

BACKGROUND

- Surgical site infections (SSI) are infections of the surgical incision or surgical operating space that occur after surgery.
- SSI's are the most common hospital acquired infection
- Estimated to occur in 2-5% of patients
- SSI bundles are a group of standardized perioperative interventions that aid in prevention of postoperative morbidity.

OBJECTIVES

- This study aims to determine whether the implementation of the Acute Care Surgery SSI bundle effectively decreases the overall incidence of surgical site infections at our institution.

METHODS

- Subjects: Acute Care Surgery patients undergoing exploratory laparotomy or laparoscopic converted to open exploratory surgery.
- Exclusion Criteria:
 - Elective or outpatient planned open laparotomies
 - Take back surgeries for a patient with an open abdomen.
 - Patient expired within 90 days post-op
- Outcomes:
 - Compare rate of SSI prior to implementation of ACS-SSI bundle vs rate of SSIs after implementation of the ACS-SSI bundle.
 - 2 years of pre-intervention data was collected (March 2019 – February 2021). 141 cases were reviewed; 110 met inclusion criteria.
 - 6 months of post-Intervention data has been collected so far (April - September 2021). 30 cases were reviewed; 17 met inclusion criteria.

RESULTS

Acute Care Surgery SSI Bundle

Preoperative:

- Glycemic control: 110-150 mg/dL
- Hair removal with clippers over surgical site
- Skin preparation with alcohol containing preparation when able
- Antibiotic prophylaxis within 1 hour before incision

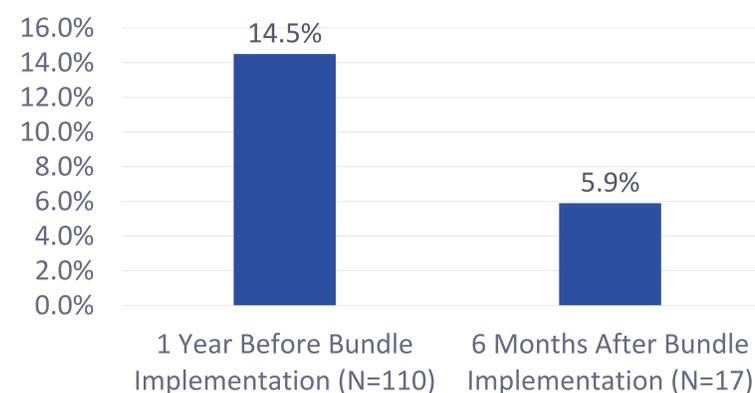
Intraoperative:

- Intraoperative Normothermia (36 +/- 1.0)
- Wound protector use when able
- Triclosan coated sutures when able
- Changing outer gloves prior to closure of fascia
- Using new closing instruments when closing fascia not to be opened until commencement of closing.
- Irrigation of wound prior to closure of subcutaneous tissue and skin
- Use of silver containing dressing or incisional wound vac (PREVENA) therapy for dressing.

Postoperative:

- Glycemic control: 110-150 mg/dL
- Removal of silver containing dressing after 72 hours or removal of incisional wound vac (PREVENA) when the battery dies on the unit.

SSI Rate Before vs After the Acute Care Surgery SSI Bundle



RESULTS

- Despite a 8.6% decrease in SSI rates, we found no statistically significant difference in the Relative Risk (RR) of SSI between the pre and post-intervention timelines
 - RR = 0.40, 95% CI = 0.06-2.86, p = 0.33
- Inadequate sample size of our post-intervention cohort negates definitive conclusions at this stage.
- Data collection is ongoing in order to increase the power of our analysis.

FUTURE IMPLICATIONS

- We will update our analysis once 12 months of post-implementation data are available.
- We anticipate that the overall rate of SSI in the Acute Care Surgery setting decrease after the bundle implementation.

REFERENCES & ACKNOWLEDGEMENTS

1. Anderson DJ, Podgorny K, Berrios-Torres SI, et al. Strategies to prevent surgical site infections in acute care hospitals: 2014 update. *Infect Control Hosp Epidemiol* 2014;35:605e627.
2. Ban KA, Minei JP, Laronga C, et al. *American College of Surgeons and Surgical Infection Society: surgical site infection guidelines, 2016 update.* *J Am Coll Surg.* 2017;224(1):59-74.
3. Keenan JE, Speicher PJ, Thacker JK, Walter M, Kuchibhatla M, Mantyh CR. The preventive surgical site infection bundle in colorectal surgery: an effective approach to surgical site infection reduction and health care cost savings. *JAMA Surg.* 2014;149:1045-1052.
4. Cima R, Dankbar E, Lovely J, et al. *Colorectal surgery surgical site infection reduction program: a national surgical quality improvement program-driven multidisciplinary single-institution experience.* *J Am Coll Surg.* 2013;216(1):23-33.
5. Edmiston CE, Seabrook GR, Goheen MP, et al. *Bacterial adherence to surgical sutures: can antibacterial-coated sutures reduce the risk of microbialcontamination?* *J Am Coll Surg.* 2006;203(4):481-489.
6. Edmiston CE Jr, Daoud FC, Leaper D. *Is there an evidence-based argument for embracing an antimicrobial (triclosan)-coated suture technology to reduce the risk for surgical-site infections? A meta-analysis.* *Surgery.* 2013;154(1):89-100.
7. Edmiston CE Jr, Borlaug G, Davis JP, Gould JC, Roskos M, Seabrook GR. *Wisconsin Division of Public Health Supplemental Guidance for the Prevention of Surgical Site Infections: An Evidence-Based Perspective.* *Madison, WI: Wisconsin Division of Public Health; 2017.* <https://www.dhs.wisconsin.gov/publications/p01715.pdf>.
8. Leaper D, McBain AJ, Kramer A, et al. *Healthcare associated infection: novel strategies and antimicrobial implants to prevent surgical site infection.* *Ann R Coll Surg Engl.* 2010;92(6):453-458.
9. Gheorghie A, Calvert M, Pinkney TD, et al. *Systematic review of the clinical effectiveness of wound-edge protection devices in reducing surgical site infection in patients undergoing open abdominal surgery.* *Ann Surg* 2012;255: 1017e1029.
10. Mihaljevic AL, Schirren R, Ozer M, et al. *Multicenter double-blinded randomized controlled trial of standard abdominal wound edge protection with surgical dressings versus coverage with a sterile circular polyethylene drape for prevention of surgical site infections: a CHIR-Net trial (BaFO; NCT01181206).* *Ann Surg* 2014;260:730e737; discussion 737e739.
11. Pinkney TD, Calvert M, Bartlett DC, et al. *Impact of wound edge protection devices on surgical site infection after laparotomy: multicentre randomised controlled trial (ROSSINI Trial).* *BMJ* 2013;347:f4305.