

```

data arma;
  set nih.baseout;
  *this reads in the FOIA dataset labeled "baseout";

  comply=t_kg/(pplat-peep);

  newgrp=.;

  if group='6 ml/kg' then newgrp= 6;
  if group='12 ml/kg' then newgrp=12;
  delta=newgrp-t_kg;

  if delta lt 0 then delta_g='lower';
  if delta ge 0 then delta_g='raise';
  if delta=. then delta_g='.';

  if delta lt 0 then del_low=1;
  if delta ge 0 then del_low=0;
  if delta=. then del_low=.;

  if comply ge .6 then comply_2=1;else comply_2=0;
  if comply=. then comply_2=.;

  IF group = '6 ml/kg' THEN DTV = 6 - T_KG;
  ELSE if group = '12 ml/kg' THEN DTV = 12 - T_KG;

  newdead=.;
  if dead='No' then newdead=0;
  if dead='Yes' then newdead=1;

  dellow_comply2=del_low*comply_2;

  pao2_fio2=pao2/fio2;

  pick=0;
  if newgrp=6 and del_low=1 then pick=1;
  if newgrp=12 and del_low=0 then pick=1;
  if pick=1;
  *the variable pick deletes those subjects who are lowered to 12 or raised to 6;

proc freq;
  tables del_low*newgrp;

proc freq;
  tables del_low*comply_2*newdead/cmh chisq;

proc logistic;
  model newdead=del_low comply_2 dellow_comply2;

```

```

proc logistic;
  model newdead=del_low comply_2 dellow_comply2 age apache pao2_fio2;
run;

```

The FREQ Procedure

Table of del_low by newgrp

| del_low | newgrp | | Total |
|------------|--------|--------|--------|
| Frequency, | 6, | 12, | |
| Percent | | | |
| Row Pct | | | |
| Col Pct | | | |
| 0 | 0 | 230 | 230 |
| | 0.00 | 43.98 | 43.98 |
| | 0.00 | 100.00 | |
| | 0.00 | 100.00 | |
| 1 | 293 | 0 | 293 |
| | 56.02 | 0.00 | 56.02 |
| | 100.00 | 0.00 | |
| | 100.00 | 0.00 | |
| Total | 293 | 230 | 523 |
| | 56.02 | 43.98 | 100.00 |

The FREQ Procedure

Table 1 of comply_2 by newdead
Controlling for del_low=0

| comply_2 | newdead | | Total |
|------------|---------|-------|--------|
| Frequency, | 0, | 1, | |
| Percent | | | |
| Row Pct | | | |
| Col Pct | | | |
| 0 | 89 | 63 | 152 |
| | 43.20 | 30.58 | 73.79 |
| | 58.55 | 41.45 | |
| | 67.94 | 84.00 | |
| 1 | 42 | 12 | 54 |
| | 20.39 | 5.83 | 26.21 |
| | 77.78 | 22.22 | |
| | 32.06 | 16.00 | |
| Total | 131 | 75 | 206 |
| | 63.59 | 36.41 | 100.00 |

Frequency Missing = 24

The FREQ Procedure

Statistics for Table 1 of comply_2 by newdead
Controlling for del_low=0

| Statistic | DF | Value | Prob |
|-----------------------------|----|---------|--------|
| Chi-Square | 1 | 6.3608 | 0.0117 |
| Likelihood Ratio Chi-Square | 1 | 6.7044 | 0.0096 |
| Continuity Adj. Chi-Square | 1 | 5.5575 | 0.0184 |
| Mantel-Haenszel Chi-Square | 1 | 6.3299 | 0.0119 |
| Phi Coefficient | | -0.1757 | |
| Contingency Coefficient | | 0.1731 | |
| Cramer's V | | -0.1757 | |

Fisher's Exact Test

```

ffffffffff
Cell (1,1) Frequency (F)      89
Left-sided Pr <= F            0.0081
Right-sided Pr >= F           0.9971

Table Probability (P)          0.0052
Two-sided Pr <= P             0.0134

Effective Sample Size = 206
Frequency Missing = 24

```

WARNING: 10% of the data in this stratum are missing.

