	Less than high school education
INDUSEXP	1.041	0.944	1.148	Occupational exposure
BMI	1.011	1.003	1.019	Body Mass Index
ALC	0.946	0.919	0.974	Alcohol Drinking
FINE	1.428	1.199	1.701	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
44
Intervals) by Cardiopulmonary Death for the Fine Particles
       Never-smokers in Women

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-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_N
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	40047.762	39954.690	93.072 with 6 DF (p=0.0001)
Score	.	.	86.558 with 6 DF (p=0.0001)
Wald	.	.	88.289 with 6 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	0.019434	0.00884	4.82821	0.0280
EDULOW	1	0.266769	0.04308	38.33920	0.0001
INDUSEXP	1	0.047783	0.08523	0.31433	0.5750
BMI	1	0.003577	0.00467	0.58600	0.4440
ALC	1	-0.125807	0.02909	18.70317	0.0001
FINE	1	0.433726	0.11135	15.17285	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	.	.	.	Current cigarettes per day
XSMKCPD	.	.	.	Former cigarettes per day
SMKCYR	.	.	.	Current years smoke
XSMKCYR	.	.	.	Former years smoked
PASSIVE	1.020	1.002	1.037	Passive Smoking
EDULOW	1.306	1.200	1.421	Less than high school education
INDUSEXP	1.049	0.888	1.240	Occupational exposure
BMI	1.004	0.994	1.013	Body Mass Index
ALC	0.882	0.833	0.934	Alcohol Drinking
FINE	1.543	1.240	1.919	Fine Particles

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Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
45
Intervals) by Cardiopulmonary Death for the Fine Particles
            Never-smokers in Men
 -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_N
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	21870.039	21817.004	53.034 with 6 DF (p=0.0001)
Score	.	.	55.731 with 6 DF (p=0.0001)
Wald	.	.	55.498 with 6 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	-0.000342	0.01174	0.0008502	0.9767
EDULOW	1	0.356510	0.06345	31.57363	0.0001
INDUSEXP	1	0.034342	0.06139	0.31293	0.5759
BMI	1	0.030370	0.00781	15.13103	0.0001
ALC	1	-0.022493	0.01677	1.79965	0.1798
FINE	1	0.214480	0.14945	2.05971	0.1512

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
   95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	.	.	.	Current cigarettes per day
XSMKCPD	.	.	.	Former cigarettes per day
SMKCYR	.	.	.	Current years smoke
XSMKCYR	.	.	.	Former years smoked
PASSIVE	1.000	0.977	1.023	Passive Smoking
EDULOW	1.428	1.261	1.617	Less than high school education

INDUSEXP	1.035	0.918	1.167	Occupational exposure
BMI	1.031	1.015	1.047	Body Mass Index
ALC	0.978	0.946	1.010	Alcohol Drinking
FINE	1.239	0.925	1.661	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
46
Intervals) by All Cause of Death for the Fine Particles
          Ever-smokers
  -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_E
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	256918.906	254822.716	2096.190 with 12 DF (p=0.0001)
Score	.	.	2101.562 with 12 DF (p=0.0001)
Wald	.	.	2036.754 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.494837	0.06735	53.98032	0.0001
EVPCONLY	1	0.631429	0.04527	194.58501	0.0001
SMKCPD	1	0.009461	0.00105	81.01935	0.0001
XSMKCPD	1	0.008721	0.0007552	133.33964	0.0001
SMKCYR	1	0.012689	0.00134	90.16036	0.0001
XSMKCYR	1	0.021476	0.0009076	559.91150	0.0001
PASSIVE	1	0.000316	0.00210	0.02252	0.8807
EDULOW	1	0.250752	0.02086	144.49284	0.0001
INDUSEXP	1	0.062366	0.01974	9.98141	0.0016
BMI	1	-0.013351	0.00238	31.46715	0.0001
ALC	1	-0.011934	0.00367	10.59285	0.0011
FINE	1	0.139623	0.04520	9.54246	0.0020

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
   95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.640	1.437	1.872	Current Smoker
EVPCONLY	1.880	1.721	2.055	Pipe/cigar smoker
SMKCPD	1.010	1.007	1.012	Current cigarettes per day
XSMKCPD	1.009	1.007	1.010	Former cigarettes per day

SMKCYR	1.013	1.010	1.015	Current years smoke
XSMKCYR	1.022	1.020	1.024	Former years smoked
PASSIVE	1.000	0.996	1.004	Passive Smoking
EDULOW	1.285	1.234	1.339	Less than high school education
INDUSEXP	1.064	1.024	1.106	Occupational exposure
BMI	0.987	0.982	0.991	Body Mass Index
ALC	0.988	0.981	0.995	Alcohol Drinking
FINE	1.150	1.052	1.256	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
47
Intervals) by All Cause of Death for the Fine Particles
Ever-smokers in Women
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_E
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	71296.129	70772.665	523.465 with 11 DF (p=0.0001)
Score	.	.	520.441 with 11 DF (p=0.0001)
Wald	.	.	504.842 with 11 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.309334	0.10170	9.25095	0.0024
EVPCONLY	0	0	.	.	.
SMKCPD	1	0.013493	0.00190	50.27445	0.0001
XSMKCPD	1	0.010621	0.00174	37.06473	0.0001
SMKCYR	1	0.011794	0.00208	32.04626	0.0001
XSMKCYR	1	0.017440	0.00180	93.88627	0.0001
PASSIVE	1	0.000796	0.00386	0.04251	0.8367
EDULOW	1	0.309665	0.04188	54.67811	0.0001
INDUSEXP	1	0.091539	0.05120	3.19602	0.0738
BMI	1	-0.005058	0.00382	1.75058	0.1858
ALC	1	-0.025776	0.00914	7.95066	0.0048
FINE	1	0.110259	0.08447	1.70392	0.1918

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label

CURCIG	1.363	1.116	1.663	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	1.014	1.010	1.017	Current cigarettes per day
XSMKCPD	1.011	1.007	1.014	Former cigarettes per day
SMKCYR	1.012	1.008	1.016	Current years smoke
XSMKCYR	1.018	1.014	1.021	Former years smoked
PASSIVE	1.001	0.993	1.008	Passive Smoking
EDULOW	1.363	1.256	1.480	Less than high school education
INDUSEXP	1.096	0.991	1.212	Occupational exposure
BMI	0.995	0.988	1.002	Body Mass Index
ALC	0.975	0.957	0.992	Alcohol Drinking
FINE	1.117	0.946	1.318	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
48
Intervals) by All Cause of Death for the Fine Particles
        Ever-smokers in Men
  -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_E
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	185622.776	184009.409	1613.367 with 12 DF (p=0.0001)
Score	.	.	1629.988 with 12 DF (p=0.0001)
Wald	.	.	1578.344 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.668174	0.09349	51.08457	0.0001
EVPCONLY	1	0.695476	0.05007	192.96168	0.0001
SMKCPD	1	0.007244	0.00128	32.17936	0.0001
XSMKCPD	1	0.008872	0.0008520	108.45411	0.0001
SMKCYR	1	0.011852	0.00180	43.57935	0.0001
XSMKCYR	1	0.022980	0.00106	473.07954	0.0001
PASSIVE	1	-0.000360	0.00251	0.02056	0.8860
EDULOW	1	0.227624	0.02410	89.23182	0.0001
INDUSEXP	1	0.059617	0.02139	7.76993	0.0053
BMI	1	-0.019290	0.00302	40.78107	0.0001
ALC	1	-0.008600	0.00400	4.61240	0.0317
FINE	1	0.150071	0.05349	7.87045	0.0050

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
    95% Confidence Limits

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Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.951	1.624	2.343	Current Smoker
EVPCONLY	2.005	1.817	2.211	Pipe/cigar smoker
SMKCPD	1.007	1.005	1.010	Current cigarettes per day
XSMKCPD	1.009	1.007	1.011	Former cigarettes per day
SMKCYR	1.012	1.008	1.015	Current years smoke
XSMKCYR	1.023	1.021	1.025	Former years smoked
PASSIVE	1.000	0.995	1.005	Passive Smoking
EDULOW	1.256	1.198	1.316	Less than high school education
INDUSEXP	1.061	1.018	1.107	Occupational exposure
BMI	0.981	0.975	0.987	Body Mass Index
ALC	0.991	0.984	0.999	Alcohol Drinking
FINE	1.162	1.046	1.290	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
49
Intervals) by Lung Cancer Related Death for the Fine Particles
        Ever-smokers
  -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_E
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	32587.192	31012.422	1574.770 with 12 DF (p=0.0001)
Score	.	.	1540.064 with 12 DF (p=0.0001)
Wald	.	.	1263.231 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	1.258948	0.21214	35.21746	0.0001
EVPCONLY	1	1.816968	0.19823	84.01438	0.0001
SMKCPD	1	0.022202	0.00235	88.88318	0.0001
XSMKCPD	1	0.016606	0.00227	53.65923	0.0001
SMKCYR	1	0.041506	0.00414	100.71550	0.0001
XSMKCYR	1	0.071956	0.00334	465.09803	0.0001
PASSIVE	1	0.003820	0.00529	0.52064	0.4706
EDULOW	1	0.429401	0.05718	56.39120	0.0001
INDUSEXP	1	0.081158	0.05536	2.14932	0.1426
BMI	1	-0.071839	0.00705	103.94046	0.0001
ALC	1	-0.007523	0.00954	0.62229	0.4302
FINE	1	0.038429	0.12814	0.08995	0.7642

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and 95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	3.522	2.324	5.337	Current Smoker
EVPCONLY	6.153	4.172	9.075	Pipe/cigar smoker
SMKCPD	1.022	1.018	1.027	Current cigarettes per day
XSMKCPD	1.017	1.012	1.021	Former cigarettes per day
SMKCYR	1.042	1.034	1.051	Current years smoke
XSMKCYR	1.075	1.068	1.082	Former years smoked
PASSIVE	1.004	0.993	1.014	Passive Smoking
EDULOW	1.536	1.373	1.719	Less than high school education
INDUSEXP	1.085	0.973	1.209	Occupational exposure
BMI	0.931	0.918	0.944	Body Mass Index
ALC	0.993	0.974	1.011	Alcohol Drinking
FINE	1.039	0.808	1.336	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
50
Intervals) by Lung Cancer Related Death for the Fine Particles
Ever-smokers in Women
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_E
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	9918.593	9498.501	420.092 with 11 DF (p=0.0001)
Score	.	.	407.159 with 11 DF (p=0.0001)
Wald	.	.	331.411 with 11 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	1.428233	0.34146	17.49552	0.0001
EVPCONLY	0	0	.	.	.
SMKCPD	1	0.033678	0.00411	67.13357	0.0001
XSMKCPD	1	0.028059	0.00493	32.44686	0.0001
SMKCYR	1	0.030121	0.00645	21.79144	0.0001
XSMKCYR	1	0.063670	0.00690	85.03993	0.0001
PASSIVE	1	0.006551	0.00932	0.49455	0.4819
EDULOW	1	0.381121	0.11603	10.78925	0.0010
INDUSEXP	1	0.206106	0.13032	2.50139	0.1137
BMI	1	-0.052503	0.01148	20.91423	0.0001
ALC	1	-0.017844	0.02264	0.62123	0.4306
FINE	1	-0.124126	0.22961	0.29224	0.5888

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	4.171	2.136	8.146	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	1.034	1.026	1.043	Current cigarettes per day
XSMKCPD	1.028	1.019	1.038	Former cigarettes per day
SMKCYR	1.031	1.018	1.044	Current years smoke
XSMKCYR	1.066	1.051	1.080	Former years smoked
PASSIVE	1.007	0.988	1.025	Passive Smoking
EDULOW	1.464	1.166	1.838	Less than high school education
INDUSEXP	1.229	0.952	1.586	Occupational exposure
BMI	0.949	0.928	0.970	Body Mass Index
ALC	0.982	0.940	1.027	Alcohol Drinking
FINE	0.883	0.563	1.385	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
51
Intervals) by Lung Cancer Related Death for the Fine Particles
Ever-smokers in Men
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_E
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	22668.599	21485.578	1183.021 with 12 DF (p=0.0001)
Score	.	.	1181.270 with 12 DF (p=0.0001)
Wald	.	.	962.011 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	1.169206	0.28197	17.19410	0.0001
EVPCONLY	1	1.829596	0.21471	72.61299	0.0001
SMKCPD	1	0.017155	0.00290	34.92798	0.0001
XSMKCPD	1	0.014106	0.00260	29.51879	0.0001
SMKCYR	1	0.046917	0.00542	75.00780	0.0001
XSMKCYR	1	0.074462	0.00384	376.00956	0.0001
PASSIVE	1	0.002447	0.00643	0.14481	0.7035
EDULOW	1	0.431846	0.06609	42.69526	0.0001
INDUSEXP	1	0.051409	0.06084	0.71399	0.3981

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
BMI	1	-0.082589	0.00877	88.64428	0.0001
ALC	1	-0.003396	0.01047	0.10518	0.7457
FINE	1	0.114564	0.15424	0.55168	0.4576

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	3.219	1.853	5.595	Current Smoker
EVPCONLY	6.231	4.091	9.492	Pipe/cigar smoker
SMKCPD	1.017	1.012	1.023	Current cigarettes per day
XSMKCPD	1.014	1.009	1.019	Former cigarettes per day
SMKCYR	1.048	1.037	1.059	Current years smoke
XSMKCYR	1.077	1.069	1.085	Former years smoked
PASSIVE	1.002	0.990	1.015	Passive Smoking
EDULOW	1.540	1.353	1.753	Less than high school education
INDUSEXP	1.053	0.934	1.186	Occupational exposure
BMI	0.921	0.905	0.937	Body Mass Index
ALC	0.997	0.976	1.017	Alcohol Drinking
FINE	1.121	0.829	1.517	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
52
Intervals) by Cardiopulmonary Death for the Fine Particles
Ever-smokers
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_E
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	119951.825	118915.695	1036.130 with 12 DF (p=0.0001)
Score	.	.	1027.128 with 12 DF (p=0.0001)
Wald	.	.	1001.154 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.752139	0.10147	54.93938	0.0001
EVPCONLY	1	0.678678	0.06375	113.33870	0.0001
SMKCPD	1	0.004961	0.00162	9.38810	0.0022
XSMKCPD	1	0.008783	0.00108	66.58081	0.0001
SMKCYR	1	0.009578	0.00194	24.30342	0.0001

XSMKCYR	1	0.021665	0.00127	290.84451	0.0001
PASSIVE	1	0.000454	0.00318	0.02037	0.8865
EDULOW	1	0.290105	0.02912	99.23815	0.0001
INDUSEXP	1	0.077656	0.02841	7.47169	0.0063
BMI	1	-0.008107	0.00349	5.40984	0.0200
ALC	1	-0.033873	0.00592	32.79076	0.0001
FINE	1	0.224219	0.06568	11.65430	0.0006

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and 95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	2.122	1.739	2.588	Current Smoker
EVPCONLY	1.971	1.740	2.234	Pipe/cigar smoker
SMKCPD	1.005	1.002	1.008	Current cigarettes per day
XSMKCPD	1.009	1.007	1.011	Former cigarettes per day
SMKCYR	1.010	1.006	1.013	Current years smoke
XSMKCYR	1.022	1.019	1.024	Former years smoked
PASSIVE	1.000	0.994	1.007	Passive Smoking
EDULOW	1.337	1.262	1.415	Less than high school education
INDUSEXP	1.081	1.022	1.143	Occupational exposure
BMI	0.992	0.985	0.999	Body Mass Index
ALC	0.967	0.956	0.978	Alcohol Drinking
FINE	1.251	1.100	1.423	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
53
Intervals) by Cardiopulmonary Death for the Fine Particles
Ever-smokers in Women
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_E
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	27130.714	26813.788	316.926 with 11 DF (p=0.0001)
Score	.	.	316.660 with 11 DF (p=0.0001)
Wald	.	.	303.207 with 11 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.499498	0.16481	9.18597	0.0024

```
EVPCONLY     0                0           .          .          .
SMKCPD       1           0.013437    0.00308    19.07343    0.0001
XSMKCPD      1           0.007977    0.00288     7.66026    0.0056
SMKCYR       1           0.011584    0.00313    13.66924    0.0002
XSMKCYR      1           0.020741    0.00277    56.15643    0.0001
PASSIVE      1           0.005409    0.00637     0.72050    0.3960
EDULOW       1           0.432189    0.06118    49.89855    0.0001
INDUSEXP     1           0.129123    0.08414     2.35498    0.1249
BMI          1          -0.002361    0.00609     0.15006    0.6985
ALC          1          -0.047859    0.01581     9.16881    0.0025
FINE         1           0.276121    0.13466     4.20472    0.0403
```

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.648	1.193	2.276	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	1.014	1.007	1.020	Current cigarettes per day
XSMKCPD	1.008	1.002	1.014	Former cigarettes per day
SMKCYR	1.012	1.005	1.018	Current years smoke
XSMKCYR	1.021	1.015	1.027	Former years smoked
PASSIVE	1.005	0.993	1.018	Passive Smoking
EDULOW	1.541	1.367	1.737	Less than high school education
INDUSEXP	1.138	0.965	1.342	Occupational exposure
BMI	0.998	0.986	1.010	Body Mass Index
ALC	0.953	0.924	0.983	Alcohol Drinking
FINE	1.318	1.012	1.716	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
54
Intervals) by Cardiopulmonary Death for the Fine Particles
        Ever-smokers in Men
  -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_E
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	92821.112	92076.126	744.986 with 12 DF (p=0.0001)
Score	.	.	743.633 with 12 DF (p=0.0001)
Wald	.	.	727.445 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

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Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.871160	0.13433	42.05751	0.0001
EVPCONLY	1	0.682745	0.06898	97.97366	0.0001
SMKCPD	1	0.001981	0.00193	1.05096	0.3053
XSMKCPD	1	0.008709	0.00118	54.29910	0.0001
SMKCYR	1	0.008437	0.00254	11.00555	0.0009
XSMKCYR	1	0.022095	0.00144	236.22721	0.0001
PASSIVE	1	-0.001199	0.00368	0.10626	0.7444
EDULOW	1	0.250221	0.03314	56.99507	0.0001
INDUSEXP	1	0.075668	0.03016	6.29558	0.0121
BMI	1	-0.011388	0.00424	7.20597	0.0073
ALC	1	-0.030903	0.00638	23.44960	0.0001
FINE	1	0.206412	0.07525	7.52360	0.0061

