

Antimicrobial Dressing Intervention Associated with Reduction in Surgical Site Infection Rate

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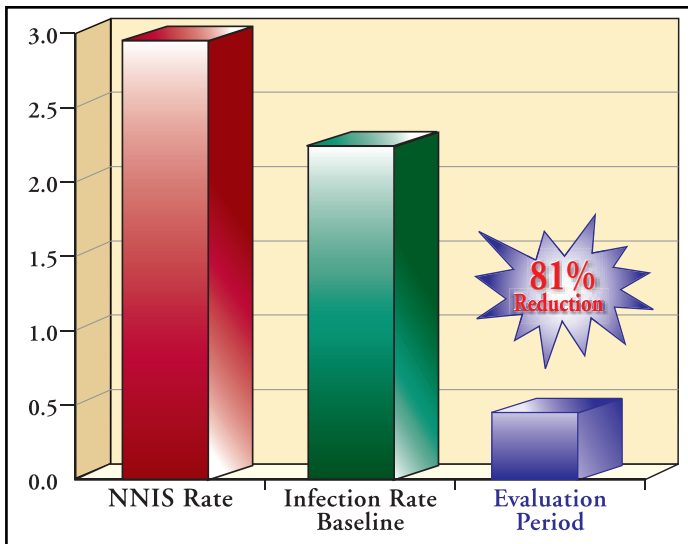
ISSUE:

The Center for Disease Control and Prevention (CDC) states 2.7 % of surgical procedures are complicated by surgical site infections (SSIs) resulting in increased morbidity, hospitalization and costs. Reductions in SSI rates had been realized from the SCIP Project in 2005. With increased emphasis being placed on patient safety, a process improvement project was undertaken to reduce the SSI rate to zero at this 196 licensed bed community hospital. This facility has approximately 8700 admissions and performs approximately 5400 surgical procedures per year. The types and scope of surgical procedures include general, obstetrical, orthopedic and vascular.

PROJECT:

A hospital-wide switch from standard gauze dressings to (Kendall AMD™) antimicrobial dressings impregnated with 0.2% Polyhexamethylene Biguanide was completed by 02-01-06. Since the products were very similar, no change in protocol was required. No education of hospital staff was done. CDC definitions were utilized throughout. Infection Control Professionals collected prospective data on SSI incidence rates 02-01-06 to 07-31-06. The study period included 449 targeted procedures. This data was compared to the historical control of SSIs occurring during the same 6 month period of 2005. There were no changes in ICP staff between the control and study period.

SSIs Reduced 81%



RESULTS:

The baseline period infection rate was 2.24% [95% CI: (0.97%, 4.37%)] and the evaluation period infection rate was 0.45% [95% CI: (0.05%, 1.60%)]. The stated confidence interval estimates were calculated using the exact binomial interval method. NNIS rate for both periods was 2.95 %. Standard Infection Ratio (SIR) for the baseline period was 0.76 and for the targeted evaluation period 0.14. During the study period, nosocomial SSIs were reduced by 6 SSIs in the targeted procedures (12 SSIs for all procedures). This represents an 81.3 % rate reduction during the trial. A two-sided Fisher's Exact Test was used to test for a difference in infection rates between the two periods, with a resultant p value 0.027. Using the average cost of an SSI as \$15,646 (Stone 2002), an estimated annual net cost savings of \$154,373 for the targeted procedures and \$342,125 for all procedures was realized.

Using a 4 % cost of living increase from 2002 to 2007, the average net cost of an SSI becomes \$19,036 with an estimated annual cost savings of \$195,053 for targeted procedures and \$423,485 for all procedures even after increased costs of the new product were factored in. While it is understood that many factors impact SSI rates, results of controlling bacteria in post-operative dressings are encouraging. Further research is warranted.

LESSONS LEARNED:

Although the goal of zero was not achieved, the SSI rate was greatly reduced, thus increasing patient safety and the quality of care given at this facility. An active Infection Prevention Program is beneficial to patients as well as cost effective.

Cost Avoidance (Using \$15,646 as a cost)

	Annualized SSI Reduction	Net Cost Avoidance	Inflation Adjusted Cost
Nosocomial SSI Reduction for Targeted Procedures	12	\$154,373	\$195,053
Nosocomial SSI Reduction for All Procedures	24	\$342,125	\$423,485

Net savings were calculated by subtracting the incremental cost of product: \$33,379.

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