The FREQ Procedure

Table 2 of comply_2 by newdead
Controlling for del_low=1

| comply_2 | newdead | | Total |
|------------|---------|-------|--------|
| | 0 | 1 | |
| Frequency, | | | |
| Percent , | | | |
| Row Pct , | | | |
| Col Pct , | | | |
| 0 | 139 | 50 | 189 |
| | 54.72 | 19.69 | 74.41 |
| | 73.54 | 26.46 | |
| | 75.96 | 70.42 | |
| 1 | 44 | 21 | 65 |
| | 17.32 | 8.27 | 25.59 |
| | 67.69 | 32.31 | |
| | 24.04 | 29.58 | |
| Total | 183 | 71 | 254 |
| | 72.05 | 27.95 | 100.00 |

Frequency Missing = 39

The FREQ Procedure

Statistics for Table 2 of comply_2 by newdead
Controlling for del_low=1

| Statistic | DF | Value | Prob |
|-----------------------------|----|--------|--------|
| Chi-Square | 1 | 0.8226 | 0.3644 |
| Likelihood Ratio Chi-Square | 1 | 0.8073 | 0.3689 |
| Continuity Adj. Chi-Square | 1 | 0.5577 | 0.4552 |
| Mantel-Haenszel Chi-Square | 1 | 0.8194 | 0.3654 |
| Phi Coefficient | | 0.0569 | |
| Contingency Coefficient | | 0.0568 | |
| Cramer's V | | 0.0569 | |

Fisher's Exact Test

```

ffffffffff
Cell (1,1) Frequency (F)      139
Left-sided Pr <= F            0.8568
Right-sided Pr >= F           0.2261

Table Probability (P)          0.0829
Two-sided Pr <= P             0.4233

Effective Sample Size = 254
Frequency Missing = 39

```

WARNING: 13% of the data in this stratum are missing.

The FREQ Procedure

Summary Statistics for comply_2 by newdead
Controlling for del_low

Cochran-Mantel-Haenszel Statistics (Based on Table Scores)

| Statistic | Alternative Hypothesis | DF | Value | Prob |
|-----------|------------------------|----|--------|--------|
| 1 | Nonzero Correlation | 1 | 1.2244 | 0.2685 |
| 2 | Row Mean Scores Differ | 1 | 1.2244 | 0.2685 |
| 3 | General Association | 1 | 1.2244 | 0.2685 |

Estimates of the Common Relative Risk (Row1/Row2)

| Type of Study | Method | Value | 95% Confidence Limits |
|------------------------------|-----------------|--------|-----------------------|
| Case-Control (Odds Ratio) | Mantel-Haenszel | 0.7754 | 0.4915 1.2234 |
| | Logit | 0.8041 | 0.5047 1.2813 |
| Cohort (Col 1 Risk) | Mantel-Haenszel | 0.9242 | 0.8070 1.0584 |
| | Logit | 0.9105 | 0.7950 1.0428 |
| Cohort (Col 2 Risk) | Mantel-Haenszel | 1.1973 | 0.8616 1.6638 |
| | Logit | 1.1268 | 0.8082 1.5709 |

Breslow-Day Test for Homogeneity of the Odds Ratios

| | |
|-------------|--------|
| Chi-Square | 6.2354 |
| DF | 1 |
| Pr > Chi Sq | 0.0125 |

Effective Sample Size = 460
Frequency Missing = 63

WARNING: 12% of the data are missing.

The LOGISTIC Procedure

Model Information

| | |
|---------------------------|------------------|
| Data Set | WORK.ARMA |
| Response Variable | newdead |
| Number of Response Levels | 2 |
| Model | binary logit |
| Optimization Technique | Fisher's scoring |

| | |
|-----------------------------|-----|
| Number of Observations Read | 523 |
| Number of Observations Used | 460 |

Response Profile

| Ordered Value | newdead | Total Frequency |
|---------------|---------|-----------------|
| 1 | 0 | 314 |
| 2 | 1 | 146 |

Probability modeled is newdead=0.

NOTE: 63 observations were deleted due to missing values for the response or explanatory variables.

Model Convergence Status

Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics

| Criterion | Intercept Only | Intercept and Covariates |
|-----------|----------------|--------------------------|
| AIC | 576.896 | 571.642 |
| SC | 581.028 | 588.167 |
| -2 Log L | 574.896 | 563.642 |

Testing Global Null Hypothesis: BETA=0

| Test | Chi-Square | DF | Pr > Chi Sq |
|------|------------|----|-------------|
|------|------------|----|-------------|

| | | | |
|------------------|---------|---|--------|
| Likelihood Ratio | 11.2547 | 3 | 0.0104 |
| Score | 11.3153 | 3 | 0.0101 |
| Wald | 11.1246 | 3 | 0.0111 |