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	2.390	1.837	3.109	Current Smoker
EVPCONLY	1.979	1.729	2.266	Pipe/cigar smoker
SMKCPD	1.002	0.998	1.006	Current cigarettes per day
XSMKCPD	1.009	1.006	1.011	Former cigarettes per day
SMKCYR	1.008	1.003	1.014	Current years smoke
XSMKCYR	1.022	1.019	1.025	Former years smoked
PASSIVE	0.999	0.992	1.006	Passive Smoking
EDULOW	1.284	1.204	1.371	Less than high school education
INDUSEXP	1.079	1.017	1.144	Occupational exposure
BMI	0.989	0.980	0.997	Body Mass Index
ALC	0.970	0.958	0.982	Alcohol Drinking
FINE	1.229	1.061	1.425	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
1
Intervals) by Cardiopulmonary+Asthma Death for the Sulfate Particles
  -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	395272.837	392324.662	2948.176 with 12 DF (p=0.0001)
Score	.	.	3155.784 with 12 DF (p=0.0001)
Wald	.	.	3067.965 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.615399	0.06299	95.44964	0.0001
EVPCONLY	1	0.248016	0.03262	57.81483	0.0001
SMKCPD	1	0.007740	0.00114	46.18555	0.0001
XSMKCPD	1	0.005026	0.0007295	47.46993	0.0001
SMKCYR	1	0.002438	0.00129	3.57379	0.0587
XSMKCYR	1	0.012938	0.0006336	416.97564	0.0001
PASSIVE	1	0.002111	0.00210	1.01044	0.3148
EDULOW	1	0.298705	0.01610	344.28708	0.0001
INDUSEXP	1	0.034626	0.01789	3.74734	0.0529
BMI	1	0.003305	0.00189	3.05878	0.0803
ALC	1	-0.043238	0.00417	107.27348	0.0001
SULFATES	1	0.240555	0.04074	34.86216	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.850	1.635	2.094	Current Smoker
EVPCONLY	1.281	1.202	1.366	Pipe/cigar smoker
SMKCPD	1.008	1.006	1.010	Current cigarettes per day
XSMKCPD	1.005	1.004	1.006	Former cigarettes per day
SMKCYR	1.002	1.000	1.005	Current years smoke
XSMKCYR	1.013	1.012	1.014	Former years smoked
PASSIVE	1.002	0.998	1.006	Passive Smoking
EDULOW	1.348	1.306	1.391	Less than high school education
INDUSEXP	1.035	1.000	1.072	Occupational exposure

BMI	1.003	1.000	1.007	Body Mass Index
ALC	0.958	0.950	0.966	Alcohol Drinking
SULFATES	1.272	1.174	1.378	Sulfate Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
2
Intervals) by Cardiopulmonary+Asthma Death for the Sulfate Particles
        in Women
   -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	149232.637	147970.703	1261.934 with 11 DF (p=0.0001)
Score	.	.	1466.665 with 11 DF (p=0.0001)
Wald	.	.	1401.962 with 11 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.466090	0.09308	25.07584	0.0001
EVPCONLY	0	0	.	.	.
SMKCPD	1	0.018243	0.00208	77.10431	0.0001
XSMKCPD	1	0.008683	0.00195	19.75523	0.0001
SMKCYR	1	0.002452	0.00200	1.50096	0.2205
XSMKCYR	1	0.010306	0.00135	58.64122	0.0001
PASSIVE	1	0.005767	0.00374	2.38074	0.1228
EDULOW	1	0.325632	0.02540	164.39893	0.0001
INDUSEXP	1	0.044343	0.04320	1.05356	0.3047
BMI	1	0.004162	0.00264	2.48782	0.1147
ALC	1	-0.075125	0.01066	49.67760	0.0001
SULFATES	1	0.343328	0.06572	27.28877	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
  95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.594	1.328	1.913	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	1.018	1.014	1.023	Current cigarettes per day
XSMKCPD	1.009	1.005	1.013	Former cigarettes per day
SMKCYR	1.002	0.999	1.006	Current years smoke

XSMKCYR	1.010	1.008	1.013	Former years smoked
PASSIVE	1.006	0.998	1.013	Passive Smoking
EDULOW	1.385	1.318	1.456	Less than high school education
INDUSEXP	1.045	0.960	1.138	Occupational exposure
BMI	1.004	0.999	1.009	Body Mass Index
ALC	0.928	0.908	0.947	Alcohol Drinking
SULFATES	1.410	1.239	1.603	Sulfate Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
3
Intervals) by Cardiopulmonary+Asthma Death for the Sulfate Particles
in Men
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	246040.200	244287.282	1752.918 with 12 DF (p=0.0001)
Score	.	.	1820.001 with 12 DF (p=0.0001)
Wald	.	.	1767.140 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.656415	0.08853	54.97581	0.0001
EVPCONLY	1	0.243627	0.03397	51.42714	0.0001
SMKCPD	1	0.004046	0.00139	8.52997	0.0035
XSMKCPD	1	0.004046	0.0007987	25.66718	0.0001
SMKCYR	1	0.002883	0.00173	2.76823	0.0962
XSMKCYR	1	0.013811	0.0007456	343.07457	0.0001
PASSIVE	1	0.000851	0.00254	0.11194	0.7379
EDULOW	1	0.274680	0.02101	170.91598	0.0001
INDUSEXP	1	0.036378	0.01968	3.41596	0.0646
BMI	1	0.001893	0.00271	0.48630	0.4856
ALC	1	-0.036085	0.00452	63.72681	0.0001
SULFATES	1	0.171631	0.05193	10.92394	0.0009

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.928	1.621	2.293	Current Smoker

EVPCONLY	1.276	1.194	1.364	Pipe/cigar smoker
SMKCPD	1.004	1.001	1.007	Current cigarettes per day
XSMKCPD	1.004	1.002	1.006	Former cigarettes per day
SMKCYR	1.003	0.999	1.006	Current years smoke
XSMKCYR	1.014	1.012	1.015	Former years smoked
PASSIVE	1.001	0.996	1.006	Passive Smoking
EDULOW	1.316	1.263	1.371	Less than high school education
INDUSEXP	1.037	0.998	1.078	Occupational exposure
BMI	1.002	0.997	1.007	Body Mass Index
ALC	0.965	0.956	0.973	Alcohol Drinking
SULFATES	1.187	1.072	1.314	Sulfate Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
4
Intervals) by Cardiopulmonary+Asthma Death for the Sulfate Particles
        Never-smokers
  -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF_N
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	124993.647	124775.284	218.363 with 6 DF (p=0.0001)
Score	.	.	216.907 with 6 DF (p=0.0001)
Wald	.	.	217.830 with 6 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	0.012522	0.00515	5.91261	0.0150
EDULOW	1	0.284389	0.02593	120.25597	0.0001
INDUSEXP	1	-0.032111	0.03723	0.74388	0.3884
BMI	1	0.012429	0.00289	18.46931	0.0001
ALC	1	-0.059550	0.01161	26.32058	0.0001
SULFATES	1	0.304465	0.06635	21.05869	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

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Variable	Risk Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	.	.	.	Current cigarettes per day
XSMKCPD	.	.	.	Former cigarettes per day
SMKCYR	.	.	.	Current years smoke
XSMKCYR	.	.	.	Former years smoked
PASSIVE	1.013	1.002	1.023	Passive Smoking
EDULOW	1.329	1.263	1.398	Less than high school education
INDUSEXP	0.968	0.900	1.042	Occupational exposure
BMI	1.013	1.007	1.018	Body Mass Index
ALC	0.942	0.921	0.964	Alcohol Drinking
SULFATES	1.356	1.191	1.544	Sulfate Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
5
Intervals) by Cardiopulmonary+Asthma Death for the Sulfate Particles
Never-smokers in Women
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF_N
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	82417.255	82259.147	158.108 with 6 DF (p=0.0001)
Score	.	.	148.597 with 6 DF (p=0.0001)
Wald	.	.	150.893 with 6 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	0.017083	0.00638	7.15930	0.0075
EDULOW	1	0.259151	0.03123	68.84752	0.0001
INDUSEXP	1	0.006144	0.06153	0.00997	0.9205
BMI	1	0.007460	0.00334	4.98524	0.0256
ALC	1	-0.124803	0.02147	33.79779	0.0001
SULFATES	1	0.339958	0.08361	16.53079	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and 95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	.	.	.	Current cigarettes per day
XSMKCPD	.	.	.	Former cigarettes per day
SMKCYR	.	.	.	Current years smoke
XSMKCYR	.	.	.	Former years smoked
PASSIVE	1.017	1.005	1.030	Passive Smoking
EDULOW	1.296	1.219	1.378	Less than high school education
INDUSEXP	1.006	0.892	1.135	Occupational exposure
BMI	1.007	1.001	1.014	Body Mass Index
ALC	0.883	0.846	0.921	Alcohol Drinking
SULFATES	1.405	1.193	1.655	Sulfate Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
6
Intervals) by Cardiopulmonary+Asthma Death for the Sulfate Particles
Never-smokers in Men
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF_N
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	42576.392	42487.751	88.642 with 6 DF (p=0.0001)
Score	.	.	92.029 with 6 DF (p=0.0001)
Wald	.	.	91.745 with 6 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	0.003885	0.00872	0.19842	0.6560
EDULOW	1	0.334582	0.04634	52.12362	0.0001
INDUSEXP	1	-0.058183	0.04672	1.55089	0.2130
BMI	1	0.027290	0.00587	21.63316	0.0001
ALC	1	-0.027208	0.01292	4.43801	0.0351
SULFATES	1	0.238437	0.10925	4.76292	0.0291

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	.	.	.	Current cigarettes per day
XSMKCPD	.	.	.	Former cigarettes per day
SMKCYR	.	.	.	Current years smoke
XSMKCYR	.	.	.	Former years smoked
PASSIVE	1.004	0.987	1.021	Passive Smoking
EDULOW	1.397	1.276	1.530	Less than high school education
INDUSEXP	0.943	0.861	1.034	Occupational exposure
BMI	1.028	1.016	1.040	Body Mass Index
ALC	0.973	0.949	0.998	Alcohol Drinking
SULFATES	1.269	1.025	1.572	Sulfate Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
7
Intervals) by Cardiopulmonary+Asthma Death for the Sulfate Particles
Ever-smokers
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF_E
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square		
-2 LOG L	246622.457	244659.076	1963.381 with 12 DF	(p=0.0001)
Score	.	.	1934.924 with 12 DF	(p=0.0001)
Wald	.	.	1889.071 with 12 DF	(p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.829727	0.07243	131.22107	0.0001
EVPCONLY	1	0.701792	0.04611	231.64238	0.0001
SMKCPD	1	0.006718	0.00116	33.66027	0.0001
XSMKCPD	1	0.008247	0.0007860	110.10184	0.0001
SMKCYR	1	0.007311	0.00139	27.68672	0.0001
XSMKCYR	1	0.022608	0.0009219	601.32268	0.0001
PASSIVE	1	-0.001671	0.00230	0.52742	0.4677
EDULOW	1	0.278460	0.02072	180.58403	0.0001
INDUSEXP	1	0.059972	0.02048	8.57150	0.0034

BMI	1	-0.004019	0.00249	2.60029	0.1068
ALC	1	-0.039155	0.00445	77.32033	0.0001
SULFATES	1	0.200063	0.05167	14.99402	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and 95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	2.293	1.989	2.642	Current Smoker
EVPCONLY	2.017	1.843	2.208	Pipe/cigar smoker
SMKCPD	1.007	1.004	1.009	Current cigarettes per day
XSMKCPD	1.008	1.007	1.010	Former cigarettes per day
SMKCYR	1.007	1.005	1.010	Current years smoke
XSMKCYR	1.023	1.021	1.025	Former years smoked
PASSIVE	0.998	0.994	1.003	Passive Smoking
EDULOW	1.321	1.269	1.376	Less than high school education
INDUSEXP	1.062	1.020	1.105	Occupational exposure
BMI	0.996	0.991	1.001	Body Mass Index
ALC	0.962	0.953	0.970	Alcohol Drinking
SULFATES	1.221	1.104	1.352	Sulfate Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
8
Intervals) by Cardiopulmonary+Asthma Death for the Sulfate Particles
Ever-smokers in Women
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF_E
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	56662.084	56040.785	621.299 with 11 DF (p=0.0001)
Score	.	.	618.879 with 11 DF (p=0.0001)
Wald	.	.	591.902 with 11 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.698071	0.11619	36.09381	0.0001
EVPCONLY	0	0	.	.	.
SMKCPD	1	0.015871	0.00213	55.65403	0.0001
XSMKCPD	1	0.010287	0.00206	24.84456	0.0001
SMKCYR	1	0.007085	0.00220	10.35117	0.0013

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
XSMKCYR	1	0.020887	0.00204	104.71643	0.0001
PASSIVE	1	-0.001465	0.00459	0.10196	0.7495
EDULOW	1	0.415509	0.04333	91.94115	0.0001
INDUSEXP	1	0.092793	0.06086	2.32431	0.1274
BMI	1	-0.000994	0.00430	0.05332	0.8174
ALC	1	-0.053365	0.01204	19.64784	0.0001
SULFATES	1	0.354919	0.10663	11.07817	0.0009

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and 95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	2.010	1.601	2.524	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	1.016	1.012	1.020	Current cigarettes per day
XSMKCPD	1.010	1.006	1.014	Former cigarettes per day
SMKCYR	1.007	1.003	1.011	Current years smoke
XSMKCYR	1.021	1.017	1.025	Former years smoked
PASSIVE	0.999	0.990	1.008	Passive Smoking
EDULOW	1.515	1.392	1.649	Less than high school education
INDUSEXP	1.097	0.974	1.236	Occupational exposure
BMI	0.999	0.991	1.007	Body Mass Index
ALC	0.948	0.926	0.971	Alcohol Drinking
SULFATES	1.426	1.157	1.758	Sulfate Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
9
Intervals) by Cardiopulmonary+Asthma Death for the Sulfate Particles
         Ever-smokers in Men
  -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.SULF_E
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	189960.373	188567.298	1393.075 with 12 DF (p=0.0001)
Score	.	.	1382.815 with 12 DF (p=0.0001)
Wald	.	.	1355.204 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.872353	0.09664	81.48206	0.0001

EVPCONLY	1	0.696625	0.05001	194.05882	0.0001
SMKCPD	1	0.003334	0.00140	5.70311	0.0169
XSMKCPD	1	0.007605	0.0008660	77.11526	0.0001
SMKCYR	1	0.007659	0.00183	17.49479	0.0001
XSMKCYR	1	0.023205	0.00104	497.64559	0.0001
PASSIVE	1	-0.001477	0.00266	0.30788	0.5790
EDULOW	1	0.236453	0.02361	100.27440	0.0001
INDUSEXP	1	0.060799	0.02175	7.81267	0.0052
BMI	1	-0.006127	0.00306	4.01976	0.0450
ALC	1	-0.036067	0.00479	56.65270	0.0001
SULFATES	1	0.149650	0.05907	6.41855	0.0113

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	2.393	1.980	2.891	Current Smoker
EVPCONLY	2.007	1.820	2.214	Pipe/cigar smoker
SMKCPD	1.003	1.001	1.006	Current cigarettes per day
XSMKCPD	1.008	1.006	1.009	Former cigarettes per day
SMKCYR	1.008	1.004	1.011	Current years smoke
XSMKCYR	1.023	1.021	1.026	Former years smoked
PASSIVE	0.999	0.993	1.004	Passive Smoking
EDULOW	1.267	1.209	1.327	Less than high school education
INDUSEXP	1.063	1.018	1.109	Occupational exposure
BMI	0.994	0.988	1.000	Body Mass Index
ALC	0.965	0.956	0.974	Alcohol Drinking
SULFATES	1.161	1.034	1.304	Sulfate Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
10
Intervals) by Cardiopulmonary+Asthma Death for the Fine Particles
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	195142.008	193589.714	1552.294 with 12 DF (p=0.0001)
Score	.	.	1671.853 with 12 DF (p=0.0001)
Wald	.	.	1623.452 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

	Parameter	Standard	Wald	Pr >

Variable	DF	Estimate	Error	Chi-Square	Chi-Square
CURCIG	1	0.542040	0.08853	37.48526	0.0001
EVPCONLY	1	0.220999	0.04585	23.23238	0.0001
SMKCPD	1	0.006042	0.00159	14.46339	0.0001
XSMKCPD	1	0.005683	0.0009952	32.60329	0.0001
SMKCYR	1	0.004660	0.00180	6.70921	0.0096
XSMKCYR	1	0.011896	0.0008727	185.82326	0.0001
PASSIVE	1	0.003921	0.00289	1.83800	0.1752
EDULOW	1	0.307184	0.02242	187.72994	0.0001
INDUSEXP	1	0.064418	0.02459	6.86229	0.0088
BMI	1	0.000121	0.00262	0.00214	0.9631
ALC	1	-0.038293	0.00551	48.27478	0.0001
FINE	1	0.266587	0.05273	25.56044	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.720	1.446	2.045	Current Smoker
EVPCONLY	1.247	1.140	1.365	Pipe/cigar smoker
SMKCPD	1.006	1.003	1.009	Current cigarettes per day
XSMKCPD	1.006	1.004	1.008	Former cigarettes per day
SMKCYR	1.005	1.001	1.008	Current years smoke
XSMKCYR	1.012	1.010	1.014	Former years smoked
PASSIVE	1.004	0.998	1.010	Passive Smoking
EDULOW	1.360	1.301	1.421	Less than high school education
INDUSEXP	1.067	1.016	1.119	Occupational exposure
BMI	1.000	0.995	1.005	Body Mass Index
ALC	0.962	0.952	0.973	Alcohol Drinking
FINE	1.306	1.177	1.448	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
11
Intervals) by Cardiopulmonary+Asthma Death for the Fine Particles
in Women
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	72923.155	72260.840	662.315 with 11 DF (p=0.0001)
Score	.	.	769.188 with 11 DF (p=0.0001)
Wald	.	.	736.900 with 11 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.311665	0.13348	5.45201	0.0195
EVPCONLY	0	0	.	.	.
SMKCPD	1	0.016591	0.00299	30.79241	0.0001
XSMKCPD	1	0.007013	0.00268	6.87235	0.0088
SMKCYR	1	0.006466	0.00283	5.21966	0.0223
XSMKCYR	1	0.010874	0.00181	36.21192	0.0001
PASSIVE	1	0.011572	0.00515	5.05366	0.0246
EDULOW	1	0.331682	0.03520	88.78463	0.0001
INDUSEXP	1	0.087543	0.05949	2.16517	0.1412
BMI	1	0.001125	0.00369	0.09279	0.7607
ALC	1	-0.071736	0.01408	25.95878	0.0001
FINE	1	0.359862	0.08549	17.71993	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and 95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.366	1.051	1.774	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	1.017	1.011	1.023	Current cigarettes per day
XSMKCPD	1.007	1.002	1.012	Former cigarettes per day
SMKCYR	1.006	1.001	1.012	Current years smoke
XSMKCYR	1.011	1.007	1.015	Former years smoked
PASSIVE	1.012	1.001	1.022	Passive Smoking
EDULOW	1.393	1.300	1.493	Less than high school education
INDUSEXP	1.091	0.971	1.226	Occupational exposure
BMI	1.001	0.994	1.008	Body Mass Index
ALC	0.931	0.905	0.957	Alcohol Drinking
FINE	1.433	1.212	1.695	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
12
Intervals) by Cardiopulmonary+Asthma Death for the Fine Particles
in Men
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	122218.853	121292.495	926.358 with 12 DF (p=0.0001)

```
Score                .           :          969.726 with 12 DF (p=0.0001)
Wald                 .           :          940.408 with 12 DF (p=0.0001)
```

