**Supplementary Table 1**

Regression coefficients for dataset-specific generalized linear models (one per hospital) as shown in Figure 2.

|  |  |  |
| --- | --- | --- |
|  | Hospital A  β (95% CI) | Hospital B  β (95% CI) |
| (Intercept) | 1.108 (1.029 to 1.187) | 1.272 (1.182 to 1.362) |
| Per Decade (Age < 65) | -0.017 (-0.021 to -0.013) | -0.02 (-0.024 to -0.015) |
| Per Decade (Age ≥ 65) | -0.033 (-0.044 to -0.021) | -0.047 (-0.06 to -0.033) |
| BIS Measured | -0.011 (-0.021 to -0.001) | -0.104 (-0.16 to -0.048) |
| Male Gender | 0.02 (0.011 to 0.03) | 0.016 (0.004 to 0.028) |
| Maintenance Duration (Hours) | 0.009 (-0.002 to 0.021) | 0.036 (0.02 to 0.051) |
| Outpatient (vs Inpatient) | -0.011 (-0.023 to 0) | 0.032 (0.019 to 0.045) |
| ASA 3 (vs ASA 1 / 2) | -0.029 (-0.039 to -0.018) | -0.029 (-0.043 to -0.014) |
| ASA 4 (vs ASA 1 / 2) | -0.11 (-0.141 to -0.08) | -0.114 (-0.147 to -0.081) |
| ASA EMERGENCY | -0.04 (-0.069 to -0.011) | -0.06 (-0.078 to -0.043) |
| Isoflurane (vs Sevoflurane) | -0.032 (-0.068 to 0.004) | 0.013 (0.001 to 0.026) |
| Desflurane (vs Sevoflurane) | 0.125 (0.108 to 0.141) | 0.01 (-0.047 to 0.067) |
| Midazolam Premedication | 0.005 (-0.006 to 0.016) | 0.013 (0.001 to 0.026) |
| Paralytic Redosed | 0.002 (-0.009 to 0.013) | 0.002 (-0.01 to 0.014) |
| Each 50 mcg of fentanyl | 0.014 (0.011 to 0.016) | 0.013 (0.009 to 0.017) |
| Use of Regional/Neuraxial Cath | -0.027 (-0.05 to -0.004) | -0.027 (-0.136 to 0.082) |
| Vasoactive Bolus During Maintenance | -0.031 (-0.041 to -0.021) | -0.054 (-0.066 to -0.042) |

