Implementation of a Surgical Site Infection Bundle at the LVHN Children's Hospital

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Implementation of a Surgical Site Infection Bundle at the LVHN Children’s Hospital

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Introduction

Surgical site infections (SSI) are a significant cause of patient harm both during and after hospitalization. The postoperative cost of a patient with a surgical site infection is much greater than the cost of patients without. In efforts to reduce healthcare costs and patient harm, comprehensive bundles have been used at other pediatric surgery programs with measurable reduction in SSI in high-risk surgeries.

Problem Statement

Do current preoperative protocols align with an evidence-based bundle to prevent SSI in pediatric patients?

Methodology

Studies evaluating surgical site infections were identified using a PubMed search with MeSH terms conducted in June 2017. High quality systematic reviews were the primary evidence type comprising four of the five bundle elements. In addition, expert consensus guidelines comprised one of the five bundle elements. A retrospective chart review was conducted to evaluate current practices of each bundle component. 50 patients were selected chronologically in November 2017 to represent the most current practices. Included were only patients at LVHN-CC and the Children’s Surgery Center, 16 years old and younger, undergoing general and orthopedic surgery.

Results

Five evidence-based components comprised the SSI bundle: Completion of pre-operative bathing, avoidance of razors for hair removal, use of active perioperative warming (forced air warmer), use of alcohol-containing skin preparation, and proper antibiotic use. Insufficient data was recorded for pre-operative bathing – 52% of patients had missing data in the patient chart. There was 100% compliance with avoidance of razors for hair removal. 36% of patients were actively warmed during the perioperative period with the remaining 64% receiving passive warming. Alcohol-containing skin prep solutions were used in 76% of patients. Antibiotics were timed appropriately in 100% of cases where prophylactic antibiotics were indicated.

Conclusions and Future Implications

LVHN Children’s Hospital practices align with the current literature and recommendations for pre-operative hair removal and prophylactic antibiotic use. There is opportunity for improvement in use of forced air warmers. Use of alcohol-based solutions for skin preparation may be limited by other factors. Data entry on pre-operative bathing must be improved to make any useful conclusions about compliance. Demonstrated here is the opportunity for continuous improvement of a health system.