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.643273	0.12292	27.38919	0.0001
EVPCONLY	1	0.213956	0.04753	20.26423	0.0001
SMKCPD	1	0.002615	0.00191	1.86510	0.1720
XSMKCPD	1	0.005154	0.00109	22.40310	0.0001
SMKCYR	1	0.003757	0.00240	2.45421	0.1172
XSMKCYR	1	0.012306	0.00103	142.53247	0.0001
PASSIVE	1	0.000685	0.00350	0.03827	0.8449
EDULOW	1	0.287741	0.02934	96.16749	0.0001
INDUSEXP	1	0.063129	0.02702	5.46029	0.0195
BMI	1	-0.001305	0.00374	0.12182	0.7271
ALC	1	-0.030822	0.00599	26.51692	0.0001
FINE	1	0.205248	0.06705	9.37105	0.0022

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and 95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.903	1.495	2.421	Current Smoker
EVPCONLY	1.239	1.128	1.359	Pipe/cigar smoker
SMKCPD	1.003	0.999	1.006	Current cigarettes per day
XSMKCPD	1.005	1.003	1.007	Former cigarettes per day
SMKCYR	1.004	0.999	1.008	Current years smoke
XSMKCYR	1.012	1.010	1.014	Former years smoked
PASSIVE	1.001	0.994	1.008	Passive Smoking
EDULOW	1.333	1.259	1.412	Less than high school education
INDUSEXP	1.065	1.010	1.123	Occupational exposure
BMI	0.999	0.991	1.006	Body Mass Index
ALC	0.970	0.958	0.981	Alcohol Drinking
FINE	1.228	1.077	1.400	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
13
Intervals) by Cardiopulmonary+Asthma Death for the Fine Particles
          Never-smokers
  -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_N
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	62160.712	62037.082	123.630 with 6 DF (p=0.0001)
Score	.	.	123.693 with 6 DF (p=0.0001)
Wald	.	.	123.766 with 6 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	0.012611	0.00704	3.21045	0.0732
EDULOW	1	0.298212	0.03565	69.98240	0.0001
INDUSEXP	1	0.044036	0.04964	0.78696	0.3750
BMI	1	0.010512	0.00398	6.95840	0.0083
ALC	1	-0.056289	0.01502	14.04059	0.0002
FINE	1	0.344704	0.08900	15.00121	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	.	.	.	Current cigarettes per day
XSMKCPD	.	.	.	Former cigarettes per day
SMKCYR	.	.	.	Current years smoke
XSMKCYR	.	.	.	Former years smoked
PASSIVE	1.013	0.999	1.027	Passive Smoking
EDULOW	1.347	1.257	1.445	Less than high school education
INDUSEXP	1.045	0.948	1.152	Occupational exposure
BMI	1.011	1.003	1.018	Body Mass Index
ALC	0.945	0.918	0.974	Alcohol Drinking
FINE	1.412	1.186	1.681	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
14
Intervals) by Cardiopulmonary+Asthma Death for the Fine Particles
         Never-smokers in Women
 -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_N
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	40258.360	40164.651	93.710 with 6 DF (p=0.0001)
Score	.	.	86.896 with 6 DF (p=0.0001)
Wald	.	.	88.735 with 6 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	0.020214	0.00879	5.28706	0.0215
EDULOW	1	0.266845	0.04301	38.49876	0.0001
INDUSEXP	1	0.054995	0.08469	0.42171	0.5161
BMI	1	0.003577	0.00466	0.58884	0.4429
ALC	1	-0.128098	0.02916	19.30103	0.0001
FINE	1	0.419712	0.11108	14.27640	0.0002

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	.	.	.	Current cigarettes per day
XSMKCPD	.	.	.	Former cigarettes per day
SMKCYR	.	.	.	Current years smoke
XSMKCYR	.	.	.	Former years smoked
PASSIVE	1.020	1.003	1.038	Passive Smoking
EDULOW	1.306	1.200	1.421	Less than high school education
INDUSEXP	1.057	0.895	1.247	Occupational exposure
BMI	1.004	0.994	1.013	Body Mass Index
ALC	0.880	0.831	0.932	Alcohol Drinking
FINE	1.522	1.224	1.892	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
15
Intervals) by Cardiopulmonary+Asthma Death for the Fine Particles
         Never-smokers in Men
  -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_N
Dependent Variable: FAIL
Censoring Variable: CENCOMA

Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	21902.352	21848.999	53.353 with 6 DF (p=0.0001)
Score	.	.	56.086 with 6 DF (p=0.0001)
Wald	.	.	55.841 with 6 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	-0.000642	0.01175	0.00299	0.9564
EDULOW	1	0.359062	0.06338	32.09582	0.0001
INDUSEXP	1	0.036119	0.06132	0.34696	0.5558
BMI	1	0.030191	0.00780	14.96628	0.0001
ALC	1	-0.022817	0.01678	1.84820	0.1740
FINE	1	0.206863	0.14935	1.91844	0.1660

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	.	.	.	Current cigarettes per day
XSMKCPD	.	.	.	Former cigarettes per day
SMKCYR	.	.	.	Current years smoke
XSMKCYR	.	.	.	Former years smoked
PASSIVE	0.999	0.977	1.023	Passive Smoking
EDULOW	1.432	1.265	1.621	Less than high school education
INDUSEXP	1.037	0.919	1.169	Occupational exposure
BMI	1.031	1.015	1.047	Body Mass Index
ALC	0.977	0.946	1.010	Alcohol Drinking
FINE	1.230	0.918	1.648	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
16
Intervals) by Cardiopulmonary+Asthma Death for the Fine Particles
            Ever-smokers
 -- with the Female New Subcohort

The PHREG Procedure

```
Data Set: WORK.FPF_E
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW
```

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	120322.978	119290.058	1032.920 with 12 DF (p=0.0001)
Score	.	.	1023.711 with 12 DF (p=0.0001)
Wald	.	.	998.140 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.745877	0.10128	54.23190	0.0001
EVPCONLY	1	0.673802	0.06366	112.03228	0.0001
SMKCPD	1	0.004923	0.00162	9.25223	0.0024
XSMKCPD	1	0.008743	0.00107	66.19824	0.0001
SMKCYR	1	0.009607	0.00194	24.51039	0.0001
XSMKCYR	1	0.021650	0.00127	291.65191	0.0001
PASSIVE	1	0.000511	0.00318	0.02583	0.8723
EDULOW	1	0.290102	0.02909	99.48374	0.0001
INDUSEXP	1	0.076725	0.02838	7.30907	0.0069
BMI	1	-0.008149	0.00348	5.48515	0.0192
ALC	1	-0.034075	0.00591	33.20618	0.0001
FINE	1	0.217831	0.06558	11.03408	0.0009

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and 95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	2.108	1.729	2.571	Current Smoker
EVPCONLY	1.962	1.732	2.222	Pipe/cigar smoker
SMKCPD	1.005	1.002	1.008	Current cigarettes per day
XSMKCPD	1.009	1.007	1.011	Former cigarettes per day
SMKCYR	1.010	1.006	1.014	Current years smoke
XSMKCYR	1.022	1.019	1.024	Former years smoked
PASSIVE	1.001	0.994	1.007	Passive Smoking
EDULOW	1.337	1.263	1.415	Less than high school education
INDUSEXP	1.080	1.021	1.142	Occupational exposure
BMI	0.992	0.985	0.999	Body Mass Index
ALC	0.966	0.955	0.978	Alcohol Drinking
FINE	1.243	1.093	1.414	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
17
Intervals) by Cardiopulmonary+Asthma Death for the Fine Particles
Ever-smokers in Women

-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_E
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	27353.226	27041.873	311.353 with 11 DF (p=0.0001)
Score	.	.	310.861 with 11 DF (p=0.0001)
Wald	.	.	298.140 with 11 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.484170	0.16414	8.70072	0.0032
EVPCONLY	0	0	.	.	.
SMKCPD	1	0.013191	0.00307	18.42070	0.0001
XSMKCPD	1	0.007798	0.00287	7.39094	0.0066
SMKCYR	1	0.011578	0.00313	13.69922	0.0002
XSMKCYR	1	0.020645	0.00275	56.32508	0.0001
PASSIVE	1	0.006110	0.00634	0.92733	0.3356
EDULOW	1	0.429017	0.06106	49.36957	0.0001
INDUSEXP	1	0.125739	0.08387	2.24765	0.1338
BMI	1	-0.002498	0.00607	0.16928	0.6808
ALC	1	-0.048093	0.01577	9.30171	0.0023
FINE	1	0.271401	0.13414	4.09342	0.0431

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.623	1.176	2.239	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	1.013	1.007	1.019	Current cigarettes per day
XSMKCPD	1.008	1.002	1.014	Former cigarettes per day
SMKCYR	1.012	1.005	1.018	Current years smoke
XSMKCYR	1.021	1.015	1.026	Former years smoked
PASSIVE	1.006	0.994	1.019	Passive Smoking
EDULOW	1.536	1.363	1.731	Less than high school education
INDUSEXP	1.134	0.962	1.337	Occupational exposure
BMI	0.998	0.986	1.009	Body Mass Index
ALC	0.953	0.924	0.983	Alcohol Drinking
FINE	1.312	1.009	1.706	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
18
Intervals) by Cardiopulmonary+Asthma Death for the Fine Particles
        Ever-smokers in Men
  -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_E
Dependent Variable: FAIL
Censoring Variable: CENCOMA
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	92969.752	92223.035	746.717 with 12 DF (p=0.0001)
Score	.	.	745.286 with 12 DF (p=0.0001)
Wald	.	.	729.098 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.873643	0.13420	42.38304	0.0001
EVPCONLY	1	0.681646	0.06893	97.79289	0.0001
SMKCPD	1	0.001962	0.00193	1.03210	0.3097
XSMKCPD	1	0.008736	0.00118	54.78146	0.0001
SMKCYR	1	0.008407	0.00254	10.94650	0.0009
XSMKCYR	1	0.022108	0.00144	237.01052	0.0001
PASSIVE	1	-0.001399	0.00368	0.14481	0.7035
EDULOW	1	0.250945	0.03311	57.44047	0.0001
INDUSEXP	1	0.074954	0.03014	6.18621	0.0129
BMI	1	-0.011427	0.00424	7.26689	0.0070
ALC	1	-0.031093	0.00638	23.74016	0.0001
FINE	1	0.199497	0.07519	7.03979	0.0080

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
    95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	2.396	1.842	3.116	Current Smoker
EVPCONLY	1.977	1.727	2.263	Pipe/cigar smoker
SMKCPD	1.002	0.998	1.006	Current cigarettes per day
XSMKCPD	1.009	1.006	1.011	Former cigarettes per day
SMKCYR	1.008	1.003	1.013	Current years smoke
XSMKCYR	1.022	1.019	1.025	Former years smoked
PASSIVE	0.999	0.991	1.006	Passive Smoking
EDULOW	1.285	1.204	1.371	Less than high school education
INDUSEXP	1.078	1.016	1.143	Occupational exposure
BMI	0.989	0.980	0.997	Body Mass Index
ALC	0.969	0.957	0.982	Alcohol Drinking
FINE	1.221	1.054	1.415	Fine Particles

Program #6

```
/*****************************
*                           *
*   Repeat the results in    *
*   ACS Study paper (1995)    *
*   Climate Extra Models      *
*                           *
*****************************/

libname acs '/home/yuanli/acss/';

options nocenter ps=64 ls=80 obs=max;

proc format;
     value dead 1 = 'Alive'
                0 = 'Dead'
                ;
     value sex  1 = 'Male'
                2 = 'Female'
                ;
     value race 1 = 'White'
                2 = 'Black'
                3 = 'Other'
                ;

filename rawdata '/home/fmo/rawdata.cport';

proc cimport data=rawtest infile=rawdata;

data raw;
  set rawtest;
  keep id st name meansulf;
  proc sort;by st name;

data clmt_raw;
  merge raw acs.climate;
  by st name;
  proc sort;by id;


filename derdata '/home/fmo/derdata.cport';

proc cimport data=dertest infile=derdata;

data der;
  set dertest;
  proc sort;by id;

data c_sulf;
  merge clmt_raw der;
  by id;
```

```
   if flagdel = 0 and sulfdel = 0 ;

   sulfates = meansulf/19.9;

proc phreg data=c_sulf nosummary;
   model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                              edulow indusexp bmi alc dcold dhot
sulfates / rl;
   strata age_int (25 to 105 by 5) sex racecat;
   format sex sex. racecat race. ;
   label curcig   = 'Current Smoker'
         smkcpd   = 'Current cigarettes per day'
         smkcyr   = 'Current years smoke'
         xsmkcpd  = 'Former cigarettes per day'
         xsmkcyr  = 'Former years smoked'
         evpconly = 'Pipe/cigar smoker'
         indusexp = 'Occupational exposure'
         edulow   = 'Less than high school education'
         age_int  = 'Age at Interview'
         passive  = 'Passive Smoking'
         bmi      = 'Body Mass Index'
         alc      = 'Alcohol Drinking'
         dcold    = 'Mean Temperature less than 50 F'
         dhot     = 'Mean Temperature greater than 60 F'
         sulfates = 'Sulfate Particles';
   where west in (0,1);

   title1 'Climate_Extra: Adjusted Mortality Risk Ratios (and
95% Confidence';
   title2 'Intervals) by Lung Cancer Related Death for the
Sulfate Particles';

proc phreg data=c_sulf nosummary;
   model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd
smkcyr xsmkcyr passive
                              edulow indusexp bmi alc dcold dhot
sulfates / rl;
   strata age_int (25 to 105 by 5) sex racecat;
   format sex sex. racecat race. ;
   label curcig   = 'Current Smoker'
         smkcpd   = 'Current cigarettes per day'
         smkcyr   = 'Current years smoke'
         xsmkcpd  = 'Former cigarettes per day'
         xsmkcyr  = 'Former years smoked'
         evpconly = 'Pipe/cigar smoker'
         indusexp = 'Occupational exposure'
         edulow   = 'Less than high school education'
         age_int  = 'Age at Interview'
         passive  = 'Passive Smoking'
```

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```
              bmi      = 'Body Mass Index'
              alc      = 'Alcohol Drinking'
              dcold    = 'Mean Temperature less than 50 F'
              dhot     = 'Mean Temperature greater than 60 F'
              sulfates = 'Sulfate Particles';
     where west in (0,1);

     title1 'Climate_Extra: Adjusted Mortality Risk Ratios (and
95% Confidence';
     title2 'Intervals) by Cardiopulmonary Death for the Sulfate
Particles';
run;


data c_fpf;
  merge clmt_raw der;
  by id;

  if flagdel = 0 and fpfdel = 0 ;

  fine = fpf/24.5;

proc phreg data=c_fpf nosummary;
   model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                         edulow indusexp bmi alc dcold dhot
fine / rl;
     strata age_int (25 to 105 by 5) sex racecat;
     format sex sex. racecat race. ;
     label curcig   = 'Current Smoker'
           smkcpd   = 'Current cigarettes per day'
           smkcyr   = 'Current years smoke'
           xsmkcpd  = 'Former cigarettes per day'
           xsmkcyr  = 'Former years smoked'
           evpconly = 'Pipe/cigar smoker'
           indusexp = 'Occupational exposure'
           edulow   = 'Less than high school education'
           age_int  = 'Age at Interview'
           passive  = 'Passive Smoking'
           bmi      = 'Body Mass Index'
           alc      = 'Alcohol Drinking'
           dcold    = 'Mean Temperature less than 50 F'
           dhot     = 'Mean Temperature greater than 60 F'
           fine     = 'Fine Particles';
     where west in (0,1);

     title1 'Climate_Extra: Adjusted Mortality Risk Ratios (and
95% Confidence';
     title2 'Intervals) by Lung Cancer Related Death for the
Fine Particles';
```

