Safety Action Bundle: Surgical Site Infections (SSI) — **Colorectal Surgeries**

Background

- Surgical site infections (SSI) are the most common and costly reported health care-associated infection (HAI). Colorectal surgery SSI rates range from 5% to 45%.
- SSIs contribute to significant patient morbidity, mortality, prolonged hospital stays, readmissions and the need for subsequent procedures.
- SSIs are believed to account for $3.5 billion to $10 billion annually in healthcare expenditures.
- Up to 60% of SSIs have been estimated to be preventable by using evidence-based guidelines.

Aim

To reduce the incidence of Colorectal Surgical Site Infections by **20**% by September 28, 2017.

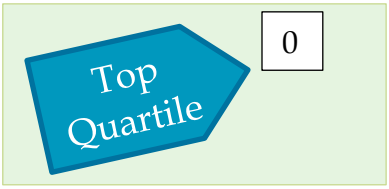
** Hospitals in top quartile (zero) should focus on maintenance and hardwiring.*

Measures

Outcome: Colorectal Surgical Site Infections Rate per Centers for Medicare and Medicaid (CMS) and State Law D

Process: SSI Colon Bundle Elements D

Submit: National Healthcare Safety Network (NHSN) D



Lower is better

Core Strategies

Definition D Reference i Tool

Patient and Family Engagement	☐ Educate patient and family on what to expect throughout the surgical experience and identify discharge needs. ☐ Encourage and support patient and family participation in care planning and decision making by providing tools like the Centers for Disease Control (CDC) "Frequently Asked Questions about *Surgical Site infections*". 🛠 ☐ Educate patient and family on the significance of hand hygiene and impact on SSI prevention.
Leadership	☐ Identify a multidisciplinary team that includes senior and unit-level leadership, perioperative clinical providers, infectious disease and prevention, pharmacy and quality personnel.

	□ Set aims, goals and timelines for practice changes and performance. □ Educate care providers on risk factors for SSI and prevention with an emphasis on bundle elements and evidence-based best practices.
Pre-Operative Period	□ Provide education to patient in the office/clinic when the decision is made for operation on "Preventing SSIs" and ensure understanding. Include information about the importance of pre-operative bowel prep and oral antibiotics and consider providing the antibiotics. □ Ensure patient had a Hibiclens shower night before and day of surgery. □ Use 2% chlorhexidine gluconate (CHG) cloths on the morning of surgery, if no CHG shower or BMI >30. □ Screen and identify patients at risk for hyperglycemia and implement a glucose control protocol. Every patient should have a fasting glucose checked during the 30 days before the operation. Anyone with a glucose >100 should have intra-operative glucose screening. □ Ensure weight-based antimicrobial prophylaxis administered within 1 hour prior to incision. (Ideally, antibiotics are given by anesthesia in the OR.) □ If hair removal is needed, use clippers and not razors, outside of the operating room. □ Actively warm all patients for at least 30 minutes BEFORE going into the OR.
Intra-Operative Period	□ Pause and have surgical team review surgical checklist. Establish teamwork, culture of safety and open communication. □ Skin Prep: Wash and clean skin around incision site using a 2% CHG product with alcohol. □ Maintain normothermia. Standardize procedures for active warming in the operating room (Maintain body temp $\geq$ 96.8^{o} F/36.0^{o}C) (warming blankets/warm fluids). □ Ensure weight-based re-dose of antimicrobial agents within 3-4 hours after incision (use timer/electronic reminder in anesthesia record). □ Optimize tissue osugentation by administering supplemental oxygen (FiO2 = or > 80%). □ Measure glucose in OR 30-60 minutes after incision and use insulin to control if level above 160. □ Consider wound-edge protectors. □ Use dedicated wound closure tray for closure of fascia and skin. □ Glove and gown change by entire team after anastomosis completed and before fascial closure.

Post-Operative Period	• Discontinue antibiotics when patient leaves the OR. • Maintain blood glucose during the postoperative period at 160mg/dl or lower. • Optimize tissue oxygenation by administering supplemental oxygen. • Promote a patient shower with Hibiclens after dressing removal. • Promote good hand hygiene practices with patient/family and provide hand sanitizing products at bedside. • Reinforce patient education about SSI prevention measures and objectives.
Post-Hospitalization Period	• Educate patient on wound care and signs and symptoms of infection. • Follow-up phone call to patient within one week.
Performance and Variation	• Measure and provide on-going feedback of Colorectal SSI rates with perioperative personnel and leadership. • Investigate any SSI Colon that occurs and document if all elements of the bundle were completed.

Moving Towards Zero

Daily Monitoring of SSI Colon	• Create and implement an SSI Colon bundle checklist based on the evidence-based guidelines and best practices. • Monitor adherence to SSI Colon prevention bundle elements to identify gaps and opportunities for improvement. • Collect SSI Colon rates by clinical provider to identify potential opportunities.

Hardwiring

Culture	• Promote a blame-free environment where individuals are able to report errors or near misses without fear of reprimand or punishment. • Encourage collaboration across ranks and disciplines to seek solutions for patient safety problems. • Promote transparency of results from display on units to the board and public.

Key Resources

1. Anderson, D. J., Podgorny, K., Berríos-Torres, S. I., Bratzler, D. W., Dellinger, E. P., Greene, L., . . . Kaye, K. S. (2014). Strategies to prevent surgical site infections in acute care hospitals. *Infection Control and Hospital Epidemiology, 35*(6), 605-627. doi:10.1086/676022

2. Cima, R., & Quast, L. (2013). Review of processes to reduce colorectal surgery surgical site infections. *OR Nurse, 7*(6), 18-26. doi:10.1097/01.orn.0000436912.57000.2c

3. Cima, R., Dankbar, E., Lovely, J., Pendlimari, R., Aronhalt, K., Nehring, S., Quast, L. (2013). Colorectal surgery surgical site infection reduction program: A national surgical quality improvement program–driven multidisciplinary single-institution experience. *Journal of the American College of Surgeons, 216*(1), 23-33. doi:10.1016/j.jamcollsurg.2012.09.009

4. Reducing Colorectal Surgical Site Infections. (2014). December 22 Update. *The Joint Commission Center for Transforming Health Care.* 1-19. http://www.centerfortransforminghealthcare.org/assets/4/6/SSI_storyboard.pdf

5. Rosenthal, M. (2014). Duke protocol reduces colorectal surgical site infections by 75%. *General Surgery News, 41*:10, 1-5.

6. Cedars-Sinai News Release. "New Practices Reduce Surgical Site Infections after Colorectal Surgery." Nov. 28, 2012. 1-2.