**Supplement Document 1 - Sensitivity Analyses**

**Note:** Lines in red signify results that relate directly to statements of statistical inference in body of main text.

**Sensitivity Analysis #1: Median MAC instead of mean MAC**

|  |  |  |
| --- | --- | --- |
|  | original β (95% CI) | new β (95% CI) |
| Intercept to Hospital A | 1.149 (1.088 to 1.210) | 1.17 (1.107 to 1.233) |
| Intercept to Hospital B | 1.218 (1.158 to 1.278) | 1.238 (1.177 to 1.300) |
|  |  |  |
| Per Decade (Age < 65) | -0.018 (-0.022 to -0.015) | 0.019 (-0.022 to -0.015) |
| Per Decade (Age ≥ 65) | -0.038 (-0.047 to -0.029) | -0.04 (-0.049 to -0.03) |
| BIS Measured - Hospital A | -0.012 (-0.022 to -0.003) | -0.015 (-0.024 to -0.005) |
| BIS Measured - Hospital B | -0.108 (-0.163 to -0.052) | -0.099 (-0.157 to -0.042) |
| Male Gender | 0.019 (0.011 to 0.026) | 0.017 (0.009 to 0.025) |
| Maintenance Duration (Hours) | 0.020 (0.011 to 0.029) | 0.023 (0.013 to 0.033) |
| Inpatient | Ref |  |
| Outpatient - Hospital A | -0.012 (-0.023 to -0.001) | -0.009 (-0.02 to 0.002) |
| Outpatient - Hospital B | 0.032 (0.019 to 0.045) | 0.033 (0.019 to 0.046) |
| ASA 3 (vs ASA 1 / 2) | -0.029 (-0.038 to -0.020) | -0.030 (-0.039 to -0.021) |
| ASA 4 (vs ASA 1 / 2) | -0.114 (-0.137 to -0.091) | -0.105 (-0.13 to -0.081) |
| ASA EMERGENCY | -0.056 (-0.071 to -0.041) | -0.053 (-0.069 to -0.038) |
| Sevoflurane | Ref |  |
| Isoflurane - Hospital A | -0.038 (-0.073 to -0.002) | -0.034 (-0.071 to 0.003) |
| Isoflurane - Hospital B | 0.016 (0.003 to 0.028) | 0.011 (-0.002 to 0.024) |
| Desflurane - Hospital A | 0.124 (0.108 to 0.141) | 0.125 (0.108 to 0.141) |
| Desflurane - Hospital B | 0.009 (-0.047 to 0.066) | -0.017 (-0.092 to 0.059) |
| Midazolam Premedication | 0.009 (0.000 to 0.018) | 0.007 (-0.002 to 0.016) |
| Paralytic Redosed | 0.001 (-0.007 to 0.009) | 0.001 (-0.007 to 0.009) |
| Each 50 mcg of fentanyl | 0.013 (0.011 to 0.016) | 0.011 (0.009 to 0.014) |
| Use of Regional/Neuraxial Cath | -0.030 (-0.007 to 0.009) | -0.029 (-0.053 to -0.005) |
| Vasoactive Bolus During Maintenance - Hospital A | -0.030 (-0.041 to -0.020) | -0.034 (-0.044 to -0.024) |
| Vasoactive Bolus During Maintenance - Hospital B | -0.056 (-0.068 to -0.044) | -0.057 (-0.07 to -0.045) |
| Vasoactive Infusion During Maintenance | -0.051 (-0.061 to -0.041) | -0.052 (-0.062 to -0.041) |

**Sensitivity Analysis #2: Only Cases Involving Fentanyl**

n = 7590 cases

|  |  |  |
| --- | --- | --- |
|  | original β (95% CI) | new β (95% CI) |
| Intercept to Hospital A | 1.149 (1.088 to 1.210) | 1.159 (1.098 to 1.220) |
| Intercept to Hospital B | 1.218 (1.158 to 1.278) | 1.228 (1.168 to 1.289) |
|  |  |  |
| Per Decade (Age < 65) | -0.018 (-0.022 to -0.015) | -0.018 (-0.022 to -0.015) |
| Per Decade (Age ≥ 65) | -0.038 (-0.047 to -0.029) | -0.038 (-0.047 to -0.029) |
| BIS Measured - Hospital A | -0.012 (-0.022 to -0.003) | -0.015 (-0.025 to -0.005) |
| BIS Measured - Hospital B | -0.108 (-0.163 to -0.052) | -0.099 (-0.156 to -0.042) |
| Male Gender | 0.019 (0.011 to 0.026) | 0.017 (0.01 to 0.025) |
| Maintenance Duration (Hours) | 0.020 (0.011 to 0.029) | 0.024 (0.015 to 0.034) |
| Inpatient | Ref |  |
| Outpatient - Hospital A | -0.012 (-0.023 to -0.001) | -0.009 (-0.02 to 0.002) |
| Outpatient - Hospital B | 0.032 (0.019 to 0.045) | 0.031 (0.018 to 0.044) |
| ASA 3 (vs ASA 1 / 2) | -0.029 (-0.038 to -0.020) | -0.029 (-0.038 to -0.02) |
| ASA 4 (vs ASA 1 / 2) | -0.114 (-0.137 to -0.091) | -0.106 (-0.129 to -0.082) |
| ASA EMERGENCY | -0.056 (-0.071 to -0.041) | 0.053 (-0.068 to -0.038) |
| Sevoflurane | Ref |  |
| Isoflurane - Hospital A | -0.038 (-0.073 to -0.002) | -0.032 (-0.068 to 0.004) |
| Isoflurane - Hospital B | 0.016 (0.003 to 0.028) | 0.013 (0.000 to 0.026) |
| Desflurane - Hospital A | 0.124 (0.108 to 0.141) | 0.124 (0.107 to 0.14) |
| Desflurane - Hospital B | 0.009 (-0.047 to 0.066) | -0.019 (-0.095 to 0.057) |
| Midazolam Premedication | 0.009 (0.000 to 0.018) | 0.007 (-0.001 to 0.016) |
| Paralytic Redosed | 0.001 (-0.007 to 0.009) | 0.001 (-0.007 to 0.009) |
| Each 50 mcg of fentanyl | 0.013 (0.011 to 0.016) | 0.011 (0.009 to 0.014) |
| Use of Regional/Neuraxial Cath | -0.030 (-0.007 to 0.009) | -0.031 (-0.054 to -0.007) |
| Vasoactive Bolus During Maintenance - Hospital A | -0.030 (-0.041 to -0.020) | -0.031 (-0.042 to -0.021) |
| Vasoactive Bolus During Maintenance - Hospital B | -0.056 (-0.068 to -0.044) | -0.057 (-0.069 to -0.045) |
| Vasoactive Infusion During Maintenance | -0.051 (-0.061 to -0.041) | -0.051 (-0.061 to -0.04) |