```
proc phreg data=c_fpf nosummary;
    model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd
smkcyr xsmkcyr passive
                                    edulow indusexp bmi alc dcold dhot
fine / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          dcold    = 'Mean Temperature less than 50 F'
          dhot     = 'Mean Temperature greater than 60 F'
          fine     = 'Fine Particles';
    where west in (0,1);

    title1 'Climate_Extra: Adjusted Mortality Risk Ratios (and
95% Confidence';
    title2 'Intervals) by Cardiopulmonary Death for the Fine
Particles';

run;
```

```
/*****************************
*                            *
*    ACS Sensitivity Phase:  *
*                            *
*    New derdata with --     *
*                            *
*    1.Female Deaths to 89;  *
*    2.Female Former Smokers *
*                            *
*    ACS Study paper (1995)  *
*     Table 2 or 3 for Fine  *
*       Particles at 24.4    *
*                            *
*****************************/

libname acs '/home/yuanli/acss/';

options nocenter ps=64 ls=80 obs=max;

proc format;
     value dead 1 = 'Alive'
                0 = 'Dead'
                ;
     value sex  1 = 'Male'
                2 = 'Female'
                ;
     value race 1 = 'White'
                2 = 'Black'
                3 = 'Other'
                ;
     value ind  0 = 'No.'
                1 = 'Yes'
                ;

data fpf; set acs.dern;

  if flagd = 0 and fpfd = 0 ;

  fine = fpf/24.4;

proc phreg data=fpf nosummary;
   model fail*cenall(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                          edulow indusexp bmi alc fine / rl;
   strata age_int (25 to 105 by 5) sex racecat;
   format sex sex. racecat race. ;
   label curcig   = 'Current Smoker'
         smkcpd   = 'Current cigarettes per day'
         smkcyr   = 'Current years smoke'
         xsmkcpd  = 'Former cigarettes per day'
```

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```
              xsmkcyr  = 'Former years smoked'
              evpconly = 'Pipe/cigar smoker'
              indusexp = 'Occupational exposure'
              edulow   = 'Less than high school education'
              age_int  = 'Age at Interview'
              passive  = 'Passive Smoking'
              bmi      = 'Body Mass Index'
              alc      = 'Alcohol Drinking'
              fine     = 'Fine Particles';
       where west in (0,1);

       title1 'Table_2: Adjusted Mortality Risk Ratios (and 95%
Confidence';
       title2 'Intervals) by All Cause of Death for the Fine
Particles at 24.4';
       title3 '-- with the Female new subcohort';

proc phreg data=fpf nosummary;
   model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                          edulow indusexp bmi alc fine / rl;
   strata age_int (25 to 105 by 5) sex racecat;
   format sex sex. racecat race. ;
   label curcig   = 'Current Smoker'
         smkcpd   = 'Current cigarettes per day'
         smkcyr   = 'Current years smoke'
         xsmkcpd  = 'Former cigarettes per day'
         xsmkcyr  = 'Former years smoked'
         evpconly = 'Pipe/cigar smoker'
         indusexp = 'Occupational exposure'
         edulow   = 'Less than high school education'
         age_int  = 'Age at Interview'
         passive  = 'Passive Smoking'
         bmi      = 'Body Mass Index'
         alc      = 'Alcohol Drinking'
         fine     = 'Fine Particles';
   where west in (0,1);

       title1 'Table_2: Adjusted Mortality Risk Ratios (and 95%
Confidence';
       title2 'Intervals) by Lung Cancer Related Death for the Fine
Particles at 24.4';
       title3 '-- with the Female new subcohort';

proc phreg data=fpf nosummary;
   model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                            edulow indusexp bmi alc fine / rl;
   strata age_int (25 to 105 by 5) sex racecat;
   format sex sex. racecat race. ;
```

```
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          fine     = 'Fine Particles';
    where west in (0,1);

    title1 'Table_2: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Cardiopulmonary Death for the Fine
Particles at 24.4';
    title3 '-- with the Female new subcohort';

proc phreg data=fpf nosummary;
    model fail*cenrest(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                              edulow indusexp bmi alc fine / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          fine     = 'Fine Particles';
    where west in (0,1);

    title1 'Table_2: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by All Other Death for the Fine Particles
at 24.4';
    title3 '-- with the Female new subcohort';
run;
```

```
data fpf; set acs.dern;

  if flagd = 0 and fpfd = 0 ;

  fine = fpf/24.4;

proc phreg data=fpf nosummary;
    model fail*cenall(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                            edulow indusexp bmi alc fine / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          fine     = 'Fine Particles';
    where west in (0,1);

    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by All Cause of Death for the Fine
Particles at 24.4';
    title3 '   -- with the Female New Subcohort';

proc phreg data=fpf nosummary;
    model fail*cenall(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                            edulow indusexp bmi alc fine / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
```

```
        alc     = 'Alcohol Drinking'
        fine    = 'Fine Particles';
  where west in (0,1) and sex eq 2 ;


    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by All Cause of Death for the Fine
Particles at 24.4';
    title3 '                in Women ';
    title4 '  -- with the Female New Subcohort';

proc phreg data=fpf nosummary;
    model fail*cenall(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                            edulow indusexp bmi alc fine / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
        smkcpd   = 'Current cigarettes per day'
        smkcyr   = 'Current years smoke'
        xsmkcpd  = 'Former cigarettes per day'
        xsmkcyr  = 'Former years smoked'
        evpconly = 'Pipe/cigar smoker'
        indusexp = 'Occupational exposure'
        edulow   = 'Less than high school education'
        age_int  = 'Age at Interview'
        passive  = 'Passive Smoking'
        bmi      = 'Body Mass Index'
        alc      = 'Alcohol Drinking'
        fine     = 'Fine Particles';
  where west in (0,1) and sex eq 1 ;


    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by All Cause of Death for the Fine
Particles at 24.4';
    title3 '                in Men ';
    title4 '  -- with the Female New Subcohort';
run;


proc phreg data=fpf nosummary;
    model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                            edulow indusexp bmi alc fine / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
        smkcpd   = 'Current cigarettes per day'
        smkcyr   = 'Current years smoke'
```

```
            xsmkcpd  = 'Former cigarettes per day'
            xsmkcyr  = 'Former years smoked'
            evpconly = 'Pipe/cigar smoker'
            indusexp = 'Occupational exposure'
            edulow   = 'Less than high school education'
            age_int  = 'Age at Interview'
            passive  = 'Passive Smoking'
            bmi      = 'Body Mass Index'
            alc      = 'Alcohol Drinking'
            fine     = 'Fine Particles';
     where west in (0,1);

     title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
     title2 'Intervals) by Lung Cancer Related Death for the Fine
Particles at 24.4';
     title3 '  -- with the Female New Subcohort';

proc phreg data=fpf nosummary;
     model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                           edulow indusexp bmi alc fine / rl;
     strata age_int (25 to 105 by 5) sex racecat;
     format sex sex. racecat race. ;
     label curcig   = 'Current Smoker'
           smkcpd   = 'Current cigarettes per day'
           smkcyr   = 'Current years smoke'
           xsmkcpd  = 'Former cigarettes per day'
           xsmkcyr  = 'Former years smoked'
           evpconly = 'Pipe/cigar smoker'
           indusexp = 'Occupational exposure'
           edulow   = 'Less than high school education'
           age_int  = 'Age at Interview'
           passive  = 'Passive Smoking'
           bmi      = 'Body Mass Index'
           alc      = 'Alcohol Drinking'
           fine     = 'Fine Particles';
     where west in (0,1) and sex eq 2 ;

     title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
     title2 'Intervals) by Lung Cancer Related Death for the Fine
Particles at 24.4';
     title3 '              in Women ';
     title4 '  -- with the Female New Subcohort';

proc phreg data=fpf nosummary;
     model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                           edulow indusexp bmi alc fine / rl;
```

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```
      strata age_int (25 to 105 by 5) sex racecat;
      format sex sex. racecat race. ;
      label curcig    = 'Current Smoker'
            smkcpd    = 'Current cigarettes per day'
            smkcyr    = 'Current years smoke'
            xsmkcpd   = 'Former cigarettes per day'
            xsmkcyr   = 'Former years smoked'
            evpconly  = 'Pipe/cigar smoker'
            indusexp  = 'Occupational exposure'
            edulow    = 'Less than high school education'
            age_int   = 'Age at Interview'
            passive   = 'Passive Smoking'
            bmi       = 'Body Mass Index'
            alc       = 'Alcohol Drinking'
            fine      = 'Fine Particles';
   where west in (0,1) and sex eq 1;

      title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
      title2 'Intervals) by Lung Cancer Related Death for the Fine
Particles at 24.4';
      title3 '                in Men ';
      title4 '  -- with the Female New Subcohort';
   run;


proc phreg data=fpf nosummary;
   model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                             edulow indusexp bmi alc fine / rl;
      strata age_int (25 to 105 by 5) sex racecat;
      format sex sex. racecat race. ;
      label curcig    = 'Current Smoker'
            smkcpd    = 'Current cigarettes per day'
            smkcyr    = 'Current years smoke'
            xsmkcpd   = 'Former cigarettes per day'
            xsmkcyr   = 'Former years smoked'
            evpconly  = 'Pipe/cigar smoker'
            indusexp  = 'Occupational exposure'
            edulow    = 'Less than high school education'
            age_int   = 'Age at Interview'
            passive   = 'Passive Smoking'
            bmi       = 'Body Mass Index'
            alc       = 'Alcohol Drinking'
            fine      = 'Fine Particles';
   where west in (0,1);

      title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
      title2 'Intervals) by Cardiopulmonary Death for the Fine
```

```
Particles at 24.4';
   title3 '  -- with the Female New Subcohort';

proc phreg data=fpf nosummary;
   model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                             edulow indusexp bmi alc fine / rl;
   strata age_int (25 to 105 by 5) sex racecat;
   format sex sex. racecat race. ;
   label curcig    = 'Current Smoker'
         smkcpd    = 'Current cigarettes per day'
         smkcyr    = 'Current years smoke'
         xsmkcpd   = 'Former cigarettes per day'
         xsmkcyr   = 'Former years smoked'
         evpconly  = 'Pipe/cigar smoker'
         indusexp  = 'Occupational exposure'
         edulow    = 'Less than high school education'
         age_int   = 'Age at Interview'
         passive   = 'Passive Smoking'
         bmi       = 'Body Mass Index'
         alc       = 'Alcohol Drinking'
         fine      = 'Fine Particles';
   where west in (0,1) and sex eq 2 ;

   title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
   title2 'Intervals) by Cardiopulmonary Death for the Fine
Particles at 24.4';
   title3 '                in Women ';
   title4 '  -- with the Female New Subcohort';

proc phreg data=fpf nosummary;
   model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                             edulow indusexp bmi alc fine / rl;
   strata age_int (25 to 105 by 5) sex racecat;
   format sex sex. racecat race. ;
   label curcig    = 'Current Smoker'
         smkcpd    = 'Current cigarettes per day'
         smkcyr    = 'Current years smoke'
         xsmkcpd   = 'Former cigarettes per day'
         xsmkcyr   = 'Former years smoked'
         evpconly  = 'Pipe/cigar smoker'
         indusexp  = 'Occupational exposure'
         edulow    = 'Less than high school education'
         age_int   = 'Age at Interview'
         passive   = 'Passive Smoking'
         bmi       = 'Body Mass Index'
         alc       = 'Alcohol Drinking'
         fine      = 'Fine Particles';
```

```
     where west in (0,1) and sex eq 1;

     title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
     title2 'Intervals) by Cardiopulmonary Death for the Fine
Particles at 24.4';
     title3 '              in Men ';
     title4 '   -- with the Female New Subcohort';
  run;


data fpf_n;set fpf;

  if curcig = 0 and xsmkcpd = 0 and xsmkcyr = 0 and evpconly = 0;

proc phreg data=fpf_n nosummary;
     model fail*cenall(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                                edulow indusexp bmi alc fine / rl;
     strata age_int (25 to 105 by 5) sex racecat;
     format sex sex. racecat race. ;
     label curcig    = 'Current Smoker'
           smkcpd    = 'Current cigarettes per day'
           smkcyr    = 'Current years smoke'
           xsmkcpd   = 'Former cigarettes per day'
           xsmkcyr   = 'Former years smoked'
           evpconly  = 'Pipe/cigar smoker'
           indusexp  = 'Occupational exposure'
           edulow    = 'Less than high school education'
           age_int   = 'Age at Interview'
           passive   = 'Passive Smoking'
           bmi       = 'Body Mass Index'
           alc       = 'Alcohol Drinking'
           fine      = 'Fine Particles';
     where west in (0,1);

     title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
     title2 'Intervals) by All Cause of Death for the Fine
Particles at 24.4';
     title3 '              Never-smokers';
     title4 '   -- with the Female New Subcohort';

proc phreg data=fpf_n nosummary;
     model fail*cenall(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                                edulow indusexp bmi alc fine / rl;
     strata age_int (25 to 105 by 5) sex racecat;
     format sex sex. racecat race. ;
     label curcig    = 'Current Smoker'
```

```
        smkcpd    = 'Current cigarettes per day'
        smkcyr    = 'Current years smoke'
        xsmkcpd   = 'Former cigarettes per day'
        xsmkcyr   = 'Former years smoked'
        evpconly  = 'Pipe/cigar smoker'
        indusexp  = 'Occupational exposure'
        edulow    = 'Less than high school education'
        age_int   = 'Age at Interview'
        passive   = 'Passive Smoking'
        bmi       = 'Body Mass Index'
        alc       = 'Alcohol Drinking'
        fine      = 'Fine Particles';
    where west in (0,1) and sex eq 2;


    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by All Cause of Death for the Fine
Particles at 24.4';
    title3 '            Never-smokers in Women ';
    title4 '  -- with the Female New Subcohort';

proc phreg data=fpf_n nosummary;
    model fail*cenall(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                            edulow indusexp bmi alc fine / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig    = 'Current Smoker'
        smkcpd    = 'Current cigarettes per day'
        smkcyr    = 'Current years smoke'
        xsmkcpd   = 'Former cigarettes per day'
        xsmkcyr   = 'Former years smoked'
        evpconly  = 'Pipe/cigar smoker'
        indusexp  = 'Occupational exposure'
        edulow    = 'Less than high school education'
        age_int   = 'Age at Interview'
        passive   = 'Passive Smoking'
        bmi       = 'Body Mass Index'
        alc       = 'Alcohol Drinking'
        fine      = 'Fine Particles';
    where west in (0,1) and sex eq 1;


    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by All Cause of Death for the Fine
Particles at 24.4';
    title3 '            Never-smokers in Men ';
    title4 '  -- with the Female New Subcohort';
run;
```

```
proc phreg data=fpf_n nosummary;
   model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                           edulow indusexp bmi alc fine / rl;
   strata age_int (25 to 105 by 5) sex racecat;
   format sex sex. racecat race. ;
   label curcig    = 'Current Smoker'
         smkcpd    = 'Current cigarettes per day'
         smkcyr    = 'Current years smoke'
         xsmkcpd   = 'Former cigarettes per day'
         xsmkcyr   = 'Former years smoked'
         evpconly  = 'Pipe/cigar smoker'
         indusexp  = 'Occupational exposure'
         edulow    = 'Less than high school education'
         age_int   = 'Age at Interview'
         passive   = 'Passive Smoking'
         bmi       = 'Body Mass Index'
         alc       = 'Alcohol Drinking'
         fine      = 'Fine Particles';
   where west in (0,1);

   title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
   title2 'Intervals) by Lung Cancer Related Death for the Fine
Particles at 24.4';
   title3 '              Never-smokers';
   title4 '  -- with the Female New Subcohort';

proc phreg data=fpf_n nosummary;
   model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                           edulow indusexp bmi alc fine / rl;
   strata age_int (25 to 105 by 5) sex racecat;
   format sex sex. racecat race. ;
   label curcig    = 'Current Smoker'
         smkcpd    = 'Current cigarettes per day'
         smkcyr    = 'Current years smoke'
         xsmkcpd   = 'Former cigarettes per day'
         xsmkcyr   = 'Former years smoked'
         evpconly  = 'Pipe/cigar smoker'
         indusexp  = 'Occupational exposure'
         edulow    = 'Less than high school education'
         age_int   = 'Age at Interview'
         passive   = 'Passive Smoking'
         bmi       = 'Body Mass Index'
         alc       = 'Alcohol Drinking'
         fine      = 'Fine Particles';
   where west in (0,1) and sex eq 2 ;

   title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
```

```
Confidence';
   title2 'Intervals) by Lung Cancer Related Death for the Fine
Particles at 24.4';
   title3 '                 Never-smokers in Women ';
   title4 '  -- with the Female New Subcohort';

proc phreg data=fpf_n nosummary;
   model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                            edulow indusexp bmi alc fine / rl;
   strata age_int (25 to 105 by 5) sex racecat;
   format sex sex. racecat race. ;
   label curcig   = 'Current Smoker'
         smkcpd   = 'Current cigarettes per day'
         smkcyr   = 'Current years smoke'
         xsmkcpd  = 'Former cigarettes per day'
         xsmkcyr  = 'Former years smoked'
         evpconly = 'Pipe/cigar smoker'
         indusexp = 'Occupational exposure'
         edulow   = 'Less than high school education'
         age_int  = 'Age at Interview'
         passive  = 'Passive Smoking'
         bmi      = 'Body Mass Index'
         alc      = 'Alcohol Drinking'
         fine     = 'Fine Particles';
   where west in (0,1) and sex eq 1;

   title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
   title2 'Intervals) by Lung Cancer Related Death for the Fine
Particles at 24.4';
   title3 '                 Never-smokers in Men ';
   title4 '  -- with the Female New Subcohort';
run;


proc phreg data=fpf_n nosummary;
   model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                            edulow indusexp bmi alc fine / rl;
   strata age_int (25 to 105 by 5) sex racecat;
   format sex sex. racecat race. ;
   label curcig   = 'Current Smoker'
         smkcpd   = 'Current cigarettes per day'
         smkcyr   = 'Current years smoke'
         xsmkcpd  = 'Former cigarettes per day'
         xsmkcyr  = 'Former years smoked'
         evpconly = 'Pipe/cigar smoker'
         indusexp = 'Occupational exposure'
         edulow   = 'Less than high school education'
```

```
        age_int  = 'Age at Interview'
        passive  = 'Passive Smoking'
        bmi      = 'Body Mass Index'
        alc      = 'Alcohol Drinking'
        fine     = 'Fine Particles';
  where west in (0,1) ;

     title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
     title2 'Intervals) by Cardiopulmonary Death for the Fine
Particles at 24.4';
     title3 '              Never-smokers';
     title4 '  -- with the Female New Subcohort';

proc phreg data=fpf_n nosummary;
   model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                            edulow indusexp bmi alc fine / rl;
   strata age_int (25 to 105 by 5) sex racecat;
   format sex sex. racecat race. ;
   label curcig   = 'Current Smoker'
         smkcpd   = 'Current cigarettes per day'
         smkcyr   = 'Current years smoke'
         xsmkcpd  = 'Former cigarettes per day'
         xsmkcyr  = 'Former years smoked'
         evpconly = 'Pipe/cigar smoker'
         indusexp = 'Occupational exposure'
         edulow   = 'Less than high school education'
         age_int  = 'Age at Interview'
         passive  = 'Passive Smoking'
         bmi      = 'Body Mass Index'
         alc      = 'Alcohol Drinking'
         fine     = 'Fine Particles';
   where west in (0,1) and sex eq 2 ;

     title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
     title2 'Intervals) by Cardiopulmonary Death for the Fine
Particles at 24.4';
     title3 '              Never-smokers in Women ';
     title4 '  -- with the Female New Subcohort';


proc phreg data=fpf_n nosummary;
   model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                            edulow indusexp bmi alc fine / rl;
   strata age_int (25 to 105 by 5) sex racecat;
   format sex sex. racecat race. ;
   label curcig    = 'Current Smoker'
```

