EP8EOb – INTERPROFESSIONAL CARE

Using the required empirical outcomes presentation format, provide one example from an ambulatory care setting of an improved outcome associated with an interprofessional quality initiative led or co-led by a nurse (exclusive of the CNO).

Problem

Surgical site infections (SSIs) are one of the most common and costly reported healthcare-associated infections post-operatively. SSIs contribute to significant patient morbidity, mortality, prolonged hospital stays, readmissions, and the need for subsequent procedures. The standardized infection ratio (SIR) is a statistic used to track and trend hospital-acquired infections such as SSI rates over time in the facility operating room (OR). The SIR is a ratio of the actual number of SSIs to the predicted number of SSIs, risk adjusted, taking into account the acuity of patients at the facility. Lower SSI SIR indicates fewer actual SSIs than predicted, thereby showing a decrease in the SSI rate.

Kerri Hensler, DNP, MPA, RN, CNOR, NEA-BC, Patient Care Director (at the time), OR (MB3,4-605320) [OR], and Kellianne Morgan, MSN, RN, PCCN, perioperative quality specialist, identified an increase in the SSI SIR for colorectal surgery in 4Q 2020 in the OR at NewYork-Presbyterian/Columbia University Irving Medical Center (NYP/Columbia).

Pre-Intervention

October – December 2020 (Quarter 4):

- The OR SSI SIR for colorectal surgery in 4Q 2020 was 1.28.
- Dr. Hensler and Ms. Morgan formed an interprofessional quality improvement team to identify best practices and standardize quality improvement activities to decrease the SSI SIR for colorectal surgery. Members of this interprofessional team led by Dr. Hensler and Ms. Morgan included representation from perioperative nursing leadership; OR clinical registered nurses; colon and rectal

surgery; Infection Prevention and Control; Quality and Patient Safety; and Information Technology.

- The interprofessional team identified the existing closing tray process as a potential contributor to the increase in SSI SIR for colorectal surgery. There was no dedicated tray for closing instruments. A second sterile field with clean unused instruments was not standard practice. This was a focus for infection prevention to avoid contamination from dirty instruments.

Goal Statement

To decrease the surgical site infection standardized infection ratio (SSI SIR) for colorectal surgery in the OR at NYP/Columbia.

Participants

Name/Credentials	Discipline	Title	Department/Unit
Kerri Hensler, DNP, MPA, RN, CNOR, NEA-BC	Nursing	Patient Care Director (at the time)	OR
Kellianne Morgan, MSN, RN, PCCN	Nursing	Perioperative Quality Specialist	Perioperative Services
Debbie Bakes, MD	Medicine	Physician Lead, Colorectal SSI at NYP/Columbia	Colorectal Surgery
Mary Beth Costello, MSN RN, FNP-BC, CPAN, CAPA, NEA-BC	Nursing	Nurse Instructor	PACU (MB3,4-605325) [PACU]
Ellie Jun, DNP, RN, CCRN	Nursing	Clinical Nurse Manager (at the time)	PACU
James Lam, MS	Information Technology	Epic Application Analyst: Inpatient Orders	Informatics
Lilibeth V. Andrada, MAN, RN, PNP, CIC	Nursing	Nurse Epidemiologist	Infection Prevention and Control
Yoko Furuya, MD, MS, FSHEA	Medicine	Chief Epidemiologist and Medical Director	Infection Prevention and Control
Marcia Brinson, MPH, RD, HACP	Quality	Director, Quality and Patient Safety	Department of Quality and Patient Safety