**Sensitivity Analysis #3: Hierarchical Model (Attending Provider) Fixed Effects**

|  |  |  |
| --- | --- | --- |
|  | original β (95% CI) | new β (95% CI) |
| Intercept to Hospital A | 1.149 (1.088 to 1.210) | 1.131 (1.068 to 1.194) |
| Intercept to Hospital B | 1.218 (1.158 to 1.278) | 1.211 (1.149 to 1.273) |
|  |  |  |
| Per Decade (Age < 65) | -0.018 (-0.022 to -0.015) | -0.019 (-0.022 to -0.016) |
| Per Decade (Age ≥ 65) | -0.038 (-0.047 to -0.029) | -0.037 (-0.047 to -0.028) |
| BIS Measured - Hospital A | -0.012 (-0.022 to -0.003) | -0.007 (-0.018 to 0.004) |
| BIS Measured - Hospital B | -0.108 (-0.163 to -0.052) | -0.101 (-0.147 to -0.056) |
| Male Gender | 0.019 (0.011 to 0.026) | 0.019 (0.011 to 0.026) |
| Maintenance Duration (Hours) | 0.020 (0.011 to 0.029) | 0.017 (0.008 to 0.026) |
| Inpatient | Ref |  |
| Outpatient - Hospital A | -0.012 (-0.023 to -0.001) | -0.01 (-0.022 to 0.001) |
| Outpatient - Hospital B | 0.032 (0.019 to 0.045) | 0.03 (0.017 to 0.042) |
| ASA 3 (vs ASA 1 / 2) | -0.029 (-0.038 to -0.020) | -0.028 (-0.037 to -0.02) |
| ASA 4 (vs ASA 1 / 2) | -0.114 (-0.137 to -0.091) | -0.111 (-0.13 to -0.093) |
| ASA EMERGENCY | -0.056 (-0.071 to -0.041) | -0.056 (-0.071 to -0.042) |
| Sevoflurane | Ref |  |
| Isoflurane - Hospital A | -0.038 (-0.073 to -0.002) | -0.038 (-0.067 to -0.009) |
| Isoflurane - Hospital B | 0.016 (0.003 to 0.028) | 0.017 (0.006 to 0.029) |
| Desflurane - Hospital A | 0.124 (0.108 to 0.141) | 0.128 (0.11 to 0.147) |
| Desflurane - Hospital B | 0.009 (-0.047 to 0.066) | 0.019 (-0.034 to 0.071) |
| Midazolam Premedication | 0.009 (0.000 to 0.018) | 0.01 (0.002 to 0.018) |
| Paralytic Redosed | 0.001 (-0.007 to 0.009) | 0.004 (-0.004 to 0.013) |
| Each 50 mcg of fentanyl | 0.013 (0.011 to 0.016) | 0.014 (0.013 to 0.016) |
| Use of Regional/Neuraxial Cath | -0.030 (-0.007 to 0.009) | -0.03 (-0.056 to -0.004) |
| Vasoactive Bolus During Maintenance - Hospital A | -0.030 (-0.041 to -0.020) | -0.03 (-0.042 to -0.019) |
| Vasoactive Bolus During Maintenance - Hospital B | -0.056 (-0.068 to -0.044) | -0.056 (-0.068 to -0.043) |
| Vasoactive Infusion During Maintenance | -0.051 (-0.061 to -0.041) | -0.049 (-0.06 to -0.038) |