|  |
| --- |
| The SAS System |

The GLIMMIX Procedure

| **Model Information** | |
| --- | --- |
| **Data Set** | WORK.DIFFERENCE |
| **Response Variable** | diff |
| **Response Distribution** | Shifted T(3) |
| **Link Function** | Identity |
| **Variance Function** | Default |
| **Variance Matrix** | Diagonal |
| **Estimation Technique** | Maximum Likelihood |
| **Degrees of Freedom Method** | Residual |

| **Class Level Information** | | |
| --- | --- | --- |
| **Class** | **Levels** | **Values** |
| **hatch\_interval** | 3 | asynch hatch\_in synch |
| **mort\_time** | 4 | control early late mort\_tim |
| **mort\_percent** | 7 | 0 10 25 50 75 90 mort\_per |

|  |  |
| --- | --- |
| **Number of Observations Read** | 551 |
| **Number of Observations Used** | 550 |

| **Dimensions** | |
| --- | --- |
| **Covariance Parameters** | 2 |
| **Columns in X** | 63 |
| **Columns in Z** | 0 |
| **Subjects (Blocks in V)** | 1 |
| **Max Obs per Subject** | 550 |

| **Optimization Information** | |
| --- | --- |
| **Optimization Technique** | Newton-Raphson |
| **Parameters in Optimization** | 23 |
| **Lower Boundaries** | 1 |
| **Upper Boundaries** | 0 |
| **Fixed Effects** | Not Profiled |

| **Iteration History** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Iteration** | **Restarts** | **Evaluations** | **Objective Function** | **Change** | **Max Gradient** |
| **0** | **0** | 4 | 4573.9823241 | . | 0.03104 |
| **1** | **0** | 3 | 4570.8404241 | 3.14190007 | 0.005932 |
| **2** | **0** | 3 | 4569.830328 | 1.01009604 | 0.003046 |
| **3** | **0** | 3 | 4568.6266749 | 1.20365315 | 0.001683 |
| **4** | **0** | 3 | 4567.7342101 | 0.89246478 | 0.000585 |
| **5** | **0** | 3 | 4567.244649 | 0.48956106 | 0.000338 |
| **6** | **0** | 3 | 4566.5929615 | 0.65168755 | 0.000332 |
| **7** | **0** | 7 | 4565.6430504 | 0.94991111 | 0.000967 |
| **8** | **0** | 3 | 4565.3241295 | 0.31892087 | 0.000318 |
| **9** | **0** | 5 | 4559.3478451 | 5.97628439 | 0.00043 |
| **10** | **0** | 3 | 4558.5925686 | 0.75527650 | 0.000249 |
| **11** | **0** | 3 | 4558.0252826 | 0.56728601 | 0.000245 |
| **12** | **0** | 5 | 4551.7255882 | 6.29969442 | 0.000415 |
| **13** | **0** | 3 | 4550.2002587 | 1.52532948 | 0.00016 |
| **14** | **0** | 3 | 4549.6906967 | 0.50956202 | 0.000155 |
| **15** | **0** | 3 | 4547.7965106 | 1.89418612 | 0.000133 |
| **16** | **0** | 3 | 4547.7965093 | 0.00000127 | 0.000133 |

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

| **Fit Statistics** | |
| --- | --- |
| **-2 Log Likelihood** | 9095.59 |
| **AIC (smaller is better)** | 9141.59 |
| **AICC (smaller is better)** | 9143.69 |
| **BIC (smaller is better)** | 9240.72 |
| **CAIC (smaller is better)** | 9263.72 |
| **HQIC (smaller is better)** | 9180.33 |
| **Pearson Chi-Square** | 1.5303E8 |
| **Pearson Chi-Square / DF** | 278236.8 |

| **Type III Tests of Fixed Effects** | | | | |
| --- | --- | --- | --- | --- |
| **Effect** | **Num DF** | **Den DF** | **F Value** | **Pr > F** |
| **hatch\_interval** | 1 | 528 | 317.68 | <.0001 |
| **mort\_time** | 1 | 528 | 16610.5 | <.0001 |
| **mort\_percent** | 4 | 528 | 7541.84 | <.0001 |
| **hatch\_inte\*mort\_time** | 1 | 528 | 960.02 | <.0001 |
| **hatch\_int\*mort\_perce** | 4 | 528 | 317.25 | <.0001 |
| **mort\_time\*mort\_perce** | 4 | 528 | 2800.09 | <.0001 |
| **hatch\_\*mort\_t\*mort\_p** | 4 | 528 | 753.44 | <.0001 |

|  |
| --- |
| The SAS System |

The GLIMMIX Procedure

| **Model Information** | |
| --- | --- |
| **Data Set** | WORK.DIFFERENCE |
| **Response Variable** | diff |
| **Response Distribution** | Shifted T(3) |
| **Link Function** | Identity |
| **Variance Function** | Default |
| **Variance Matrix** | Diagonal |
| **Estimation Technique** | Maximum Likelihood |
| **Degrees of Freedom Method** | Residual |

| **Class Level Information** | | |
| --- | --- | --- |
| **Class** | **Levels** | **Values** |
| **treatment** | 22 | 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 |

|  |  |
| --- | --- |
| **Number of Observations Read** | 551 |
| **Number of Observations Used** | 550 |

