### Statistical Methods and Results

#### Data Preparation

For each of the 4 categorical outcomes, binary True/False labels were applied for; 180 Day Mortality, Upper GI Bleed (UGIB), OGD Scope, and Deep Sternal Wound Infection (DSWI).

PostOp Length of Stay (LOS) was defined to start from the date of the admission for the completed surgery until they were discharged from the ward, to home or to supported care. If a patient died in hospital then their discharge date was defined as the date of their death.

Statistical analysis was blinded to the type of SUP treatment, with the statistician only made aware of the date of treatment.

#### Data Access

Analysis was completed in Python in Colab using the Pandas, Numpy, Statsmodels, Scipy, and Pingouin statistical analysis libraries. All code and anonymised raw data files are open source and can be found at <https://github.com/mekan841/SUP-CTS-Study>

#### Statistical Analysis

##### PostOp Length of Stay Outcome

Length of Stay (LOS) was analysed as a continuous variable using the Pingouin Python library .ttest function, comparing a difference in mean length of stay observed in the cohorts prospectively, before and the change in SUP protocols. As the chances of increasing or decreasing the LOS were equivocal a two-sided t-test was used.

Table (1) shows the descriptive statistics for each cohort.

|  | Pre Feb 2020: SUP Routine | Post Feb 2020: No Routine SUP |
| --- | --- | --- |
| Count | 946 | 1014 |
| Mean | 8.60 days | 8.36 days |
| Std Dev | 5.76 days | 6.24 days |
| Min | 0.00 days | 1.00 days |
| Lower Quartile | 6.00 days | 6.00 days |
| Median | 7.00 days | 7.00 days |
| Upper Quartile | 9.00 days | 8.00 days |
| Maximum | 48.00 days | 91.00 days |
| IQ Range | 3.00 days | 2.00 days |

*Table (1): PostOp Length of Stay Descriptive Statistics*

PostOp Length of Stay was not statistically significantly different between the two cohorts with a difference in means of (-0.3 — 0.77) 95% CI and a p-value of 0.3881.

#### Categorical Outcomes

180D Mortality, Upper GI Bleed (UGIB), OGD, and Deep Sternal Wound Infection (DSWI) were evaluated as categorical outcomes using the Scipy Python library Fisher Exact test function comparing differences in the proportions of binary outcomes.

Table (2) shows the results in difference in proportions for each of these outcomes comparing the Pre Feb 2020 (Routine SUP Prophylaxis) and Post Feb 2020 (No Routine SUP Prophylaxis) cohorts. Odds Ratios <1 favour routine SUP prophylaxis, Odds Ratios >1 favour no routine SUP prophylaxis.

Where p-values were statistically significant, a Bonferroni correction of a factor of 5 was applied to adjust for the 5 repeated statistical analyses.

|  | Odds Ratio | p-Value | Bonferroni Adjusted p-Value  (p-value \*5) |
| --- | --- | --- | --- |
| 180 Day Mortality | 0.722 | 0.193 | N/A  Not significant |
| UGIB\* | 0.434 | 0.001 | 0.004 |
| OGD\* | 0.460 | 0.005 | 0.027 |
| DSWI | 2.159 | 0.155 | N/A  Not significant |

*Table(2): Adverse outcome odds ratios*

Routine SUP prophylaxis was statistically significantly protective against UGIB and OGD even after applying a Bonferroni correction.

Routine SUP prophylaxis was non-statistically significantly protective against 180 Day Mortality.

Routine SUP prophylaxis was non-statistically significantly harmful for DSWI.