Ongoing Quality Improvement: C-Section SSI Prevention Efforts Successful in a Community Hospital

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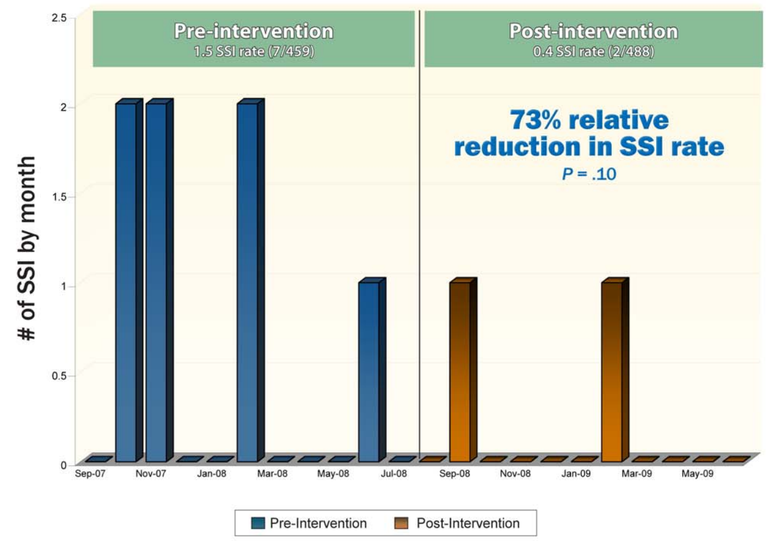
Background

The World Health Organization 2005 survey reported that women who have cesarean sections (C-sections) are 5 times more likely to develop a postpartum infection than are women who have vaginal deliveries,[1] and the incidence of surgical site infections (SSIs) with C-sections ranges from 1.50 to 2.64.[2] SSI prevention is multifactorial and requires ongoing assessment for quality control. This quality improvement initiative was the result of an intensive chart review by the Infection Control Department of the Medical Center of McKinney after it was noted in 2006 that the SSI rate associated with C-sections was above national benchmarks.

Figure 1. SSI Incidence Pre- and Post-Intervention



Results

Fisher's exact test was used to assess the change in SSI infection rates over time. The time period for data analyses was 1 year before and 1 year after the protocol was modified to incorporate whole-body skin preparation with 2% CHG non-rinse cloths the night before surgery and/or whole-body skin preparation with 2% CHG non-rinse cloths in the Labor and Delivery area prior to standard preoperative skin antisepsis. Counts and percentages were presented for SSI rates.

The data analysis revealed SSI rates of 1.5 before the intervention (7/459) and 0.4 after the intervention (2/488), reflecting an absolute reduction of 1.1% and **a relative reduction of 73%** (Figure 1).

Methods

The chart review revealed that the majority of patients with C-section-related SSIs were morbidly obese mothers with no documentation that they had showered the night before surgery, as recommended by the Centers for Disease Control and Prevention (CDC)[3] for emergent and non-emergent patients. The Infection Control Department recommended standardization of the preoperative skin preparation, which incorporated whole-body skin preparation the night before surgery. Furthermore, on 02/14/07, the use of 2% chlorhexidine gluconate (CHG) became the standard of care for intraoperative skin antisepsis.

Although the SSI rate decreased in 2007 compared with 2006, C-section-related SSIs still occurred. Therefore, the Infection Control Department conducted another intensive chart review. This review revealed that emergent patients arriving for C-sections were unable to receive the recommended whole-body skin preparation the night before surgery; therefore, the protocol was modified to ensure that prior to undergoing the standard preoperative skin antisepsis, patients would receive whole-body skin preparation with 2% CHG non-rinse cloths in the Labor and Delivery area. This additional preoperative preparation measure was added to the order sheets for all patients undergoing C-sections in August 2008 to ensure protocol compliance.

In addition, elective C-section patients were provided the option of using the 2% CHG non-rinse cloths for whole-body skin preparation the night before surgery, in addition to undergoing whole-body skin preparation in the Labor and Delivery area; this provided an additional opportunity for skin prepping. By the end of July 2009, the quality improvement effort had resulted in a relative reduction in SSIs of 73%.

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Clinical Implications

Summary of Results/Lessons Learned

- Implementation of a quality improvement program requires a review of the evidence-based literature and best practices, strategic change management strategies, and intensive caregiver and physician education to ensure protocol compliance.
- The reduction in SSIs began in 2007 as a result of modifying the preoperative skin antisepsis product to 2% CHG and 70% isopropyl alcohol at the same time that we incorporated 2% CHG non-rinse cloths for whole-body skin preparation the night before surgery.
- An additional chart review revealed that emergent C-section patients were not able to receive the whole-body skin preparation regimen the night before surgery; therefore, whole-body skin preparation with 2% CHG non-rinse cloths was performed in the Labor and Delivery area and was added to the patient order sheet, which ensured protocol compliance.
- Enabling elective C-section patients to use the 2% CHG non-rinse cloths for whole-body skin preparation at home the night before surgery, in addition to undergoing a second whole-body skin preparation in the Labor and Delivery area, provides an additional opportunity for skin preparation preoperatively.
- Open communication between departments and the gradual addition of SSI-prevention strategies helped to improve the effectiveness of individual practices and facilitated our prevention efforts.

References

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