```
              smkcpd    = 'Current cigarettes per day'
              smkcyr    = 'Current years smoke'
              xsmkcpd   = 'Former cigarettes per day'
              xsmkcyr   = 'Former years smoked'
              evpconly  = 'Pipe/cigar smoker'
              indusexp  = 'Occupational exposure'
              edulow    = 'Less than high school education'
              age_int   = 'Age at Interview'
              passive   = 'Passive Smoking'
              bmi       = 'Body Mass Index'
              alc       = 'Alcohol Drinking'
              fine      = 'Fine Particles';
     where west in (0,1) and sex eq 1;

     title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
 Confidence';
     title2 'Intervals) by Cardiopulmonary Death for the Fine
 Particles at 24.4';
     title3 '               Never-smokers in Men ';
     title4 '   -- with the Female New Subcohort';
  run;


 data fpf_e;set fpf;

  if curcig = 1 or xsmkcpd gt 0  or xsmkcyr gt 0 or evpconly = 1;

 proc phreg data=fpf_e nosummary;
     model fail*cenall(1) = curcig evpconly smkcpd xsmkcpd smkcyr
 xsmkcyr passive
                           edulow indusexp bmi alc fine / rl;
     strata age_int (25 to 105 by 5) sex racecat;
     format sex sex. racecat race. ;
     label curcig   = 'Current Smoker'
           smkcpd   = 'Current cigarettes per day'
           smkcyr   = 'Current years smoke'
           xsmkcpd  = 'Former cigarettes per day'
           xsmkcyr  = 'Former years smoked'
           evpconly = 'Pipe/cigar smoker'
           indusexp = 'Occupational exposure'
           edulow   = 'Less than high school education'
           age_int  = 'Age at Interview'
           passive  = 'Passive Smoking'
           bmi      = 'Body Mass Index'
           alc      = 'Alcohol Drinking'
           fine     = 'Fine Particles';
     where west in (0,1);

     title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
 Confidence';
```

```
      title2 'Intervals) by All Cause of Death for the Fine
Particles at 24.4';
      title3 '              Ever-smokers';
      title4 '   -- with the Female New Subcohort';

proc phreg data=fpf_e nosummary;
   model fail*cenall(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                               edulow indusexp bmi alc fine / rl;
      strata age_int (25 to 105 by 5) sex racecat;
      format sex sex. racecat race. ;
      label curcig   = 'Current Smoker'
            smkcpd   = 'Current cigarettes per day'
            smkcyr   = 'Current years smoke'
            xsmkcpd  = 'Former cigarettes per day'
            xsmkcyr  = 'Former years smoked'
            evpconly = 'Pipe/cigar smoker'
            indusexp = 'Occupational exposure'
            edulow   = 'Less than high school education'
            age_int  = 'Age at Interview'
            passive  = 'Passive Smoking'
            bmi      = 'Body Mass Index'
            alc      = 'Alcohol Drinking'
            fine     = 'Fine Particles';
   where west in (0,1) and sex eq 2;

      title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
      title2 'Intervals) by All Cause of Death for the Fine
Particles at 24.4';
      title3 '              Ever-smokers in Women ';
      title4 '   -- with the Female New Subcohort';
run;

proc phreg data=fpf_e nosummary;
   model fail*cenall(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                               edulow indusexp bmi alc fine / rl;
      strata age_int (25 to 105 by 5) sex racecat;
      format sex sex. racecat race. ;
      label curcig   = 'Current Smoker'
            smkcpd   = 'Current cigarettes per day'
            smkcyr   = 'Current years smoke'
            xsmkcpd  = 'Former cigarettes per day'
            xsmkcyr  = 'Former years smoked'
            evpconly = 'Pipe/cigar smoker'
            indusexp = 'Occupational exposure'
            edulow   = 'Less than high school education'
            age_int  = 'Age at Interview'
            passive  = 'Passive Smoking'
```

```
            bmi       = 'Body Mass Index'
            alc       = 'Alcohol Drinking'
            fine      = 'Fine Particles';
    where west in (0,1) and sex eq 1;


    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by All Cause of Death for the Fine
Particles at 24.4';
    title3 '              Ever-smokers in Men ';
    title4 '  -- with the Female New Subcohort';

proc phreg data=fpf_e nosummary;
    model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                          edulow indusexp bmi alc fine / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig    = 'Current Smoker'
          smkcpd    = 'Current cigarettes per day'
          smkcyr    = 'Current years smoke'
          xsmkcpd   = 'Former cigarettes per day'
          xsmkcyr   = 'Former years smoked'
          evpconly  = 'Pipe/cigar smoker'
          indusexp  = 'Occupational exposure'
          edulow    = 'Less than high school education'
          age_int   = 'Age at Interview'
          passive   = 'Passive Smoking'
          bmi       = 'Body Mass Index'
          alc       = 'Alcohol Drinking'
          fine      = 'Fine Particles'; .
    where west in (0,1);


    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Lung Cancer Related Death for the Fine
Particles at 24.4';
    title3 '              Ever-smokers';
    title4 '  -- with the Female New Subcohort';

proc phreg data=fpf_e nosummary;
    model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                          edulow indusexp bmi alc fine / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig    = 'Current Smoker'
          smkcpd    = 'Current cigarettes per day'
          smkcyr    = 'Current years smoke'
          xsmkcpd   = 'Former cigarettes per day'
```

```
            xsmkcyr  = 'Former years smoked'
            evpconly = 'Pipe/cigar smoker'
            indusexp = 'Occupational exposure'
            edulow   = 'Less than high school education'
            age_int  = 'Age at Interview'
            passive  = 'Passive Smoking'
            bmi      = 'Body Mass Index'
            alc      = 'Alcohol Drinking'
            fine     = 'Fine Particles';
      where west in (0,1) and sex eq 2 ;


      title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
      title2 'Intervals) by Lung Cancer Related Death for the Fine
Particles at 24.4';
      title3 '              Ever-smokers in Women ';
      title4 '  -- with the Female New Subcohort';


proc phreg data=fpf_e nosummary;
      model fail*cen62(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                            edulow indusexp bmi alc fine / rl;
      strata age_int (25 to 105 by 5) sex racecat;
      format sex sex. racecat race. ;
      label curcig   = 'Current Smoker'
            smkcpd   = 'Current cigarettes per day'
            smkcyr   = 'Current years smoke'
            xsmkcpd  = 'Former cigarettes per day'
            xsmkcyr  = 'Former years smoked'
            evpconly = 'Pipe/cigar smoker'
            indusexp = 'Occupational exposure'
            edulow   = 'Less than high school education'
            age_int  = 'Age at Interview'
            passive  = 'Passive Smoking'
            bmi      = 'Body Mass Index'
            alc      = 'Alcohol Drinking'
            fine     = 'Fine Particles';
      where west in (0,1) and sex eq 1;


      title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
      title2 'Intervals) by Lung Cancer Related Death for the Fine
Particles at 24.4';
      title3 '              Ever-smokers in Men ';
      title4 '  -- with the Female New Subcohort';


proc phreg data=fpf_e nosummary;
      model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                            edulow indusexp bmi alc fine / rl;
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```
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          fine     = 'Fine Particles';
    where west in (0,1) ;

    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Cardiopulmonary Death for the Fine
Particles at 24.4';
    title3 '              Ever-smokers';
    title4 '   -- with the Female New Subcohort';

proc phreg data=fpf_e nosummary;
    model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                              edulow indusexp bmi alc fine / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          fine     = 'Fine Particles';
    where west in (0,1) and sex eq 2 ;

    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Cardiopulmonary Death for the Fine
Particles at 24.4';
    title3 '              Ever-smokers in Women ';
```

```
    title4 '  -- with the Female New Subcohort';

proc phreg data=fpf_e nosummary;
    model fail*cencomb(1) = curcig evpconly smkcpd xsmkcpd smkcyr
xsmkcyr passive
                            edulow indusexp bmi alc fine / rl;
    strata age_int (25 to 105 by 5) sex racecat;
    format sex sex. racecat race. ;
    label curcig   = 'Current Smoker'
          smkcpd   = 'Current cigarettes per day'
          smkcyr   = 'Current years smoke'
          xsmkcpd  = 'Former cigarettes per day'
          xsmkcyr  = 'Former years smoked'
          evpconly = 'Pipe/cigar smoker'
          indusexp = 'Occupational exposure'
          edulow   = 'Less than high school education'
          age_int  = 'Age at Interview'
          passive  = 'Passive Smoking'
          bmi      = 'Body Mass Index'
          alc      = 'Alcohol Drinking'
          fine     = 'Fine Particles';
    where west in (0,1) and sex eq 1;