Laura Brihn, MSN, RN, ANP-HNP	Nursing	Director, Administration and Operations	Department of Quality and Patient Safety
Kelly Duvall, MPH, BSN, RN, CCRN-K, CLNC	Nursing	Director, Nursing Quality for Perioperative Services	Perioperative Quality
Steven Ference, MSN, RN, CNOR	Nursing	Perioperative Quality Specialist	Perioperative Quality
Steven Chao, MD, FACS	Medicine	Assistant Professor of Clinical Surgery, Weill Cornell Medicine	Division of Colon and Rectal Surgery
Michelle Turner, MBA, BSN, RN, CNOR	Nursing	Clinical Nurse Manager (at the time)	OR
Charito Montalbo, BSN, RN	Nursing	Clinical RN; Team Leader	OR
Louise Kertesz, DNP, RN, ANP-BC, CNS, CNOR	Nursing	Clinical Nurse Specialist	OR
Nenita M. Nadera, DNP, RN, CNS, CNOR	Nursing	Clinical Nurse Specialist (at the time)	OR
Jessica Romero, MPA, BSN, RN, AMB-BC	Nursing	Patient Care Director (nurse manager, at the time)	Central Sterile Processing
Ksenia Adamov, MSN, RN, CNOR	Nursing	Clinical Nurse	OR

Intervention

January 2021 – March 2021:

- Dr. Hensler and Ms. Morgan led the team to develop a colorectal surgical instrument closing tray. A closing tray is a set of sterile instruments dedicated to closing of the surgical site after the surgical repair is complete.

  Impact Statement: The standardized closing tray prevented contamination from instruments used on a dirty surgical site as an effective measure to reduce the SSI SIR for colorectal surgery.

- Jessica Romero, MPA, BSN, RN, AMB-BC, Patient Care Director (nurse manager, at the time), Central Sterile Processing; clinical nurse Charito Montalbo, BSN, RN, OR Team Leader, OR; and, Michelle Turner, MBA, BSN,

RN, CNOR, Clinical Nurse Manager (at the time), reviewed tray inventories across the NewYork-Presbyterian enterprise to design a standard closing tray with the correct instruments. They solicited feedback from interprofessional end-users, including physicians, surgeons, clinical nurses, and quality team members. Ms. Romero, Ms. Montalbo, and Ms. Turner collaborated with Dr. Hensler and Ms. Morgan to develop a new, standardized colorectal closing tray based on the feedback they received.

Impact Statement: Using a standardized tray reduced variation in practice and ultimately decreased the SSI SIR for colorectal surgery. Gaining buy-in and feedback from the interprofessionals at the point of care strengthened the commitment to improve and work together as a team.

- Mary Beth Costello, MSN, RN, FNP-BC, CPAN, CAPA, NEA-BC, nurse instructor, PACU; Louise Kertesz, DNP, RN, ANP-BC, CNS, CNOR, clinical nurse specialist, OR; and, Nenita M. Nadera, DNP, RN, CNS, CNOR, clinical nurse specialist, OR (at the time), developed education and provided in-services on the new standard colorectal surgery closing tray to 80 percent of the perioperative clinical nurses and scrub technicians. Ms. Romero ensured the new tray would be added to the instrument list for every colorectal case to increase compliance and reduce the SSI SIR for colorectal surgery.

  Impact Statement: Staff education mitigated risks associated with errors, compliance issues, and safety concerns. Clinical nurses adhered to best practices after the education, reducing the likelihood of SSI for colorectal surgery.

April 2021 – May 2021:

- Dr. Hensler and Ms. Morgan led the interprofessional team to review the Colon SSI Prevention Bundle to determine compliance. Ms. Costello, Dr. Kertesz, and Dr. Nadera completed a gap analysis to look at the current state of Colon SSI Prevention Bundle compliance in collaboration with Lilibeth V. Andrada, MAN, RN, PNP, CIC, nurse epidemiologist; Yoko Furuya, MD, MS, FSHEA, Chief Epidemiologist and Medical Director, Infection Prevention and Control; Marcia Brinson, MPH, RD, HACP; and Laura Brihn, MSN, RN, ANP-HNP, members of the NewYork-Presbyterian Quality and Patient Safety (QPS) team. The Colon SSI Prevention Bundle included the following quality improvement activities, which should be addressed for colorectal surgeries:
  - Bowel preparation completed prior to surgery
  - Pre-operative showering instructions
  - Pre-operative antibiotic ordering
  - Wound protector utilization during surgery

    - Gloves changed by team prior to closing
    - Closing tray utilization

- Based on this analysis, inconsistencies with the pre-operative information and instructions provided to patients by the pre-operative clinical team members was noted. Ms. Costello and Ellie Jun, DNP, RN, CCRN, Clinical Nurse Manager (at the time), PACU, developed education for the pre-operative team regarding the Colon SSI Prevention Bundle. Ms. Costello and Dr. Jun collaborated with interprofessional team members from NYP Infection Prevention and Control, as well as colorectal surgeons, to ensure this education was based on evidence. Ms. Costello and Dr. Jun began to educate the perioperative clinical team on utilizing the Colon SSI Prevention Bundle for all colorectal patients.

