



Plenary Session I (cont.)

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EFFECTIVE METHODS TO DECREASE SURGICAL SITE INFECTIONS IN PEDIATRIC GASTROINTESTINAL SURGERY

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Purpose: Gastrointestinal surgery accounts for a large proportion of surgical site infections (SSI) in pediatric patients, resulting in significant morbidity and mortality as well as increased hospital costs and length of stay (LOS). Multicenter studies have demonstrated that high compliance with a bundle of specific perioperative practices reduces infection rates in pediatric spinal, cardiac and neurosurgical operations, but no studies have evaluated bundle usage in pediatric gastrointestinal (GI) surgery. We hypothesized that application of a GI bundle would decrease SSI rates, overall hospital cost and LOS.

Methods: Baseline 30-day SSI rates were established after review of all pediatric patients undergoing GI operations from October 2012 to November 2014. A bundle of preoperative and intraoperative care practices based on current recommendations including skin prep, pre-op warming and appropriate selection and timing of antibiotics was implemented in November 2014. Since implementation, demographics, procedure type, bundle compliance and development of SSI are collected prospectively. Significance values are based on Shewhart process control charts. Subgroup analyses of stoma reversals evaluated the effects on LOS and 30-day inpatient charges using two-tailed t tests.

Results: Baseline SSI rates for all GI procedures was 10%; midgut/hindgut procedures had a higher SSI rate at 12.5%. With increasing bundle compliance, the overall and midgut/hindgut SSI rates decreased to 4.6% and 7.0%, respectively ($p<0.05$; Figure 1). For stoma closures, SSI rates dropped from 19.4% to 5.7% ($p<0.05$), average hospital charges decreased from \$114,048 to \$64,787 (43.2% decrease, $p=0.04$), and average LOS decreased from 27.4 to 19.6 days (28% decrease, $p=.35$).

Conclusions: Applying a standardized care bundle to GI cases significantly decreased our overall SSI incidence, most notably in midgut/hindgut operations. Among stoma closures specifically, this has greatly decreased hospital costs and LOS. We believe that close attention to compliance with dedicated care bundles will effectively decrease SSI rates in pediatric GI surgery.