The LOGISTIC Procedure

Analysis of Maximum Likelihood Estimates

| Parameter | DF | Estimate | Standard Error | Wald Chi-Square | Pr > Chi Sq |
|-----------------|----|----------|----------------|-----------------|-------------|
| Intercept | 1 | 0.3455 | 0.1646 | 4.4034 | 0.0359 |
| del_low | 1 | 0.6769 | 0.2330 | 8.4389 | 0.0037 |
| comply_2 | 1 | 0.9073 | 0.3664 | 6.1312 | 0.0133 |
| del_low_comply2 | 1 | -1.1900 | 0.4814 | 6.1098 | 0.0134 |

Odds Ratio Estimates

| Effect | Point Estimate | 95% Wald Confidence Limits |
|-----------------|----------------|----------------------------|
| del_low | 1.968 | 1.246 3.107 |
| comply_2 | 2.478 | 1.208 5.080 |
| del_low_comply2 | 0.304 | 0.118 0.782 |

Association of Predicted Probabilities and Observed Responses

| | | | |
|--------------------|-------|-----------|-------|
| Percent Concordant | 43.8 | Somers' D | 0.181 |
| Percent Discordant | 25.7 | Gamma | 0.260 |
| Percent Tied Pairs | 30.5 | Tau-a | 0.079 |
| | 45844 | c | 0.590 |

The LOGISTIC Procedure

Model Information

| | |
|---------------------------|------------------|
| Data Set | WORK.ARMA |
| Response Variable | newdead |
| Number of Response Levels | 2 |
| Model | binary logit |
| Optimization Technique | Fisher's scoring |

| | |
|-----------------------------|-----|
| Number of Observations Read | 523 |
| Number of Observations Used | 427 |

Response Profile

| Ordered Value | newdead | Total Frequency |
|---------------|---------|-----------------|
| 1 | 0 | 290 |
| 2 | 1 | 137 |

Probability modeled is newdead=0.

NOTE: 96 observations were deleted due to missing values for the response or explanatory variables.

Model Convergence Status

Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics

| Criterion | Intercept Only | Intercept and Covariates |
|-----------|----------------|--------------------------|
| AIC | 537.888 | 475.831 |
| SC | 541.945 | 504.228 |
| -2 Log L | 535.888 | 461.831 |

Testing Global Null Hypothesis: BETA=0

| Test | Chi -Square | DF | Pr > Chi Sq |
|------------------|-------------|----|-------------|
| Likelihood Ratio | 74.0571 | 6 | <.0001 |
| Score | 69.6699 | 6 | <.0001 |
| Wald | 59.4277 | 6 | <.0001 |

The LOGISTIC Procedure

Analysis of Maximum Likelihood Estimates

| Parameter | DF | Estimate | Standard Error | Wald Chi -Square | Pr > Chi Sq |
|-----------------|----|----------|----------------|------------------|-------------|
| Intercept | 1 | 3.6044 | 0.5916 | 37.1258 | <.0001 |
| del_low | 1 | 0.6612 | 0.2638 | 6.2810 | 0.0122 |
| comply_2 | 1 | 1.3710 | 0.4232 | 10.4947 | 0.0012 |
| del_low_comply2 | 1 | -1.4287 | 0.5372 | 7.0718 | 0.0078 |
| AGE | 1 | -0.0383 | 0.00713 | 28.8074 | <.0001 |
| APACHE | 1 | -0.0176 | 0.00415 | 17.9164 | <.0001 |
| pao2_fio2 | 1 | 0.00152 | 0.00164 | 0.8648 | 0.3524 |

Odds Ratio Estimates

| Effect | Point Estimate | 95% Wald Confidence Limits | |
|-----------------|----------------|----------------------------|-------|
| del_low | 1.937 | 1.155 | 3.249 |
| comply_2 | 3.939 | 1.719 | 9.029 |
| del_low_comply2 | 0.240 | 0.084 | 0.687 |
| AGE | 0.962 | 0.949 | 0.976 |
| APACHE | 0.983 | 0.975 | 0.991 |
| pao2_fio2 | 1.002 | 0.998 | 1.005 |

Association of Predicted Probabilities and Observed Responses

| | | | |
|--------------------|-------|-----------|-------|
| Percent Concordant | 74.6 | Somers' D | 0.494 |
| Percent Discordant | 25.2 | Gamma | 0.496 |
| Percent Tied | 0.3 | Tau-a | 0.216 |
| Pairs | 39730 | c | 0.747 |