

Taking a bundled approach to surgical site infections

Learn how Vizient members worked together to prevent colorectal surgical site infections.

Surgical site infections (SSIs) are associated with multiple adverse patient outcomes, including increased morbidity and longer length of stay. SSIs occur in 2 to 5 percent of inpatients who undergo surgery, and colorectal SSI rates run even higher, from 15 to 30 percent. Estimates suggest that up to 60 percent of these SSIs are preventable.¹

Opportunity

Preliminary research from the Vizient™ Colorectal Surgical Site Infection Improvement Collaborative revealed that member organizations that participate in the Vizient Clinical Data Base and Resource Manager™ perform 32,000 to 40,000 colorectal procedures annually. Colorectal SSIs are associated with an additional seven to 11 postoperative inpatient days, compared with cases without infection. In addition, costs associated with colorectal infection are approximately \$12,000 higher per affected patient. Finally, the risk of death for colorectal surgery patients who develop SSIs at least doubles compared with patients without SSIs, with some estimates indicating up to an 11 times higher mortality risk.

The goal for the 12 Vizient members that chose to join the effort was to improve implementation of and compliance with the colorectal SSI bundle to reduce SSI rates, which in turn reduces costs related to these surgeries. Each participating organization selected its own projects and interventions associated with the topic.

The colorectal SSI bundle, developed by Keenan et al, is a systematic approach to standardizing care at three stages of surgery—preoperative, intraoperative and postoperative—and includes specific elements to be addressed at each stage. The bundle has an overall focus on patient education and reinforcement of preventive measures for SSI.²

The elements of the bundle include existing evidence-based measures as well as common sense measures that are thought to pose minimal risk and offer potential benefit.

Key lessons learned from the collaborative regarding the three stages of surgery*

- Preoperative
 - Ensure appropriate skin preparation is performed.
 - Ensure bowel preparation is completed.
 - Identify patients at risk of infection during preoperative clinic visits.
 - Ensure compliance with the care bundle by developing checklists and tracking sheets.

- Intraoperative
 - Develop an intraoperative glucose management protocol.
 - Establish an intraoperative normothermia standard.
 - Ensure use of fascial wound protectors.
 - Ensure use of gown, glove and wound closure kit, and implement a clean-closure protocol.
 - Decrease traffic in and out of operating room.
- Postoperative
 - Ensure appropriate dressing removal.
 - Provide continued maintenance of normothermia and euglycemia.
 - Implement a management system for daily showers for postoperative patients.

Key findings from the collaborative:

- Engage leaders and physicians to secure acceptance with bundle compliance.
- Develop protocols for all phases of care to ensure that workflows are consistent.
- Educate patients and providers on the importance of compliance with all bundle elements.
- Use electronic medical record systems to identify issues and monitor compliance.

*All elements are addressed in the project final report and through featured member case studies.

Overall collaborative results³

- Total collaborative potential cost avoidance was \$420,960.
 - Assumes a \$52,620 cost per SSI⁴

¹ Anderson DJ, Podgorny K, Berríos-Torres SI, et al. Strategies to prevent surgical site infections in acute care hospitals: 2014 update. *Infect Control Hosp Epidemiol.* 2014;35(6):605-627.

² Keenan J, Speicher P, Thacker J, Walter M, Kuchibhatla M, Mantyh C. 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(10):1045-1052. <https://jamanetwork.com/journals/jamasurgery/fullarticle/1899996>. Accessed November 17, 2017.

³ Statistics based on availability of data for 11 of 12 participating members.

⁴ Schweizer M, Cullen J, Perencevich E, Vaughan Sarrazin M. Costs associated with surgical site infections in veterans affairs hospitals. *JAMA Surg.* 2014;149(6):575-581.



For more information about the Performance Improvement Collaboratives program, contact your network director or picollaboratives@vizientinc.com.

Members of the Vizient Performance Improvement Collaboratives program have access to the [project resource page](#).

As the nation's largest member-driven health care performance improvement company, Vizient provides network-powered insights in the critical areas of clinical, operational, and supply chain performance and empowers members to deliver exceptional, cost-effective care.