  Impact Statement: Inconsistent pre-operative patient instruction can lead to improper pre-operative preparation, which may result in a higher number of residual bacteria sufficient to cause a colorectal surgery SSI. Providing education to the team reinforced the evidence-based practices and procedures for improving patient outcomes.

June 2021 – July 2021:

- Dr. Hensler and Ms. Morgan led the interprofessional team to review documentation and the ordering process of antibiotics during colorectal surgery. Ms. Costello, Dr. Kertesz, and Dr. Nadera met with Debbie Bakes, MD, and Steven Chao, MD, FACS, colorectal surgeons, to review the antibiotic ordering process. Upon review, Dr. Bakes and Dr. Chao recommended a standardized order set be created to track antibiotic ordering and compliance for patients pre-operatively, thereby reducing the risk of colorectal surgery SSI.

  James Lam, MS, Epic Application Analyst: Inpatient Orders, a member of this interprofessional team, developed a new antibiotic order set for colorectal patients in the Epic electronic medical record system. This order set was used by colorectal surgeons when entering pre-operative orders for colorectal surgery patients.

  Impact statement: Antibiotics as preoperative prophylaxis is an important SSI preventive measure. By standardizing the antibiotics ordering process, compliance was reinforced among the surgical team, thereby lowering the risk of SSI for colorectal surgery.

August 2021 – September 2021

- Ms. Costello, Dr. Kertesz, and Dr. Nadera collaborated with Dr. Hensler, Ms. Morgan, Dr. Jun, and Ksenia Adamov, MSN, RN, CNOR, clinical nurse, OR, regarding the post-operative debrief in Epic for colorectal surgeries. This debrief, completed by the circulating clinical nurse and the surgeon, is an opportunity to discuss colorectal surgeries and any activities utilized to reduce the risk of infection, as well as identify areas of improvement. Feedback from Dr. Bakes and Dr. Chao was sought and this interprofessional team suggested adding a question to capture the Colon SSI prevention measures that were taken during the procedure. They worked with Mr. Lam to have this added to the post-operative debrief documentation in Epic.

  Impact statement: The post-operative debrief in Epic for colorectal surgeries ensured a standardized quality improvement process grounded in transparency and accountability in the effort to prevent SSIs in colorectal surgeries.

- Dr. Hensler and Ms. Morgan led the interprofessional team to develop an interprofessional mini root cause analysis (RCA) to discuss all identified SSIs, as well as to identify opportunities for improvement. Additionally, during the mini RCAs, Colon SSI Prevention Bundle compliance would be reviewed for each case. Attendees of this interprofessional session would include perioperative nursing leaders; perioperative clinical nurses; perioperative quality team members; colorectal surgeons; QPS leads; and Infection Prevention and Control practitioners, inclusive of clinical nurses and physicians.

  Impact Statement: Mini RCAs helped the team identify and improve underlying causes of colorectal surgery SSIs, thus reducing its SIR.

October 2021 – November 2021

- Through their leadership, Dr. Hensler and Ms. Morgan suggested the interprofessional quality improvement team review orders in Epic for all colorectal surgery patients. Interprofessional team members on this project improvement activity included Ms. Morgan; Steven Ference, MSN, RN, CNOR, perioperative quality specialist; Dr. Chao; Ms. Brinson; and Ms. Brihn. Working with Mr. Lam, the team created a standardized EPIC order set that included all orders prior to day of surgery and pre-procedure, as well as intraoperative orders.

  Impact Statement: The new order set in Epic addressed the components of the Colon SSI Prevention Bundle that the team should utilize to improve the colorectal SSI SIR.

