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## Background

Surgical Site Infections (SSIs) are a major cause of potentially preventable patient mortality, increased length of stay, mortality and health care cost. According to CDC surveillance data, these infections number approximately 500,000 per year<sup>1</sup>, among an estimated 27 million surgical procedures, and as such account for approximately one quarter of the nosocomial infections in the United States each year.<sup>2</sup>

### Project Goals

- Goal 1: Maintain an average Superficial SSI Rate of 2.0 over 6 months (maintain bundle performance).
- Goal 2: Feasibility study focused on establishing protocols to address abnormal temperature and glucose for eligible cases to decrease Deep and Organ SSI.
  - Metric 1: Improve data collection of blood glucose level of scheduled colorectal cases on 5 and 7 OR to greater than 70% and employ protocol in 100% of cases with greater than 180 mg/dL.
  - Metric 2: Improve collection of temperature readings to greater than 97% of scheduled colorectal cases on 5 and 7 OR and employ protocol in 100% of cases where temperature is out of 35 - 38°C range.

## Methods

Created multidisciplinary team composed of Medical Staff and Colorectal Surgeons, Anesthesiologists, Nursing, Hospital Epidemiology, Enterprise Information Services (EIS), and Performance Improvement.

Employed the use of a colorectal care bundle addressing intraoperative elements including appropriate antibiotic selection, dosing, timing, and redosing.

- Additional elements of the bundle included forceps changed after anastomosis, needle holder change after anastomosis, suction tip change after anastomosis, bovie cautery pen changed after anastomosis, light handles changed after anastomosis, having a second Mayo stand available, and both dirty gloves and gowns changed prior to closure.

Implemented an automated Clinical Decision Support notification targeting appropriate antibiotic selection, dose, timing, and redose.

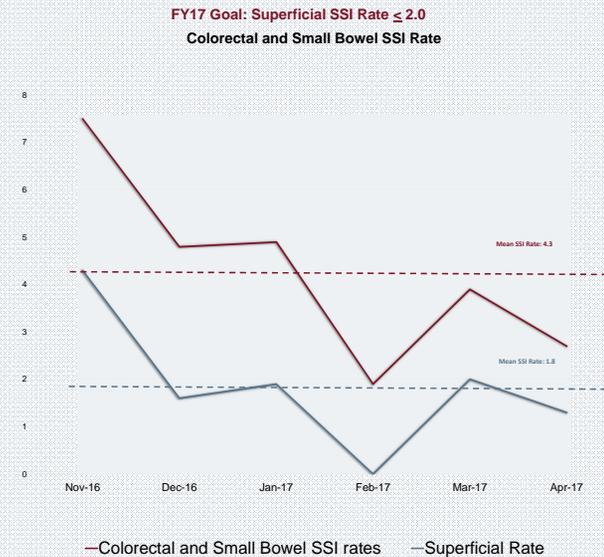
An evidence-based protocol was developed, disseminated, and championed by our Anesthesiologist Team Leader. Following protocol development, nightly emails were sent to anesthesiologists prior to surgery reinforcing the protocol, bowel bundle elements, and project progress and goals.

## Results & Impact

The team achieved goal, maintaining an average Superficial SSI Rate of 1.8 (Nov16-Apr 2017).

The collection of temperature readings increased to 97.5% for scheduled colorectal cases on 5 and 7 OR and the protocol was employed in 94.2% (49/52) of cases.

The data collection of blood glucose levels of scheduled colorectal cases on 5 and 7 OR increased to 89.9%, however employed protocol in only 33.3% (6/18) of cases with greater than 180 mg/dL.



## Lessons Learned

Ongoing communication between departments led to clearer documentation of pre-op interventions.

Active surgeon and anesthesiologist project engagement and peer outreach played a critical role in the project and team's success.

Leveraging nursing staff's direct patient and procedural pre-op and PACU encounters facilitated better and more accurate analyses of collected data, leading to increased awareness of project barriers.

Establishing the glucose and normothermia protocols early in the fiscal year allowed for widespread dissemination and multidepartment alignment and collaboration, yielding significant improvements in compliance.

## References

1. Centers for Disease Control and Prevention. National Center for Health Statistics Vital and Health Statistics, Detailed diagnoses and procedures national hospital discharge survey 1994. Vol 127. Hyattsville (MD): Department of Health and Human Services; 1997.
2. Haley RW, Culver DH, White JW, Morgan WM, Emori TG. The nationwide nosocomial infection rate: a new need for vital statistics. Am J Epidemiol. 1985;121:159-67