    title1 'Table_3: Adjusted Mortality Risk Ratios (and 95%
Confidence';
    title2 'Intervals) by Cardiopulmonary Death for the Fine
Particles at 24.4';
    title3 '              Ever-smokers in Men ';
    title4 '  -- with the Female New Subcohort';
 run;
```

Output 6a:

Original Data

Climate_Extra: Adjusted Mortality Risk Ratios (and 95% Confidence
Intervals) by Lung Cancer Related Death for the Sulfate Particles

The PHREG Procedure

Data Set: WORK.C_SULF
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	69780.314	65221.121	4559.193 with 14 DF (p=0.0001)
Score	.	.	5108.841 with 14 DF (p=0.0001)
Wald	.	.	3456.267 with 14 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.954687	0.14195	45.23241	0.0001
EVPCONLY	1	1.234752	0.11782	109.82306	0.0001
SMKCPD	1	0.021851	0.00176	154.49591	0.0001
XSMKCPD	1	0.015382	0.00162	90.60049	0.0001
SMKCYR	1	0.035378	0.00292	146.66190	0.0001
XSMKCYR	1	0.056501	0.00182	966.13185	0.0001
PASSIVE	1	0.004338	0.00392	1.22685	0.2680
EDULOW	1	0.409573	0.04070	101.28774	0.0001
INDUSEXP	1	0.037610	0.03989	0.88911	0.3457
BMI	1	-0.066061	0.00510	167.68318	0.0001
ALC	1	0.004245	0.00665	0.40759	0.5232
DCOLD	1	-0.061727	0.04355	2.00943	0.1563
DHOT	1	-0.019101	0.04012	0.22671	0.6340
SULFATES	1	0.304615	0.10290	8.76310	0.0031

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	2.598	1.967	3.431	Current Smoker
EVPCONLY	3.438	2.729	4.330	Pipe/cigar smoker
SMKCPD	1.022	1.019	1.026	Current cigarettes per day
XSMKCPD	1.016	1.012	1.019	Former cigarettes per day
SMKCYR	1.036	1.030	1.042	Current years smoke
XSMKCYR	1.058	1.054	1.062	Former years smoked
PASSIVE	1.004	0.997	1.012	Passive Smoking
EDULOW	1.506	1.391	1.631	Less than high school education
INDUSEXP	1.038	0.960	1.123	Occupational exposure
BMI	0.936	0.927	0.945	Body Mass Index
ALC	1.004	0.991	1.017	Alcohol Drinking

Climate_Extra: Adjusted Mortality Risk Ratios (and 95% Confidence

Intervals) by Lung Cancer Related Death for the Sulfate Particles

The PHREG Procedure

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
DCOLD	0.940	0.863	1.024	Mean Temperature less than 50 F
DHOT	0.981	0.907	1.061	Mean Temperature greater than 60 F
SULFATES	1.356	1.108	1.659	Sulfate Particles

Climate_Extra: Adjusted Mortality Risk Ratios (and 95% Confidence Intervals) by Cardiopulmonary Death for the Sulfate Particles

The PHREG Procedure

Data Set: WORK.C_SULF
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	357444.550	354817.489	2627.060 with 14 DF (p=0.0001)
Score	.	.	2799.031 with 14 DF (p=0.0001)
Wald	.	.	2721.607 with 14 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.621359	0.06698	86.06834	0.0001
EVPCONLY	1	0.245917	0.03287	55.98782	0.0001
SMKCPD	1	0.007261	0.00118	37.60201	0.0001
XSMKCPD	1	0.004800	0.0007519	40.75364	0.0001
SMKCYR	1	0.002366	0.00136	3.02305	0.0821
XSMKCYR	1	0.013062	0.0006656	385.18340	0.0001
PASSIVE	1	0.001678	0.00219	0.58830	0.4431
EDULOW	1	0.288656	0.01701	287.96860	0.0001
INDUSEXP	1	0.029958	0.01832	2.67509	0.1019
BMI	1	0.000994	0.00203	0.23915	0.6248
ALC	1	-0.040829	0.00425	92.46946	0.0001
DCOLD	1	0.018023	0.01823	0.97685	0.3230
DHOT	1	-0.050709	0.01732	8.56719	0.0034
SULFATES	1	0.211340	0.04323	23.89611	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.861	1.632	2.123	Current Smoker
EVPCONLY	1.279	1.199	1.364	Pipe/cigar smoker
SMKCPD	1.007	1.005	1.010	Current cigarettes per day
XSMKCPD	1.005	1.003	1.006	Former cigarettes per day
SMKCYR	1.002	1.000	1.005	Current years smoke
XSMKCYR	1.013	1.012	1.014	Former years smoked
PASSIVE	1.002	0.997	1.006	Passive Smoking
EDULOW	1.335	1.291	1.380	Less than high school education
INDUSEXP	1.030	0.994	1.068	Occupational exposure
BMI	1.001	0.997	1.005	Body Mass Index
ALC	0.960	0.952	0.968	Alcohol Drinking

Climate_Extra: Adjusted Mortality Risk Ratios (and 95% Confidence Intervals) by Cardiopulmonary Death for the Sulfate Particles

The PHREG Procedure

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
DCOLD	1.018	0.982	1.055	Mean Temperature less than 50 F
DHOT	0.951	0.919	0.983	Mean Temperature greater than 60 F
SULFATES	1.235	1.135	1.345	Sulfate Particles

Climate_Extra: Adjusted Mortality Risk Ratios (and 95% Confidence

Intervals) by Lung Cancer Related Death for the Fine Particles

The PHREG Procedure

Data Set: WORK.C_FPF
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	34529.177	32037.664	2491.513 with 14 DF (p=0.0001)
Score	.	.	2777.680 with 14 DF (p=0.0001)
Wald	.	.	1891.394 with 14 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square

Variable					
CURCIG	1	0.941833	0.19540	23.23189	0.0001
EVPCONLY	1	1.249023	0.16548	56.97219	0.0001
SMKCPD	1	0.022727	0.00243	87.14185	0.0001
XSMKCPD	1	0.013564	0.00222	37.24074	0.0001
SMKCYR	1	0.035013	0.00403	75.61439	0.0001
XSMKCYR	1	0.059712	0.00246	589.84515	0.0001
PASSIVE	1	0.003417	0.00543	0.39551	0.5294
EDULOW	1	0.449009	0.05675	62.59402	0.0001
INDUSEXP	1	0.102079	0.05488	3.45999	0.0629
BMI	1	-0.076863	0.00706	118.43027	0.0001
ALC	1	-0.006425	0.00962	0.44574	0.5044
DCOLD	1	-0.098820	0.06008	2.70561	0.1000
DHOT	1	-0.042649	0.05468	0.60833	0.4354
FINE	1	0.052977	0.12944	0.16750	0.6823

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	2.565	1.749	3.761	Current Smoker
EVPCONLY	3.487	2.521	4.823	Pipe/cigar smoker
SMKCPD	1.023	1.018	1.028	Current cigarettes per day
XSMKCPD	1.014	1.009	1.018	Former cigarettes per day
SMKCYR	1.036	1.027	1.044	Current years smoke
XSMKCYR	1.062	1.056	1.067	Former years smoked
PASSIVE	1.003	0.993	1.014	Passive Smoking
EDULOW	1.567	1.402	1.751	Less than high school education
INDUSEXP	1.107	0.995	1.233	Occupational exposure
BMI	0.926	0.913	0.939	Body Mass Index
ALC	0.994	0.975	1.013	Alcohol Drinking

Climate_Extra: Adjusted Mortality Risk Ratios (and 95% Confidence
Intervals) by Lung Cancer Related Death for the Fine Particles

The PHREG Procedure

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
DCOLD	0.906	0.805	1.019	Mean Temperature less than 50 F
DHOT	0.958	0.861	1.067	Mean Temperature greater than 60 F
FINE	1.054	0.818	1.359	Fine Particles

Climate_Extra: Adjusted Mortality Risk Ratios (and 95% Confidence
Intervals) by Cardiopulmonary Death for the Fine Particles

The PHREG Procedure

Data Set: WORK.C_FPF

Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	175982.317	174589.182	1393.136 with 14 DF (p=0.0001)
Score	.	.	1491.163 with 14 DF (p=0.0001)
Wald	.	.	1449.184 with 14 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.574575	0.09392	37.42397	0.0001
EVPCONLY	1	0.218733	0.04616	22.44979	0.0001
SMKCPD	1	0.005670	0.00165	11.77919	0.0006
XSMKCPD	1	0.005728	0.00103	31.17276	0.0001
SMKCYR	1	0.003941	0.00190	4.32239	0.0376
XSMKCYR	1	0.011796	0.0009214	163.90164	0.0001
PASSIVE	1	0.002970	0.00302	0.96812	0.3251
EDULOW	1	0.290531	0.02375	149.60213	0.0001
INDUSEXP	1	0.052897	0.02522	4.39751	0.0360
BMI	1	-0.002895	0.00283	1.04854	0.3058
ALC	1	-0.037818	0.00566	44.66306	0.0001
DCOLD	1	0.065934	0.02498	6.96664	0.0083
DHOT	1	-0.078518	0.02392	10.77849	0.0010
FINE	1	0.228990	0.05606	16.68286	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.776	1.478	2.135	Current Smoker
EVPCONLY	1.244	1.137	1.362	Pipe/cigar smoker
SMKCPD	1.006	1.002	1.009	Current cigarettes per day
XSMKCPD	1.006	1.004	1.008	Former cigarettes per day
SMKCYR	1.004	1.000	1.008	Current years smoke
XSMKCYR	1.012	1.010	1.014	Former years smoked
PASSIVE	1.003	0.997	1.009	Passive Smoking
EDULOW	1.337	1.276	1.401	Less than high school education
INDUSEXP	1.054	1.003	1.108	Occupational exposure
BMI	0.997	0.992	1.003	Body Mass Index
ALC	0.963	0.952	0.974	Alcohol Drinking

Climate_Extra: Adjusted Mortality Risk Ratios (and 95% Confidence
Intervals) by Cardiopulmonary Death for the Fine Particles

The PHREG Procedure

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Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
DCOLD	1.068	1.017	1.122	Mean Temperature less than 50 F
DHOT	0.924	0.882	0.969	Mean Temperature greater than 60 F
FINE	1.257	1.126	1.403	Fine Particles

Output 6b:

Modified Data

Table_2: Adjusted Mortality Risk Ratios (and 95% Confidence
55
Intervals) by All Cause of Death for the Fine Particles at 24.4
-- with the Female new subcohort

The PHREG Procedure

Data Set: WORK.FPF
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	412146.044	408975.491	3170.553 with 12 DF (p=0.0001)
Score	.	.	3471.612 with 12 DF (p=0.0001)
Wald	.	.	3341.331 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.262766	0.05852	20.16104	0.0001
EVPCONLY	1	0.221210	0.03343	43.79841	0.0001
SMKCPD	1	0.010512	0.00103	103.55119	0.0001
XSMKCPD	1	0.005836	0.0006996	69.57174	0.0001
SMKCYR	1	0.009032	0.00122	54.49050	0.0001
XSMKCYR	1	0.012344	0.0006321	381.30492	0.0001
PASSIVE	1	0.001890	0.00192	0.97386	0.3237
EDULOW	1	0.253270	0.01639	238.76793	0.0001
INDUSEXP	1	0.061154	0.01712	12.76536	0.0004
BMI	1	-0.003111	0.00181	2.95727	0.0855
ALC	1	-0.017242	0.00346	24.77760	0.0001
FINE	1	0.166364	0.03655	20.72320	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.301	1.160	1.459	Current Smoker
EVPCONLY	1.248	1.168	1.332	Pipe/cigar smoker
SMKCPD	1.011	1.009	1.013	Current cigarettes per day
XSMKCPD	1.006	1.004	1.007	Former cigarettes per day
SMKCYR	1.009	1.007	1.011	Current years smoke
XSMKCYR	1.012	1.011	1.014	Former years smoked
PASSIVE	1.002	0.998	1.006	Passive Smoking
EDULOW	1.288	1.248	1.330	Less than high school education
INDUSEXP	1.063	1.028	1.099	Occupational exposure

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BMI	0.997	0.993	1.000	Body Mass Index
ALC	0.983	0.976	0.990	Alcohol Drinking
FINE	1.181	1.099	1.269	Fine Particles

Table_2: Adjusted Mortality Risk Ratios (and 95% Confidence
56
Intervals) by Lung Cancer Related Death for the Fine Particles at 24.4
-- with the Female new subcohort

The PHREG Procedure

Data Set: WORK.FPF
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	37302.126	34588.620	2713.507 with 12 DF (p=0.0001)
Score	.	.	3071.615 with 12 DF (p=0.0001)
Wald	.	.	2063.364 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.959785	0.18451	27.05806	0.0001
EVPCONLY	1	1.250382	0.16379	58.27932	0.0001
SMKCPD	1	0.023391	0.00234	100.24927	0.0001
XSMKCPD	1	0.013918	0.00217	41.12524	0.0001
SMKCYR	1	0.034609	0.00383	81.52196	0.0001
XSMKCYR	1	0.058978	0.00237	621.02922	0.0001
PASSIVE	1	0.004428	0.00522	0.71914	0.3964
EDULOW	1	0.448474	0.05488	66.78425	0.0001
INDUSEXP	1	0.098079	0.05383	3.32018	0.0684
BMI	1	-0.071920	0.00673	114.32971	0.0001
ALC	1	-0.009376	0.00955	0.96437	0.3261
FINE	1	0.017074	0.12278	0.01934	0.8894

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	2.611	1.819	3.749	Current Smoker
EVPCONLY	3.492	2.533	4.813	Pipe/cigar smoker
SMKCPD	1.024	1.019	1.028	Current cigarettes per day
XSMKCPD	1.014	1.010	1.018	Former cigarettes per day
SMKCYR	1.035	1.027	1.043	Current years smoke
XSMKCYR	1.061	1.056	1.066	Former years smoked

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PASSIVE	1.004	0.994	1.015	Passive Smoking
EDULOW	1.566	1.406	1.744	Less than high school education
INDUSEXP	1.103	0.993	1.226	Occupational exposure
BMI	0.931	0.918	0.943	Body Mass Index
ALC	0.991	0.972	1.009	Alcohol Drinking
FINE	1.017	0.800	1.294	Fine Particles

Table_2: Adjusted Mortality Risk Ratios (and 95% Confidence
57
Intervals) by Cardiopulmonary Death for the Fine Particles at 24.4
-- with the Female new subcohort

The PHREG Procedure

Data Set: WORK.FPF
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	194480.995	192929.578	1551.417 with 12 DF (p=0.0001)
Score	.		1672.019 with 12 DF (p=0.0001)
Wald		.	1623.234 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.544053	0.08867	37.64750	0.0001
EVPCONLY	1	0.222319	0.04586	23.49728	0.0001
SMKCPD	1	0.006097	0.00159	14.71249	0.0001
XSMKCPD	1	0.005690	0.0009969	32.57854	0.0001
SMKCYR	1	0.004643	0.00180	6.64480	0.0099
XSMKCYR	1	0.011844	0.0008744	183.48717	0.0001
PASSIVE	1	0.003808	0.00290	1.72804	0.1887
EDULOW	1	0.307022	0.02245	187.01698	0.0001
INDUSEXP	1	0.064200	0.02462	6.79730	0.0091
BMI	1	0.000175	0.00263	0.00441	0.9470
ALC	1	-0.037996	0.00551	47.52896	0.0001
FINE	1	0.273613	0.05260	27.05804	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.723	1.448	2.050	Current Smoker
EVPCONLY	1.249	1.142	1.366	Pipe/cigar smoker
SMKCPD	1.006	1.003	1.009	Current cigarettes per day

XSMKCPD	1.006	1.004	1.008	Former cigarettes per day
SMKCYR	1.005	1.001	1.008	Current years smoke
XSMKCYR	1.012	1.010	1.014	Former years smoked
PASSIVE	1.004	0.998	1.010	Passive Smoking
EDULOW	1.359	1.301	1.421	Less than high school education
INDUSEXP	1.066	1.016	1.119	Occupational exposure
BMI	1.000	0.995	1.005	Body Mass Index
ALC	0.963	0.952	0.973	Alcohol Drinking
FINE	1.315	1.186	1.457	Fine Particles

Table_2: Adjusted Mortality Risk Ratios (and 95% Confidence
58
Intervals) by All Other Death for the Fine Particles at 24.4
-- with the Female new subcohort

The PHREG Procedure

Data Set: WORK.FPF
Dependent Variable: FAIL
Censoring Variable: CENREST
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	179701.910	179198.132	503.778 with 12 DF (p=0.0001)
Score	.	.	535.772 with 12 DF (p=0.0001)
Wald	.	.	527.241 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.075786	0.08917	0.72242	0.3954
EVPCONLY	1	0.140914	0.05145	7.50171	0.0062
SMKCPD	1	0.008160	0.00169	23.32347	0.0001
XSMKCPD	1	0.005503	0.00111	24.70650	0.0001
SMKCYR	1	0.007175	0.00195	13.57481	0.0002
XSMKCYR	1	0.006216	0.00104	35.93872	0.0001
PASSIVE	1	-0.001429	0.00294	0.23660	0.6267
EDULOW	1	0.119383	0.02690	19.70040	0.0001
INDUSEXP	1	0.045232	0.02662	2.88821	0.0892
BMI	1	0.005428	0.00267	4.13816	0.0419
ALC	1	0.001447	0.00492	0.08637	0.7688
FINE	1	0.084532	0.05593	2.28411	0.1307

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label

CURCIG	1.079	0.906	1.285	Current Smoker
EVPCONLY	1.151	1.041	1.273	Pipe/cigar smoker
SMKCPD	1.008	1.005	1.012	Current cigarettes per day
XSMKCPD	1.006	1.003	1.008	Former cigarettes per day
SMKCYR	1.007	1.003	1.011	Current years smoke
XSMKCYR	1.006	1.004	1.008	Former years smoked
PASSIVE	0.999	0.993	1.004	Passive Smoking
EDULOW	1.127	1.069	1.188	Less than high school education
INDUSEXP	1.046	0.993	1.102	Occupational exposure
BMI	1.005	1.000	1.011	Body Mass Index
ALC	1.001	0.992	1.011	Alcohol Drinking
FINE	1.088	0.975	1.214	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
59
Intervals) by All Cause of Death for the Fine Particles at 24.4
 -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	412146.044	408975.491	3170.553 with 12 DF (p=0.0001)
Score	.	.	3471.612 with 12 DF (p=0.0001)
Wald	.	.	3341.331 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.262766	0.05852	20.16104	0.0001
EVPCONLY	1	0.221210	0.03343	43.79841	0.0001
SMKCPD	1	0.010512	0.00103	103.55119	0.0001
XSMKCPD	1	0.005836	0.0006996	69.57174	0.0001
SMKCYR	1	0.009032	0.00122	54.49050	0.0001
XSMKCYR	1	0.012344	0.0006321	381.30492	0.0001
PASSIVE	1	0.001890	0.00192	0.97386	0.3237
EDULOW	1	0.253270	0.01639	238.76793	0.0001
INDUSEXP	1	0.061154	0.01712	12.76536	0.0004
BMI	1	-0.003111	0.00181	2.95727	0.0855
ALC	1	-0.017242	0.00346	24.77760	0.0001
FINE	1	0.166364	0.03655	20.72320	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

331

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.301	1.160	1.459	Current Smoker
EVPCONLY	1.248	1.168	1.332	Pipe/cigar smoker
SMKCPD	1.011	1.009	1.013	Current cigarettes per day
XSMKCPD	1.006	1.004	1.007	Former cigarettes per day
SMKCYR	1.009	1.007	1.011	Current years smoke
XSMKCYR	1.012	1.011	1.014	Former years smoked
PASSIVE	1.002	0.998	1.006	Passive Smoking
EDULOW	1.288	1.248	1.330	Less than high school education
INDUSEXP	1.063	1.028	1.099	Occupational exposure
BMI	0.997	0.993	1.000	Body Mass Index
ALC	0.983	0.976	0.990	Alcohol Drinking
FINE	1.181	1.099	1.269	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
60
Intervals) by All Cause of Death for the Fine Particles at 24.4
        in Women
  -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	172682.448	171562.322	1120.126 with 11 DF (p=0.0001)
Score	.	.	1282.316 with 11 DF (p=0.0001)
Wald	.	.	1233.616 with 11 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.111726	0.08508	1.72436	0.1891
EVPCONLY	0	0	.	.	.
SMKCPD	1	0.014796	0.00186	63.43581	0.0001
XSMKCPD	1	0.008736	0.00163	28.64519	0.0001
SMKCYR	1	0.009662	0.00188	26.38491	0.0001
XSMKCYR	1	0.010017	0.00122	67.11676	0.0001
PASSIVE	1	0.002420	0.00318	0.57920	0.4466
EDULOW	1	0.224241	0.02546	77.58707	0.0001
INDUSEXP	1	0.102231	0.03674	7.74232	0.0054
BMI	1	0.001620	0.00243	0.44265	0.5058
ALC	1	-0.040487	0.00809	25.04207	0.0001
FINE	1	0.169510	0.05650	9.00244	0.0027

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and 95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.118	0.946	1.321	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	1.015	1.011	1.019	Current cigarettes per day
XSMKCPD	1.009	1.006	1.012	Former cigarettes per day
SMKCYR	1.010	1.006	1.013	Current years smoke
XSMKCYR	1.010	1.008	1.012	Former years smoked
PASSIVE	1.002	0.996	1.009	Passive Smoking
EDULOW	1.251	1.190	1.315	Less than high school education
INDUSEXP	1.108	1.031	1.190	Occupational exposure
BMI	1.002	0.997	1.006	Body Mass Index
ALC	0.960	0.945	0.976	Alcohol Drinking
FINE	1.185	1.061	1.323	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
61
Intervals) by All Cause of Death for the Fine Particles at 24.4
in Men
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	239463.596	237360.825	2102.771 with 12 DF (p=0.0001)
Score	.	.	2237.819 with 12 DF (p=0.0001)
Wald	.	.	2139.378 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.468904	0.08517	30.30846	0.0001
EVPCONLY	1	0.252506	0.03497	52.13872	0.0001
SMKCPD	1	0.007941	0.00127	39.37520	0.0001
XSMKCPD	1	0.005588	0.0007850	50.67435	0.0001
SMKCYR	1	0.006961	0.00168	17.11591	0.0001
XSMKCYR	1	0.013441	0.0007642	309.37879	0.0001
PASSIVE	1	0.000823	0.00241	0.11694	0.7324
EDULOW	1	0.265517	0.02157	151.51833	0.0001
INDUSEXP	1	0.050041	0.01933	6.69881	0.0096
BMI	1	-0.009763	0.00269	13.15077	0.0003
ALC	1	-0.010883	0.00383	8.07736	0.0045
FINE	1	0.162960	0.04793	11.55949	0.0007

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and 95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.598	1.353	1.889	Current Smoker
EVPCONLY	1.287	1.202	1.379	Pipe/cigar smoker
SMKCPD	1.008	1.005	1.010	Current cigarettes per day
XSMKCPD	1.006	1.004	1.007	Former cigarettes per day
SMKCYR	1.007	1.004	1.010	Current years smoke
XSMKCYR	1.014	1.012	1.015	Former years smoked
PASSIVE	1.001	0.996	1.006	Passive Smoking
EDULOW	1.304	1.250	1.360	Less than high school education
INDUSEXP	1.051	1.012	1.092	Occupational exposure
BMI	0.990	0.985	0.996	Body Mass Index
ALC	0.989	0.982	0.997	Alcohol Drinking
FINE	1.177	1.071	1.293	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
62
Intervals) by Lung Cancer Related Death for the Fine Particles at 24.4
 -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	37302.126	34588.620	2713.507 with 12 DF (p=0.0001)
Score	.	.	3071.615 with 12 DF (p=0.0001)
Wald	.	.	2063.364 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.959785	0.18451	27.05806	0.0001
EVPCONLY	1	1.250382	0.16379	58.27932	0.0001
SMKCPD	1	0.023391	0.00234	100.24927	0.0001
XSMKCPD	1	0.013918	0.00217	41.12524	0.0001
SMKCYR	1	0.034609	0.00383	81.52196	0.0001
XSMKCYR	1	0.058978	0.00237	621.02922	0.0001
PASSIVE	1	0.004428	0.00522	0.71914	0.3964
EDULOW	1	0.448474	0.05488	66.78425	0.0001
INDUSEXP	1	0.098079	0.05383	3.32018	0.0684
BMI	1	-0.071920	0.00673	114.32971	0.0001

ALC	1	-0.009376	0.00955	0.96437	0.3261
FINE	1	0.017074	0.12278	0.01934	0.8894

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	2.611	1.819	3.749	Current Smoker
EVPCONLY	3.492	2.533	4.813	Pipe/cigar smoker
SMKCPD	1.024	1.019	1.028	Current cigarettes per day
XSMKCPD	1.014	1.010	1.018	Former cigarettes per day
SMKCYR	1.035	1.027	1.043	Current years smoke
XSMKCYR	1.061	1.056	1.066	Former years smoked
PASSIVE	1.004	0.994	1.015	Passive Smoking
EDULOW	1.566	1.406	1.744	Less than high school education
INDUSEXP	1.103	0.993	1.226	Occupational exposure
BMI	0.931	0.918	0.943	Body Mass Index
ALC	0.991	0.972	1.009	Alcohol Drinking
FINE	1.017	0.800	1.294	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
63
Intervals) by Lung Cancer Related Death for the Fine Particles at 24.4
in Women
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	12981.086	11965.671	1015.415 with 11 DF (p=0.0001)
Score			1382.170 with 11 DF (p=0.0001)
Wald			862.479 with 11 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.981010	0.26383	13.82632	0.0002
EVPCONLY	0	0	.	.	.
SMKCPD	1	0.035140	0.00405	75.10857	0.0001
XSMKCPD	1	0.024809	0.00473	27.50520	0.0001
SMKCYR	1	0.023240	0.00580	16.08058	0.0001
XSMKCYR	1	0.046311	0.00431	115.42672	0.0001

PASSIVE	1	0.005152	0.00905	0.32379	0.5693
EDULOW	1	0.361578	0.10514	11.82717	0.0006
INDUSEXP	1	0.225641	0.12075	3.49203	0.0617
BMI	1	-0.057246	0.01049	29.75303	0.0001
ALC	1	-0.020665	0.02217	0.86857	0.3514
FINE	1	-0.122031	0.21042	0.33632	0.5620

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	2.667	1.590	4.473	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	1.036	1.028	1.044	Current cigarettes per day
XSMKCPD	1.025	1.016	1.035	Former cigarettes per day
SMKCYR	1.024	1.012	1.035	Current years smoke
XSMKCYR	1.047	1.039	1.056	Former years smoked
PASSIVE	1.005	0.987	1.023	Passive Smoking
EDULOW	1.436	1.168	1.764	Less than high school education
INDUSEXP	1.253	0.989	1.588	Occupational exposure
BMI	0.944	0.925	0.964	Body Mass Index
ALC	0.980	0.938	1.023	Alcohol Drinking
FINE	0.885	0.586	1.337	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
64
Intervals) by Lung Cancer Related Death for the Fine Particles at 24.4
in Men
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	24321.041	22584.639	1736.402 with 12 DF (p=0.0001)
Score	.	.	1833.463 with 12 DF (p=0.0001)
Wald	.	.	1233.467 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	1.031942	0.26483	15.18333	0.0001
EVPCONLY	1	1.470972	0.18361	64.18507	0.0001

SMKCPD	1	0.017690	0.00289	37.39764	0.0001
XSMKCPD	1	0.012433	0.00250	24.68884	0.0001
SMKCYR	1	0.041665	0.00523	63.50460	0.0001
XSMKCYR	1	0.066320	0.00311	455.22974	0.0001
PASSIVE	1	0.003139	0.00639	0.24098	0.6235
EDULOW	1	0.450948	0.06505	48.05769	0.0001
INDUSEXP	1	0.061316	0.05981	1.05116	0.3052
BMI	1	-0.081762	0.00863	89.76524	0.0001
ALC	1	-0.005083	0.01052	0.23346	0.6290
FINE	1	0.090692	0.15108	0.36033	0.5483

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and 95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	2.807	1.670	4.716	Current Smoker
EVPCONLY	4.353	3.038	6.239	Pipe/cigar smoker
SMKCPD	1.018	1.012	1.024	Current cigarettes per day
XSMKCPD	1.013	1.008	1.017	Former cigarettes per day
SMKCYR	1.043	1.032	1.053	Current years smoke
XSMKCYR	1.069	1.062	1.075	Former years smoked
PASSIVE	1.003	0.991	1.016	Passive Smoking
EDULOW	1.570	1.382	1.783	Less than high school education
INDUSEXP	1.063	0.946	1.195	Occupational exposure
BMI	0.921	0.906	0.937	Body Mass Index
ALC	0.995	0.975	1.016	Alcohol Drinking
FINE	1.095	0.814	1.472	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
65
Intervals) by Cardiopulmonary Death for the Fine Particles at 24.4
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	194480.995	192929.578	1551.417 with 12 DF (p=0.0001)
Score	.	.	1672.019 with 12 DF (p=0.0001)
Wald	.	.	1623.234 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square

CURCIG	1	0.544053	0.08867	37.64750	0.0001
EVPCONLY	1	0.222319	0.04586	23.49728	0.0001
SMKCPD	1	0.006097	0.00159	14.71249	0.0001
XSMKCPD	1	0.005690	0.0009969	32.57854	0.0001
SMKCYR	1	0.004643	0.00180	6.64480	0.0099
XSMKCYR	1	0.011844	0.0008744	183.48717	0.0001
PASSIVE	1	0.003808	0.00290	1.72804	0.1887
EDULOW	1	0.307022	0.02245	187.01698	0.0001
INDUSEXP	1	0.064200	0.02462	6.79730	0.0091
BMI	1	0.000175	0.00263	0.00441	0.9470
ALC	1	-0.037996	0.00551	47.52896	0.0001
FINE	1	0.273613	0.05260	27.05804	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and 95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.723	1.448	2.050	Current Smoker
EVPCONLY	1.249	1.142	1.366	Pipe/cigar smoker
SMKCPD	1.006	1.003	1.009	Current cigarettes per day
XSMKCPD	1.006	1.004	1.008	Former cigarettes per day
SMKCYR	1.005	1.001	1.008	Current years smoke
XSMKCYR	1.012	1.010	1.014	Former years smoked
PASSIVE	1.004	0.998	1.010	Passive Smoking
EDULOW	1.359	1.301	1.421	Less than high school education
INDUSEXP	1.066	1.016	1.119	Occupational exposure
BMI	1.000	0.995	1.005	Body Mass Index
ALC	0.963	0.952	0.973	Alcohol Drinking
FINE	1.315	1.186	1.457	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
66
Intervals) by Cardiopulmonary Death for the Fine Particles at 24.4
in Women
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	72454.763	71790.200	664.563 with 11 DF (p=0.0001)
Score	.		773.874 with 11 DF (p=0.0001)
Wald	.		740.520 with 11 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.314213	0.13373	5.52064	0.0188
EVPCONLY	0	0	.		.
SMKCPD	1	0.016868	0.00299	31.77269	0.0001
XSMKCPD	1	0.007067	0.00269	6.90190	0.0086
SMKCYR	1	0.006465	0.00283	5.20418	0.0225
XSMKCYR	1	0.010704	0.00182	34.70367	0.0001
PASSIVE	1	0.010862	0.00517	4.40865	0.0358
EDULOW	1	0.332936	0.03527	89.10416	0.0001
INDUSEXP	1	0.085558	0.05977	2.04888	0.1523
BMI	1	0.001187	0.00370	0.10267	0.7486
ALC	1	-0.071141	0.01410	25.47255	0.0001
FINE	1	0.368639	0.08539	18.63590	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.369	1.053	1.779	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	1.017	1.011	1.023	Current cigarettes per day
XSMKCPD	1.007	1.002	1.012	Former cigarettes per day
SMKCYR	1.006	1.001	1.012	Current years smoke
XSMKCYR	1.011	1.007	1.014	Former years smoked
PASSIVE	1.011	1.001	1.021	Passive Smoking
EDULOW	1.395	1.302	1.495	Less than high school education
INDUSEXP	1.089	0.969	1.225	Occupational exposure
BMI	1.001	0.994	1.008	Body Mass Index
ALC	0.931	0.906	0.957	Alcohol Drinking
