

Impact of an Antimicrobial Impregnated  
Gauze Dressing on Surgical Site  
Infections Including Methicillin Resistant  
*Staphylococcus Aureus* Infections

# Impact of an Antimicrobial Impregnated Gauze Dressing on Surgical Site Infections Including Methicillin Resistant *Staphylococcus Aureus* Infections

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## OBJECTIVE

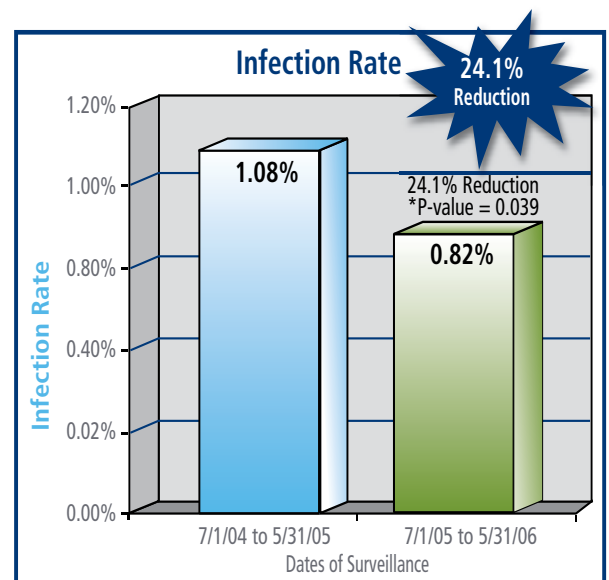
Over 30 million surgeries are performed in the United States each year. The incidence of postoperative complications ranges from 6% for patients undergoing noncardiac surgery to greater than 30% for patients undergoing high-risk surgery.<sup>1</sup> The objective of this quantitative research study was to evaluate the effectiveness of impregnated wound dressings on the incidence of Surgical Site Infection (SSIs) with special emphasis on decreasing SSIs caused by methicillin resistant *Staphylococcus aureus* (MRSA).

## METHODS:

The study was performed in a 606-bed, not for profit, Midwest acute care hospital. SSIs were identified using the Centers for Disease Control and Prevention (CDC) criteria. SSIs were identified thru post-discharge surveillance letters sent to surgeons, chart reviews, lab culture surveillance and readmission diagnosis. Baseline SSI surveillance data was collected from July 1, 2004 to May 31, 2005 and compared against intervention data from July 1, 2005 to May 31, 2006. Intervention consisted of house-wide replacement of sterile plain post op dressings with sterile antimicrobial impregnated dressings [Kendall Antimicrobial Dressing (AMD<sup>™</sup>), 0.2% Polyhexamethylene biguanide (PHMB) in conjunction with the current infection control program].

## RESULTS:

Nonprobability sampling was used to monitor all patients having National Nosocomial Infection Surveillance System (NNIS) procedures during the dates of comparison. In the baseline period 9,372 surgeries were performed with 101 SSIs identified; rate of 1.08%. In the evaluation period 10,202 surgeries were performed with 84 SSIs identified; rate of 0.82%. A rate reduction of 24.1% was realized. A 1-sided z-test with continuity correction factor yielded a statistically significant p-value of 0.039. During the baseline period 20 or 19.8% of the SSIs were culture positive for MRSA for a rate of 0.21%. During the evaluation period 11 or 13.1% of the SSIs were culture positive for MRSA for a rate of 0.11%. The incidence of SSI MRSA was reduced by 47.6%; a 1-sided z-test with continuity correction factor produced a statistically significant p-value of 0.046. In 2002, the cost of a SSI was \$15,646<sup>2</sup> and in 2006 the average cost of a MRSA infection was \$41,274.<sup>3</sup> Based on these numbers, the total savings from this intervention was \$481,030. This includes the \$15,604 difference in the cost of the dressings.



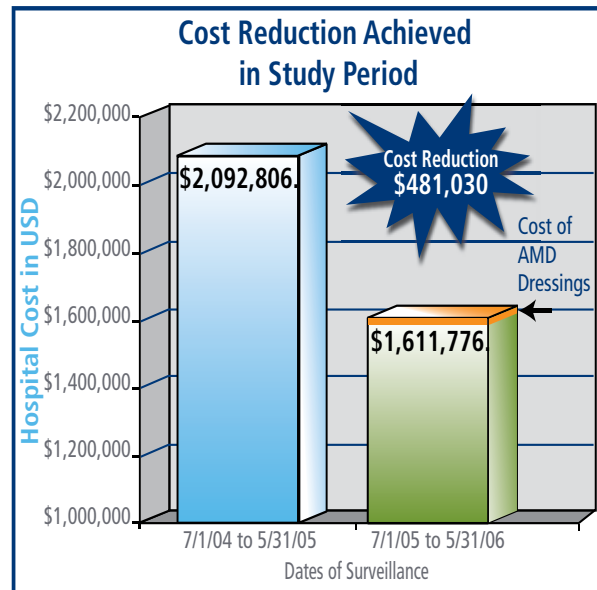
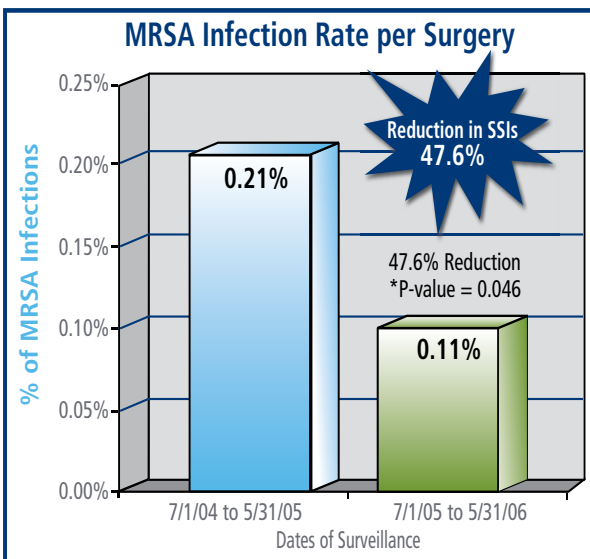
## CONCLUSION:

Due to the 24.1% reduction in SSIs and the 47.6% reduction of MRSA infections, there was a significant cost savings realized by this facility as well as patient safety and quality of life enhanced. With increased incidences of MRSA infections in healthcare settings, there is a need for simple measures that can be implemented to help reduce the occurrences of infections, and are both cost effective and beneficial to patient outcomes. These results warrant further studies on the impact of antimicrobial dressings on Surgical Site Infections.

## References:

- <sup>1</sup> Bratzler, D. & Hunt, D. The surgical infection prevention and surgical care improvement projects: national initiatives to improve outcomes for patients having surgery. *CID* 2006;43:322-330.
- <sup>2</sup> Stone, PW, Larson, E, Kawar, IN. A systematic audit of economic evidence linking nosocomial infections and infection control interventions: 1990-2000. *AJIN* 2000;30: 145-152.
- <sup>3</sup> Cosgrove, S. The relationship between antimicrobial resistance and patient outcomes: mortality, length of hospital stay, and health care costs. *CID* 2006;42:S82-89.

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