Background

- First scheduled spine case delays and cancellations compromise the on time start of subsequent cases; cause staff and patient dissatisfaction\(^2\); increasing patient anxiety and intraoperative hemodynamic instability\(^3\).
- 138% increase in patients over age 65 having spine surgery since 2015\(^4\), with significant medical co-morbidities requiring an extended pre-anesthesia evaluation time\(^5\). Complex spine procedures performed include spinal fusions, decompressions, laminectomies, and hardware removals\(^6\) associated with extensive blood loss and long operating hours and planned intensive care admissions\(^7\).
- Pre-anesthesia evaluations at the clinical site are all done on the day of surgery; 60% of cases were delayed with associated case cancellations\(^8\).
- Telemedicine has reduced barriers to care\(^9\) increased compliance with pre-anesthesia assessment process\(^10\), improved patient and provider satisfaction, and facilitates patient optimization prior to the day of surgery\(^11\).
- Limited timeframe under which the project was conducted.
- Underrepresentation of anesthesia providers.
- COVID-19 constraints on staff participation.
- Other factors contributing to delays and cancellations were not accounted for.
- For example late patient arrival or cancellations, late surgeons, operating room set-up delays, facility or equipment delays, or late arriving anesthesia staff.

Aims

- Decrease the rate of first elective surgical spine case delays <10%.
- Decrease the rate of cancellations of first elective surgical spine cases <5%.
- Determine anesthesia provider usability perception.

Methods

- Design: Pretest, posttest design over 22 weeks.
- Setting: An urban 196-bed community hospital.
- Sample: First case delay minutes and cancellations; Convenience sample of Anesthesia providers.
- Intervention: Anesthesia providers performed tele-pre-anesthesia evaluations 5 days prior to procedure. Anesthesia providers’ usability perception assessed via Systems Usability Scale survey.

Purpose

- To evaluate the impact of tele-pre-anesthesia evaluations on the rate of delays and cancellations of the first elective spine surgical cases and anesthesia providers’ usability perception of the tele-pre-anesthesia evaluations.

Data Analysis

- Independent \(t\) – test: to evaluate mean differences in minutes of delay.
- Chi-squared: to evaluate mean differences in cancellation occurrence.
- Descriptive statistics: to describe anesthesia provider type and SUS scores.

Results

- 74 out of 285 (26%) cases received a tele-pre-anesthesia evaluation.
- First spinal surgical case was delayed was 7.3±9.6 minutes post-intervention and 8.9±11.7 minutes pre-intervention.
- 15 total cases were cancelled.
- 4 (5.4%) in the group without the tele-pre-anesthesia evaluation.
- 11 (5.2%) in the group with the tele-pre-anesthesia evaluation.
- 9 (90%) of anesthesia providers reported SUS scores of ≥ 68 points which indicate highly usable.

Conclusions

- Differences in first spine surgical case delay minutes and the number of cancellations were not statistically significant between the two groups, using the tele-pre-anesthesia evaluation method.
- Anesthesia providers perceived the tele-pre-anesthesia evaluation method as highly usable and found the consolidated patient information that was generated from the tele-pre-anesthesia evaluation visit easy to access on the day of surgery.
- Patient’s verbalized high satisfaction from meeting with anesthesia team on the tele-pre-anesthesia evaluations due to increased patient – provider interaction
- Increased interdisciplinary communication and collaboration
- Further studies are needed to examine patient satisfaction and cost benefit.

Limitations

- Underrepresentation of anesthesia providers on staff participation.
- COVID-19 constraints on staff participation.
- Other factors contributing to delays and cancellations were not accounted for.
- For example late patient arrival or cancellations, late surgeons, operating room set-up delays, facility or equipment delays, or late arriving anesthesia staff.
- Limited timeframe under which the project was conducted.
- Delayed upload of patient information in EMR by surgeon’s offices.

References