FINE	1.446	1.223	1.709	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
67
Intervals) by Cardiopulmonary Death for the Fine Particles at 24.4
in Men
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	122026.232	121102.513	923.719 with 12 DF (p=0.0001)
Score	.	.	967.172 with 12 DF (p=0.0001)
Wald	.	.	937.900 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.640239	0.12303	27.07900	0.0001
EVPCONLY	1	0.214765	0.04754	20.40995	0.0001
SMKCPD	1	0.002635	0.00192	1.89250	0.1689
XSMKCPD	1	0.005125	0.00109	22.09603	0.0001
SMKCYR	1	0.003795	0.00240	2.49986	0.1139
XSMKCYR	1	0.012289	0.00103	141.85025	0.0001
PASSIVE	1	0.000897	0.00350	0.06556	0.7979
EDULOW	1	0.286662	0.02937	95.25274	0.0001
INDUSEXP	1	0.063347	0.02704	5.48961	0.0191
BMI	1	-0.001228	0.00374	0.10767	0.7428
ALC	1	-0.030618	0.00599	26.17138	0.0001
FINE	1	0.211369	0.06683	10.00392	0.0016

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and 95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.897	1.490	2.414	Current Smoker
EVPCONLY	1.240	1.129	1.361	Pipe/cigar smoker
SMKCPD	1.003	0.999	1.006	Current cigarettes per day
XSMKCPD	1.005	1.003	1.007	Former cigarettes per day
SMKCYR	1.004	0.999	1.009	Current years smoke
XSMKCYR	1.012	1.010	1.014	Former years smoked
PASSIVE	1.001	0.994	1.008	Passive Smoking
EDULOW	1.332	1.257	1.411	Less than high school education
INDUSEXP	1.065	1.010	1.123	Occupational exposure
BMI	0.999	0.991	1.006	Body Mass Index
ALC	0.970	0.959	0.981	Alcohol Drinking
FINE	1.235	1.084	1.408	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
68
Intervals) by All Cause of Death for the Fine Particles at 24.4
Never-smokers
 -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_N
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square

-2 LOG L	128702.967	128570.749	132.218 with 6 DF (p=0.0001)	
Score	.	.	131.185 with 6 DF (p=0.0001)	
Wald	.	.	131.545 with 6 DF (p=0.0001)	

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	0.002357	0.00472	0.24964	0.6173
EDULOW	1	0.217252	0.02678	65.82422	0.0001
INDUSEXP	1	0.070484	0.03454	4.16500	0.0413
BMI	1	0.010031	0.00277	13.10481	0.0003
ALC	1	-0.046065	0.01025	20.19234	0.0001
FINE	1	0.214242	0.06278	11.64593	0.0006

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	.	.	.	Current cigarettes per day
XSMKCPD	.	.	.	Former cigarettes per day
SMKCYR	.	.	.	Current years smoke
XSMKCYR	.	.	.	Former years smoked
PASSIVE	1.002	0.993	1.012	Passive Smoking
EDULOW	1.243	1.179	1.310	Less than high school education
INDUSEXP	1.073	1.003	1.148	Occupational exposure
BMI	1.010	1.005	1.016	Body Mass Index
ALC	0.955	0.936	0.974	Alcohol Drinking
FINE	1.239	1.095	1.401	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
69
Intervals) by All Cause of Death for the Fine Particles at 24.4
Never-smokers in Women
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_N
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	88709.677	88632.150	77.527 with 6 DF (p=0.0001)
Score	.	.	72.689 with 6 DF (p=0.0001)
Wald	.	.	73.746 with 6 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	0.006116	0.00563	1.17857	0.2776
EDULOW	1	0.161667	0.03203	25.47423	0.0001
INDUSEXP	1	0.121162	0.05280	5.26674	0.0217
BMI	1	0.006237	0.00316	3.88919	0.0486
ALC	1	-0.075231	0.01687	19.87808	0.0001
FINE	1	0.219639	0.07631	8.28341	0.0040

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	.	.	.	Current cigarettes per day
XSMKCPD	.	.	.	Former cigarettes per day
SMKCYR	.	.	.	Current years smoke
XSMKCYR	.	.	.	Former years smoked
PASSIVE	1.006	0.995	1.017	Passive Smoking
EDULOW	1.175	1.104	1.252	Less than high school education
INDUSEXP	1.129	1.018	1.252	Occupational exposure
BMI	1.006	1.000	1.013	Body Mass Index
ALC	0.928	0.897	0.959	Alcohol Drinking
FINE	1.246	1.073	1.447	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
70
Intervals) by All Cause of Death for the Fine Particles at 24.4
        Never-smokers in Men
  -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_N
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

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Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	39993.290	39912.554	80.736 with 6 DF (p=0.0001)
Score	.	.	84.396 with 6 DF (p=0.0001)
Wald	.	.	84.012 with 6 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	-0.006539	0.00863	0.57462	0.4484
EDULOW	1	0.349096	0.04844	51.94538	0.0001
INDUSEXP	1	0.026555	0.04546	0.34119	0.5591
BMI	1	0.023707	0.00584	16.48115	0.0001
ALC	1	-0.027089	0.01274	4.51766	0.0335
FINE	1	0.213770	0.11058	3.73694	0.0532

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	.	.	.	Current cigarettes per day
XSMKCPD	.	.	.	Former cigarettes per day
SMKCYR	.	.	.	Current years smoke
XSMKCYR	.	.	.	Former years smoked
PASSIVE	0.993	0.977	1.010	Passive Smoking
EDULOW	1.418	1.289	1.559	Less than high school education
INDUSEXP	1.027	0.939	1.123	Occupational exposure
BMI	1.024	1.012	1.036	Body Mass Index
ALC	0.973	0.949	0.998	Alcohol Drinking
FINE	1.238	0.997	1.538	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
71
Intervals) by Lung Cancer Related Death for the Fine Particles at 24.4
        Never-smokers
  -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_N
Dependent Variable: FAIL
Censoring Variable: CEN62

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Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	2593.402	2574.167	19.236 with 6 DF (p=0.0038)
Score	.	.	18.102 with 6 DF (p=0.0060)
Wald	.	.	18.526 with 6 DF (p=0.0050)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	-0.034324	0.03610	0.90386	0.3417
EDULOW	1	0.296292	0.20449	2.09930	0.1474
INDUSEXP	1	0.361748	0.22909	2.49351	0.1143
BMI	1	-0.078709	0.02238	12.37025	0.0004
ALC	1	-0.084673	0.08575	0.97495	0.3234
FINE	1	-0.311618	0.45622	0.46655	0.4946

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	.	.	.	Current cigarettes per day
XSMKCPD	.	.	.	Former cigarettes per day
SMKCYR	.	.	.	Current years smoke
XSMKCYR	.	.	.	Former years smoked
PASSIVE	0.966	0.900	1.037	Passive Smoking
EDULOW	1.345	0.901	2.008	Less than high school education
INDUSEXP	1.436	0.916	2.250	Occupational exposure
BMI	0.924	0.885	0.966	Body Mass Index
ALC	0.919	0.777	1.087	Alcohol Drinking
FINE	0.732	0.299	1.791	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
72
Intervals) by Lung Cancer Related Death for the Fine Particles at 24.4
Never-smokers in Women
-- with the Female New Subcohort

The PHREG Procedure

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Data Set: WORK.FPF_N
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	1902.875	1888.586	14.290 with 6 DF (p=0.0266)
Score			13.251 with 6 DF (p=0.0392)
Wald			13.552 with 6 DF (p=0.0351)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	-0.041969	0.04329	0.93987	0.3323
EDULOW	1	0.184701	0.24662	0.56089	0.4539
INDUSEXP	1	0.418815	0.32111	1.70116	0.1921
BMI	1	-0.084206	0.02565	10.77652	0.0010
ALC	1	-0.021838	0.09177	0.05662	0.8119
FINE	1	-0.135374	0.53928	0.06302	0.8018

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	.	.	.	Current cigarettes per day
XSMKCPD	.	.	.	Former cigarettes per day
SMKCYR	.	.	.	Current years smoke
XSMKCYR	.	.	.	Former years smoked
PASSIVE	0.959	0.881	1.044	Passive Smoking
EDULOW	1.203	0.742	1.950	Less than high school education
INDUSEXP	1.520	0.810	2.852	Occupational exposure
BMI	0.919	0.874	0.967	Body Mass Index
ALC	0.978	0.817	1.171	Alcohol Drinking
FINE	0.873	0.304	2.513	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
73
Intervals) by Lung Cancer Related Death for the Fine Particles at 24.4
Never-smokers in Men
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_N
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	690.527	682.822	7.705 with 6 DF (p=0.2605)
Score	.	.	7.095 with 6 DF (p=0.3121)
Wald	.	.	7.210 with 6 DF (p=0.3019)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	-0.013142	0.06556	0.04019	0.8411
EDULOW	1	0.584048	0.36805	2.51821	0.1125
INDUSEXP	1	0.279845	0.32421	0.74506	0.3880
BMI	1	-0.055505	0.04661	1.41828	0.2337
ALC	1	-0.212081	0.16737	1.60572	0.2051
FINE	1	-0.707765	0.85840	0.67982	0.4096

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and 95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	.	.	.	Current cigarettes per day
XSMKCPD	.	.	.	Former cigarettes per day
SMKCYR	.	.	.	Current years smoke
XSMKCYR	.	.	.	Former years smoked
PASSIVE	0.987	0.868	1.122	Passive Smoking
EDULOW	1.793	0.872	3.689	Less than high school education
INDUSEXP	1.323	0.701	2.497	Occupational exposure
BMI	0.946	0.863	1.036	Body Mass Index
ALC	0.809	0.583	1.123	Alcohol Drinking
FINE	0.493	0.092	2.650	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
74

Intervals) by Cardiopulmonary Death for the Fine Particles at 24.4
          Never-smokers
  -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_N
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	61917.801	61794.694	123.107 with 6 DF (p=0.0001)
Score	.	.	123.270 with 6 DF (p=0.0001)
Wald	.	.	123.318 with 6 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	0.012192	0.00706	2.97807	0.0844
EDULOW	1	0.297340	0.03570	69.36217	0.0001
INDUSEXP	1	0.040395	0.04977	0.65862	0.4170
BMI	1	0.010574	0.00399	7.01289	0.0081
ALC	1	-0.055287	0.01499	13.60658	0.0002
FINE	1	0.354815	0.08879	15.96866	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	.	.	.	Current cigarettes per day
XSMKCPD	.	.	.	Former cigarettes per day
SMKCYR	.	.	.	Current years smoke
XSMKCYR	.	.	.	Former years smoked
PASSIVE	1.012	0.998	1.026	Passive Smoking
EDULOW	1.346	1.255	1.444	Less than high school education
INDUSEXP	1.041	0.944	1.148	Occupational exposure
BMI	1.011	1.003	1.019	Body Mass Index

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| ALC | 0.946 | 0.919 | 0.974 | Alcohol Drinking |
| FINE | 1.426 | 1.198 | 1.697 | Fine Particles |

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
75
Intervals) by Cardiopulmonary Death for the Fine Particles at 24.4
Never-smokers in Women
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_N
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	40047.762	39954.690	93.072 with 6 DF (p=0.0001)
Score	.	.	86.558 with 6 DF (p=0.0001)
Wald	.	.	88.289 with 6 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	0.019434	0.00884	4.82821	0.0280
EDULOW	1	0.266769	0.04308	38.33920	0.0001
INDUSEXP	1	0.047783	0.08523	0.31433	0.5750
BMI	1	0.003577	0.00467	0.58600	0.4440
ALC	1	-0.125807	0.02909	18.70317	0.0001
FINE	1	0.431955	0.11089	15.17285	0.0001

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	.	.	.	Current cigarettes per day
XSMKCPD	.	.	.	Former cigarettes per day
SMKCYR	.	.	.	Current years smoke
XSMKCYR	.	.	.	Former years smoked

PASSIVE	1.020	1.002	1.037	Passive Smoking
EDULOW	1.306	1.200	1.421	Less than high school education
INDUSEXP	1.049	0.888	1.240	Occupational exposure
BMI	1.004	0.994	1.013	Body Mass Index
ALC	0.882	0.833	0.934	Alcohol Drinking
FINE	1.540	1.239	1.914	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
76
Intervals) by Cardiopulmonary Death for the Fine Particles at 24.4
Never-smokers in Men
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_N
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	21870.039	21817.004	53.034 with 6 DF (p=0.0001)
Score			55.731 with 6 DF (p=0.0001)
Wald			55.498 with 6 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	0	0	.	.	.
EVPCONLY	0	0	.	.	.
SMKCPD	0	0	.	.	.
XSMKCPD	0	0	.	.	.
SMKCYR	0	0	.	.	.
XSMKCYR	0	0	.	.	.
PASSIVE	1	-0.000342	0.01174	0.0008502	0.9767
EDULOW	1	0.356510	0.06345	31.57363	0.0001
INDUSEXP	1	0.034342	0.06139	0.31293	0.5759
BMI	1	0.030370	0.00781	15.13103	0.0001
ALC	1	-0.022493	0.01677	1.79965	0.1798
FINE	1	0.213605	0.14884	2.05971	0.1512

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	.	.	.	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker

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SMKCPD         .          .          .        Current cigarettes per day
XSMKCPD        .          .          .        Former cigarettes per day
SMKCYR         .          .          .        Current years smoke
XSMKCYR        .          .          .        Former years smoked
PASSIVE      1.000      0.977      1.023      Passive Smoking
EDULOW       1.428      1.261      1.617      Less than high school education
INDUSEXP     1.035      0.918      1.167      Occupational exposure
BMI          1.031      1.015      1.047      Body Mass Index
ALC          0.978      0.946      1.010      Alcohol Drinking
FINE         1.238      0.925      1.658      Fine Particles
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Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
77
Intervals) by All Cause of Death for the Fine Particles at 24.4
         Ever-smokers
  -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_E
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

           Testing Global Null Hypothesis: BETA=0

               Without   With
Criterion   Covariates   Covariates   Model Chi-Square

-2 LOG L   256918.906   254822.716   2096.190 with 12 DF (p=0.0001)
Score   .   .   2101.562 with 12 DF (p=0.0001)
Wald   .   .   2036.754 with 12 DF (p=0.0001)

           Analysis of Maximum Likelihood Estimates

                      Parameter   Standard   Wald   Pr >
Variable   DF   Estimate   Error   Chi-Square   Chi-Square

CURCIG   1   0.494837   0.06735   53.98032   0.0001
EVPCONLY   1   0.631429   0.04527   194.58501   0.0001
SMKCPD   1   0.009461   0.00105   81.01935   0.0001
XSMKCPD   1   0.008721   0.0007552   133.33964   0.0001
SMKCYR   1   0.012689   0.00134   90.16036   0.0001
XSMKCYR   1   0.021476   0.0009076   559.91150   0.0001
PASSIVE   1   0.000316   0.00210   0.02252   0.8807
EDULOW   1   0.250752   0.02086   144.49284   0.0001
INDUSEXP   1   0.062366   0.01974   9.98141   0.0016
BMI   1   -0.013351   0.00238   31.46715   0.0001
ALC   1   -0.011934   0.00367   10.59285   0.0011
FINE   1   0.139053   0.04501   9.54246   0.0020

           Analysis of Maximum Likelihood Estimates

              Conditional Risk Ratio and
                 95% Confidence Limits

              Risk

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Variable	Ratio	Lower	Upper	Label
CURCIG	1.640	1.437	1.872	Current Smoker
EVPCONLY	1.880	1.721	2.055	Pipe/cigar smoker
SMKCPD	1.010	1.007	1.012	Current cigarettes per day
XSMKCPD	1.009	1.007	1.010	Former cigarettes per day
SMKCYR	1.013	1.010	1.015	Current years smoke
XSMKCYR	1.022	1.020	1.024	Former years smoked
PASSIVE	1.000	0.996	1.004	Passive Smoking
EDULOW	1.285	1.234	1.339	Less than high school education
INDUSEXP	1.064	1.024	1.106	Occupational exposure
BMI	0.987	0.982	0.991	Body Mass Index
ALC	0.988	0.981	0.995	Alcohol Drinking
FINE	1.149	1.052	1.255	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
78
Intervals) by All Cause of Death for the Fine Particles at 24.4
Ever-smokers in Women
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_E
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	71296.129	70772.665	523.465 with 11 DF (p=0.0001)
Score	.	.	520.441 with 11 DF (p=0.0001)
Wald	.	.	504.842 with 11 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.309334	0.10170	9.25095	0.0024
EVPCONLY	0	0	.	.	.
SMKCPD	1	0.013493	0.00190	50.27445	0.0001
XSMKCPD	1	0.010621	0.00174	37.06473	0.0001
SMKCYR	1	0.011794	0.00208	32.04626	0.0001
XSMKCYR	1	0.017440	0.00180	93.88627	0.0001
PASSIVE	1	0.000796	0.00386	0.04251	0.8367
EDULOW	1	0.309665	0.04188	54.67811	0.0001
INDUSEXP	1	0.091539	0.05120	3.19602	0.0738
BMI	1	-0.005058	0.00382	1.75058	0.1858
ALC	1	-0.025776	0.00914	7.95066	0.0048
FINE	1	0.109809	0.08412	1.70392	0.1918

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.363	1.116	1.663	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	1.014	1.010	1.017	Current cigarettes per day
XSMKCPD	1.011	1.007	1.014	Former cigarettes per day
SMKCYR	1.012	1.008	1.016	Current years smoke
XSMKCYR	1.018	1.014	1.021	Former years smoked
PASSIVE	1.001	0.993	1.008	Passive Smoking
EDULOW	1.363	1.256	1.480	Less than high school education
INDUSEXP	1.096	0.991	1.212	Occupational exposure
BMI	0.995	0.988	1.002	Body Mass Index
ALC	0.975	0.957	0.992	Alcohol Drinking
FINE	1.116	0.946	1.316	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
79
Intervals) by All Cause of Death for the Fine Particles at 24.4
        Ever-smokers in Men
  -- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_E
Dependent Variable: FAIL
Censoring Variable: CENALL
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	185622.776	184009.409	1613.367 with 12 DF (p=0.0001)
Score	.	.	1629.988 with 12 DF (p=0.0001)
Wald	.	.	1578.344 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.668174	0.09349	51.08457	0.0001
EVPCONLY	1	0.695476	0.05007	192.96168	0.0001
SMKCPD	1	0.007244	0.00128	32.17936	0.0001
XSMKCPD	1	0.008872	0.0008520	108.45411	0.0001
SMKCYR	1	0.011852	0.00180	43.57935	0.0001
XSMKCYR	1	0.022980	0.00106	473.07954	0.0001
PASSIVE	1	-0.000360	0.00251	0.02056	0.8860
EDULOW	1	0.227624	0.02410	89.23182	0.0001
INDUSEXP	1	0.059617	0.02139	7.76993	0.0053
BMI	1	-0.019290	0.00302	40.78107	0.0001
ALC	1	-0.008600	0.00400	4.61240	0.0317
FINE	1	0.149458	0.05327	7.87045	0.0050

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and 95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.951	1.624	2.343	Current Smoker
EVPCONLY	2.005	1.817	2.211	Pipe/cigar smoker
SMKCPD	1.007	1.005	1.010	Current cigarettes per day
XSMKCPD	1.009	1.007	1.011	Former cigarettes per day
SMKCYR	1.012	1.008	1.015	Current years smoke
XSMKCYR	1.023	1.021	1.025	Former years smoked
PASSIVE	1.000	0.995	1.005	Passive Smoking
EDULOW	1.256	1.198	1.316	Less than high school education
INDUSEXP	1.061	1.018	1.107	Occupational exposure
BMI	0.981	0.975	0.987	Body Mass Index
ALC	0.991	0.984	0.999	Alcohol Drinking
FINE	1.161	1.046	1.289	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
80
Intervals) by Lung Cancer Related Death for the Fine Particles at 24.4
Ever-smokers
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_E
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	32587.192	31012.422	1574.770 with 12 DF (p=0.0001)
Score	.	.	1540.064 with 12 DF (p=0.0001)
Wald	.	.	1263.231 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	1.258948	0.21214	35.21746	0.0001
EVPCONLY	1	1.816968	0.19823	84.01438	0.0001
SMKCPD	1	0.022202	0.00235	88.88318	0.0001
XSMKCPD	1	0.016606	0.00227	53.65923	0.0001
SMKCYR	1	0.041506	0.00414	100.71550	0.0001
XSMKCYR	1	0.071956	0.00334	465.09803	0.0001
PASSIVE	1	0.003820	0.00529	0.52064	0.4706
EDULOW	1	0.429401	0.05718	56.39120	0.0001
INDUSEXP	1	0.081158	0.05536	2.14932	0.1426

BMI	1	-0.071839	0.00705	103.94046	0.0001
ALC	1	-0.007523	0.00954	0.62229	0.4302
FINE	1	0.038272	0.12761	0.08995	0.7642

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	3.522	2.324	5.337	Current Smoker
EVPCONLY	6.153	4.172	9.075	Pipe/cigar smoker
SMKCPD	1.022	1.018	1.027	Current cigarettes per day
XSMKCPD	1.017	1.012	1.021	Former cigarettes per day
SMKCYR	1.042	1.034	1.051	Current years smoke
XSMKCYR	1.075	1.068	1.082	Former years smoked
PASSIVE	1.004	0.993	1.014	Passive Smoking
EDULOW	1.536	1.373	1.719	Less than high school education
INDUSEXP	1.085	0.973	1.209	Occupational exposure
BMI	0.931	0.918	0.944	Body Mass Index
ALC	0.993	0.974	1.011	Alcohol Drinking
FINE	1.039	0.809	1.334	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
81
Intervals) by Lung Cancer Related Death for the Fine Particles at 24.4
Ever-smokers in Women
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_E
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	9918.593	9498.501	420.092 with 11 DF (p=0.0001)
Score	.	.	407.159 with 11 DF (p=0.0001)
Wald	.	.	331.411 with 11 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	1.428233	0.34146	17.49552	0.0001
EVPCONLY	0	0	.	.	.
SMKCPD	1	0.033678	0.00411	67.13357	0.0001
XSMKCPD	1	0.028059	0.00493	32.44686	0.0001
SMKCYR	1	0.030121	0.00645	21.79144	0.0001

Variable	DF				
XSMKCYR	1	0.063670	0.00690	85.03993	0.0001
PASSIVE	1	0.006551	0.00932	0.49455	0.4819
EDULOW	1	0.381121	0.11603	10.78925	0.0010
INDUSEXP	1	0.206106	0.13032	2.50139	0.1137
BMI	1	-0.052503	0.01148	20.91423	0.0001
ALC	1	-0.017844	0.02264	0.62123	0.4306
FINE	1	-0.123620	0.22868	0.29224	0.5888

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	4.171	2.136	8.146	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	1.034	1.026	1.043	Current cigarettes per day
XSMKCPD	1.028	1.019	1.038	Former cigarettes per day
SMKCYR	1.031	1.018	1.044	Current years smoke
XSMKCYR	1.066	1.051	1.080	Former years smoked
PASSIVE	1.007	0.988	1.025	Passive Smoking
EDULOW	1.464	1.166	1.838	Less than high school education
INDUSEXP	1.229	0.952	1.586	Occupational exposure
BMI	0.949	0.928	0.970	Body Mass Index
ALC	0.982	0.940	1.027	Alcohol Drinking
FINE	0.884	0.564	1.383	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
82
Intervals) by Lung Cancer Related Death for the Fine Particles at 24.4
Ever-smokers in Men
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_E
Dependent Variable: FAIL
Censoring Variable: CEN62
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	22668.599	21485.578	1183.021 with 12 DF (p=0.0001)
Score	.	.	1181.270 with 12 DF (p=0.0001)
Wald	.	.	962.011 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	1.169206	0.28197	17.19410	0.0001

EVPCONLY	1	1.829596	0.21471	72.61299	0.0001
SMKCPD	1	0.017155	0.00290	34.92798	0.0001
XSMKCPD	1	0.014106	0.00260	29.51879	0.0001
SMKCYR	1	0.046917	0.00542	75.00780	0.0001
XSMKCYR	1	0.074462	0.00384	376.00956	0.0001
PASSIVE	1	0.002447	0.00643	0.14481	0.7035
EDULOW	1	0.431846	0.06609	42.69526	0.0001
INDUSEXP	1	0.051409	0.06084	0.71399	0.3981
BMI	1	-0.082589	0.00877	88.64428	0.0001
ALC	1	-0.003396	0.01047	0.10518	0.7457
FINE	1	0.114096	0.15361	0.55168	0.4576

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	3.219	1.853	5.595	Current Smoker
EVPCONLY	6.231	4.091	9.492	Pipe/cigar smoker
SMKCPD	1.017	1.012	1.023	Current cigarettes per day
XSMKCPD	1.014	1.009	1.019	Former cigarettes per day
SMKCYR	1.048	1.037	1.059	Current years smoke
XSMKCYR	1.077	1.069	1.085	Former years smoked
PASSIVE	1.002	0.990	1.015	Passive Smoking
EDULOW	1.540	1.353	1.753	Less than high school education
INDUSEXP	1.053	0.934	1.186	Occupational exposure
BMI	0.921	0.905	0.937	Body Mass Index
ALC	0.997	0.976	1.017	Alcohol Drinking
FINE	1.121	0.829	1.515	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
83
Intervals) by Cardiopulmonary Death for the Fine Particles at 24.4
Ever-smokers
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_E
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	119951.825	118915.695	1036.130 with 12 DF (p=0.0001)
Score	.	.	1027.128 with 12 DF (p=0.0001)
Wald	.	.	1001.154 with 12 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.752139	0.10147	54.93938	0.0001
EVPCONLY	1	0.678678	0.06375	113.33870	0.0001
SMKCPD	1	0.004961	0.00162	9.38810	0.0022
XSMKCPD	1	0.008783	0.00108	66.58081	0.0001
SMKCYR	1	0.009578	0.00194	24.30342	0.0001
XSMKCYR	1	0.021665	0.00127	290.84451	0.0001
PASSIVE	1	0.000454	0.00318	0.02037	0.8865
EDULOW	1	0.290105	0.02912	99.23815	0.0001
INDUSEXP	1	0.077656	0.02841	7.47169	0.0063
BMI	1	-0.008107	0.00349	5.40984	0.0200
ALC	1	-0.033873	0.00592	32.79076	0.0001
FINE	1	0.223304	0.06541	11.65430	0.0006

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and
95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	2.122	1.739	2.588	Current Smoker
EVPCONLY	1.971	1.740	2.234	Pipe/cigar smoker
SMKCPD	1.005	1.002	1.008	Current cigarettes per day
XSMKCPD	1.009	1.007	1.011	Former cigarettes per day
SMKCYR	1.010	1.006	1.013	Current years smoke
XSMKCYR	1.022	1.019	1.024	Former years smoked
PASSIVE	1.000	0.994	1.007	Passive Smoking
EDULOW	1.337	1.262	1.415	Less than high school education
INDUSEXP	1.081	1.022	1.143	Occupational exposure
BMI	0.992	0.985	0.999	Body Mass Index
ALC	0.967	0.956	0.978	Alcohol Drinking
FINE	1.250	1.100	1.421	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
84
Intervals) by Cardiopulmonary Death for the Fine Particles at 24.4
Ever-smokers in Women
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_E
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L	27130.714	26813.788	316.926 with 11 DF (p=0.0001)
Score	.	.	316.660 with 11 DF (p=0.0001)
Wald	.	.	303.207 with 11 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.499498	0.16481	9.18597	0.0024
EVPCONLY	0	0	.	.	.
SMKCPD	1	0.013437	0.00308	19.07343	0.0001
XSMKCPD	1	0.007977	0.00288	7.66026	0.0056
SMKCYR	1	0.011584	0.00313	13.66924	0.0002
XSMKCYR	1	0.020741	0.00277	56.15643	0.0001
PASSIVE	1	0.005409	0.00637	0.72050	0.3960
EDULOW	1	0.432189	0.06118	49.89855	0.0001
INDUSEXP	1	0.129123	0.08414	2.35498	0.1249
BMI	1	-0.002361	0.00609	0.15006	0.6985
ALC	1	-0.047859	0.01581	9.16881	0.0025
FINE	1	0.274994	0.13411	4.20472	0.0403

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and 95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	1.648	1.193	2.276	Current Smoker
EVPCONLY	.	.	.	Pipe/cigar smoker
SMKCPD	1.014	1.007	1.020	Current cigarettes per day
XSMKCPD	1.008	1.002	1.014	Former cigarettes per day
SMKCYR	1.012	1.005	1.018	Current years smoke
XSMKCYR	1.021	1.015	1.027	Former years smoked
PASSIVE	1.005	0.993	1.018	Passive Smoking
EDULOW	1.541	1.367	1.737	Less than high school education
INDUSEXP	1.138	0.965	1.342	Occupational exposure
BMI	0.998	0.986	1.010	Body Mass Index
ALC	0.953	0.924	0.983	Alcohol Drinking
FINE	1.317	1.012	1.712	Fine Particles

Table_3: Adjusted Mortality Risk Ratios (and 95% Confidence
85
Intervals) by Cardiopulmonary Death for the Fine Particles at 24.4
Ever-smokers in Men
-- with the Female New Subcohort

The PHREG Procedure

Data Set: WORK.FPF_E
Dependent Variable: FAIL
Censoring Variable: CENCOMB
Censoring Value(s): 1
Ties Handling: BRESLOW

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square

358

| | | -2 LOG L | 92821.112 | 92076.126 | 744.986 with 12 DF (p=0.0001) |