December 2021:

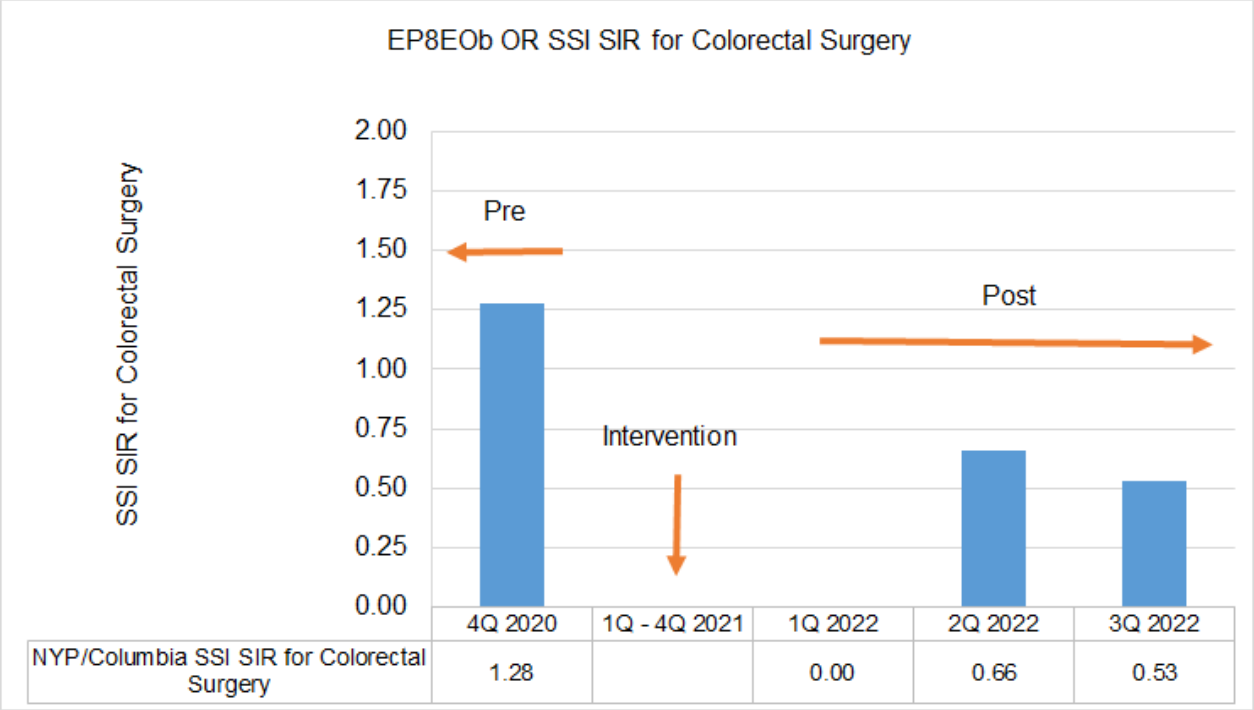
By December 31, 2021, the interprofessional team in the OR at NYP/Columbia fully implemented the standardized closing tray, standardized patient education on pre-operative preparation, standardized order set, post-operative debrief documentation in Epic, and the interprofessional mini-RCA for all identified colorectal surgery SSIs.

- **Key references:**

Edmiston, C., Leaper, D., Barnes, S., Jarvis, W., Barnden, M., Spencer, M., Graham, D., & Boehm Johnson, H. (2018). An incision closure bundle for colorectal surgery. *AORN Journal*, 107(5), 552-568. https://doi.org/10.1002/aorn.12120

Keenan, J. E., Speicher, P. J., Thacker, J. K., Walter, M., Kuchibhatla, M., & Mantyh, C. R. (2014). The preventive surgical site infection bundle in colorectal surgery: an effective approach to surgical site infection reduction and health care cost savings. *JAMA Surgery, 149*(10), 1045–1052. https://doi.org/10.1001/jamasurg.2014.346

Outcome



	4Q 2020	1Q - 4Q 2021	1Q 2022	2Q 2022	3Q 2022
NYP/Columbia SSI SIR for Colorectal Surgery	1.28		0.00	0.66	0.53