**Supplemental Table 1A & 1B:** Comparison of SIR and Rates Values for Select Hospital Acquired Infections (Pre-COVID-19 Pandemic Period)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Infection** | **Low Staffing \*** | **High Staffing** | **High Staffing SIR Low Staffing SIR** | **2S P-value ^** | **1S P-value †** |
| All SSI | 0.85 (0.50) | 0.94 (0.40) | 1.10 | 0.5806 | 0.7097 |
| CAUTI | 1.55 (0.68) | 1.38 (0.68) | 0.89 | 0.4698 | 0.2349 |
| **CLABSI** | **1.16 (0.63)** | **0.64 (0.54)** | **0.55** | **0.0147** | **0.0073** |
| COLO | 0.85 (0.81) | 1.01 (0.94) | 1.18 | 0.6128 | 0.6936 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Infection** | **Comparison** | **Observed** | **Expected** ◊ | **2S P-value ♦** | **1S P-value ‡** | **Rate Ratio** |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| MRSA | high vs low | 7 | 5.79 | 0.6433 | 0.7903 | 1.27 |
| HO-CDI | high vs low | 98 | 146.79 | **1.54E-06** | **8.81E-07** | 0.60 |
| CABG | high vs low | 12 | 8.79 | 0.1692 | 0.9565 | 1.99 |
|  |  |  |  |  |  |  |
| HPRO | high vs low | 9 | 9.72 | 0.8206 | 0.4587 | 0.86 |
| HYST | high vs low | 8 | 7.86 | 1.0000 | 0.6245 | 1.03 |
| KPRO | high vs low | 1 | 1.42 | 1.0000 | 0.5379 | 0.55 |

\* Mean (standard deviation), ^ Two-sided t-test, † One-sided t-test for SIR value under high staffing < SIR value under low staffing, ◊ Expected number of infections with high IP staffing levels based on infections seen with low staffing levels, ♦ Two-sided Poisson test, ‡ One-sided Poisson test for rate under high staffing levels < rate under low staffing levels

CAUTI = Catheter-Associated Urinary Tract Infection; CLABSI = Central Line-Associated Blood Stream Infection; MRSA = Methicillin-Resistant *Staphylococcus aureus*; HO-CDI = Hospital-onset *Clostridium difficile* Infection; CABG = Coronary Artery Bypass Graft; COLO = Colonoscopy; HPRO = Hip Prosthesis; HYST = Hysterectomy; KPRO = Knee Prosthesis; All SSI = All Surgical Site Infections; high staffing level = 7-8 infection preventionists; low staffing level = 2-3 infection preventionists

**Supplemental Table 2:** Trends and correlations between HAI and levels of nursing staffing

(pre-COVID-19 pandemic period)

|  |  |  |  |
| --- | --- | --- | --- |
| **Infection** | **Measurement** | **Trend** | **P Value** |
| KPRO | Rate | No change | 1.000 |
| MRSA | Rate | Higher w/more nurses | 0.243 |
| CABG | Rate | Higher w/more nurses | 0.270 |
| CRE | Rate | Higher w/more nurses | 0.199 |
| HPRO | Rate | Higher w/more nurses | 0.278 |
| COLO | SIR | Higher w/more nurses | 0.495 |
| All SSI | SIR | Higher w/more nurses | 0.228 |
| HYST | Rate | Lower w/ more nurses | 0.340 |
| CLABSI | SIR | Lower w/ more nurses | 0.687 |
| HO-CDI | Rate | Lower w/ more nurses | 0.066 |
| **CAUTI** | **SIR** | **Lower w/ more nurses** | **0.026\*** |

CABG = Coronary Artery Bypass Graft, COLO = Colonoscopy, HPRO = Hip Prosthesis, HYST = Hysterectomy, KPRO = Knee Prosthesis, CAUTI = Catheter-Associated Urinary Tract Infection, CLABSI = Central Line-Associated Blood Stream Infection, MRSA = Methicillin-Resistant *Staphylococcus aureus*, HO-CDI = Hospital-onset *Clostridium difficile* Infection, CRE = Carbapenem-Resistant *Enterobacteriaceae*, All SSI = All Surgical Site Infections