```
-2 LOG L      92821.112      92076.126      744.986 with 12 DF (p=0.0001)
Score              .              .          743.633 with 12 DF (p=0.0001)
Wald               .              .          727.445 with 12 DF (p=0.0001)
```

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
CURCIG	1	0.871160	0.13433	42.05751	0.0001
EVPCONLY	1	0.682745	0.06898	97.97366	0.0001
SMKCPD	1	0.001981	0.00193	1.05096	0.3053
XSMKCPD	1	0.008709	0.00118	54.29910	0.0001
SMKCYR	1	0.008437	0.00254	11.00555	0.0009
XSMKCYR	1	0.022095	0.00144	236.22721	0.0001
PASSIVE	1	-0.001199	0.00368	0.10626	0.7444
EDULOW	1	0.250221	0.03314	56.99507	0.0001
INDUSEXP	1	0.075668	0.03016	6.29558	0.0121
BMI	1	-0.011388	0.00424	7.20597	0.0073
ALC	1	-0.030903	0.00638	23.44960	0.0001
FINE	1	0.205570	0.07495	7.52360	0.0061

Analysis of Maximum Likelihood Estimates

Conditional Risk Ratio and 95% Confidence Limits

Variable	Risk Ratio	Lower	Upper	Label
CURCIG	2.390	1.837	3.109	Current Smoker
EVPCONLY	1.979	1.729	2.266	Pipe/cigar smoker
SMKCPD	1.002	0.998	1.006	Current cigarettes per day
XSMKCPD	1.009	1.006	1.011	Former cigarettes per day
SMKCYR	1.008	1.003	1.014	Current years smoke
XSMKCYR	1.022	1.019	1.025	Former years smoked
PASSIVE	0.999	0.992	1.006	Passive Smoking
EDULOW	1.284	1.204	1.371	Less than high school education
INDUSEXP	1.079	1.017	1.144	Occupational exposure
BMI	0.989	0.980	0.997	Body Mass Index
ALC	0.970	0.958	0.982	Alcohol Drinking
FINE	1.228	1.060	1.423	Fine Particles