| **Dimensions** | |
| --- | --- |
| **Covariance Parameters** | 2 |
| **Columns in X** | 23 |
| **Columns in Z** | 0 |
| **Subjects (Blocks in V)** | 1 |
| **Max Obs per Subject** | 550 |

| **Optimization Information** | |
| --- | --- |
| **Optimization Technique** | Newton-Raphson |
| **Parameters in Optimization** | 23 |
| **Lower Boundaries** | 1 |
| **Upper Boundaries** | 0 |
| **Fixed Effects** | Not Profiled |

| **Iteration History** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Iteration** | **Restarts** | **Evaluations** | **Objective Function** | **Change** | **Max Gradient** |
| **0** | **0** | 4 | 4573.9823241 | . | 0.03104 |
| **1** | **0** | 3 | 4571.3643482 | 2.61797592 | 0.008319 |
| **2** | **0** | 3 | 4568.7617046 | 2.60264360 | 0.004232 |
| **3** | **0** | 3 | 4567.9502117 | 0.81149291 | 0.000663 |
| **4** | **0** | 3 | 4567.6311255 | 0.31908624 | 0.000341 |
| **5** | **0** | 3 | 4567.2006581 | 0.43046733 | 0.000338 |
| **6** | **0** | 3 | 4566.5799142 | 0.62074393 | 0.000332 |
| **7** | **0** | 7 | 4565.5899616 | 0.98995261 | 0.001581 |
| **8** | **0** | 3 | 4565.3029916 | 0.28696994 | 0.000318 |
| **9** | **0** | 5 | 4558.7964759 | 6.50651575 | 0.0003 |
| **10** | **0** | 3 | 4558.354137 | 0.44233894 | 0.000248 |
| **11** | **0** | 3 | 4558.0026735 | 0.35146347 | 0.000244 |
| **12** | **0** | 5 | 4550.675666 | 7.32700750 | 0.000195 |
| **13** | **0** | 3 | 4550.1764845 | 0.49918150 | 0.00016 |
| **14** | **0** | 5 | 4543.5143571 | 6.66212741 | 0.00017 |
| **15** | **0** | 3 | 4542.873284 | 0.64107306 | 0.000115 |
| **16** | **0** | 3 | 4542.8731879 | 0.00009612 | 0.000067 |
| **17** | **0** | 3 | 4542.8731879 | 0.00000000 | 0.000067 |

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

| **Fit Statistics** | |
| --- | --- |
| **-2 Log Likelihood** | 9085.75 |
| **AIC (smaller is better)** | 9131.75 |
| **AICC (smaller is better)** | 9133.85 |
| **BIC (smaller is better)** | 9230.87 |
| **CAIC (smaller is better)** | 9253.87 |
| **HQIC (smaller is better)** | 9170.48 |
| **Pearson Chi-Square** | 1.5267E8 |
| **Pearson Chi-Square / DF** | 277588.7 |

| **Type III Tests of Fixed Effects** | | | | |
| --- | --- | --- | --- | --- |
| **Effect** | **Num DF** | **Den DF** | **F Value** | **Pr > F** |
| **treatment** | 21 | 528 | 4090.19 | <.0001 |

| **Estimates** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Label** | **Estimate** | **Standard Error** | **DF** | **t Value** | **Pr > |t|** |
| **asynch 10% early** | -992.62 | 185.65 | 528 | -5.35 | <.0001 |
| **asynch 25% early** | -2070.58 | 183.33 | 528 | -11.29 | <.0001 |
| **asynch 50% early** | -4393.94 | 193.13 | 528 | -22.75 | <.0001 |
| **asynch 75% early** | -25276 | 196.53 | 528 | -128.61 | <.0001 |
| **asynch 90% early** | -27264 | 182.03 | 528 | -149.78 | <.0001 |
| **asynch 10% late** | -135.34 | 190.69 | 528 | -0.71 | 0.4782 |
| **asynch 25% late** | -837.03 | 207.51 | 528 | -4.03 | <.0001 |
| **asynch 50% late** | -595.64 | 186.62 | 528 | -3.19 | 0.0015 |
| **asynch 75% late** | -1534.92 | 205.66 | 528 | -7.46 | <.0001 |
| **asynch 90% late** | -4743.35 | 203.09 | 528 | -23.36 | <.0001 |
| **synch 10% early** | -2129.37 | 236.83 | 528 | -8.99 | <.0001 |
| **synch 25% early** | -8125.38 | 229.03 | 528 | -35.48 | <.0001 |
| **synch 50% early** | -9985.60 | 203.37 | 528 | -49.10 | <.0001 |
| **synch 75% early** | -19160 | 206.10 | 528 | -92.97 | <.0001 |
| **synch 90% early** | -20077 | 195.93 | 528 | -102.47 | <.0001 |
| **synch 10% late** | -1251.70 | 198.93 | 528 | -6.29 | <.0001 |
| **synch 25% late** | -2522.25 | 204.28 | 528 | -12.35 | <.0001 |
| **synch 50% late** | -5414.87 | 203.20 | 528 | -26.65 | <.0001 |
| **synch 75% late** | -8471.24 | 200.97 | 528 | -42.15 | <.0001 |
| **synch 90% late** | -9915.60 | 241.15 | 528 | -41.12 | <.0001 |