Clinical and Economic Benefit to Surgical Patients with the Use of an Antimicrobial Impregnated Surgical Dressing

Teresa Caudill, RN, MSN, Rush Foundation Hospital, Meridian, MS

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BACKGROUND

The CDC estimates that 14% to 16% of the 500,000 annual hospital associated infections are attributed to Surgical Site Infections (HA-SSI). Despite advances in infection control practices, surgical site infections remain a substantial cause of morbidity and mortality. HA-SSI also lead to prolonged hospital stays and increased cost for patients, providers and hospitals. By reducing HA-SSI, hospitals could recognize an estimated savings of $15,646 per infection in addition to improving patient outcomes[1]. The purpose of this investigation was to determine the clinical and economic outcomes of Gynecological (GYN) surgical and Neurosurgical patients whose surgical wounds were dressed with an antiseptic impregnated gauze containing 0.2% Polyhexamethylene Biguanide (PHMB).

METHODS

Sterile non-antimicrobial dressings were replaced with the corresponding sterile PHMB impregnated Kendall AMD™ dressings for a period of six months throughout the hospital. Matched surveillance was done for the baseline and evaluation periods on all Neurosurgical and GYN procedures excluding Caesarean section. Suspect cases were identified and confirmed by the Infection Control Department utilizing CDC criteria for HA-SSI. Cost was assessed by applying a figure of $15,646 to each infection.

RESULTS

The baseline HA-SSI rate for GYN procedures was 1.35% (9/669 cases). During the evaluation period the rate was 0.4% (3/742 cases). Similarly the Neurosurgical HA-SSI rates were 1.8% (3/166 cases) in the baseline compared to 0.5% (1/205 cases) in the evaluation period. A projected annualized cost savings of $230,990 was observed.

CONCLUSIONS

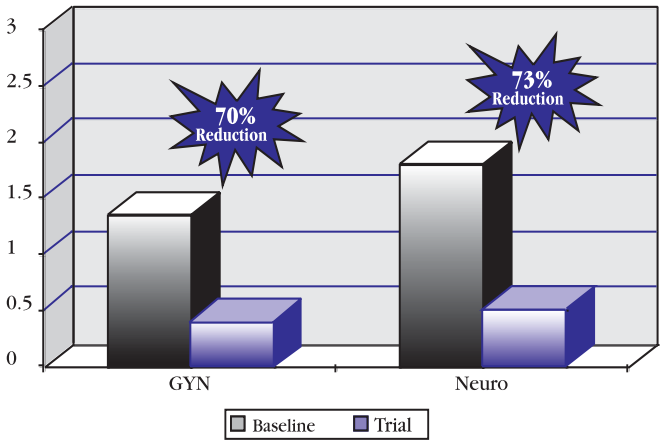
In this application, the infection rates of GYN and neurosurgical procedures were reduced by 70%* and 73%** respectively while the antimicrobial dressing was in use. This improvement in surgical outcomes was also accompanied by a potential annual cost savings to the institution of $230,990. In this era of managed care and cost containment this figure is compelling. The prevention of surgical site infection, which is a costly outcome, is an important improvement in patient care. Further study and usage of the antimicrobial dressing in this institution has been implemented and supported by the results of this study.

Procedure Specific HA-SSI Rate:

Targeted Surgical Procedure: GYN (excludes C-section) May - October		
	Baseline	Evaluation
Total Number of SSI	9	3
Total Number of Procedures	669	742
HA-SSI Infection Rate Per 100 Targeted Procedures	1.35%	0.4%

Targeted Surgical Procedure: Neurosurgery May - October		
	Baseline	Evaluation
Total Number of SSI	3	1
Total Number of Procedures	166	205
HA-SSI Infection Rate Per 100 Targeted Procedures	1.8%	0.5%

HA-SSI Summary



Rush Foundation Hospital Cost Analysis		
	Baseline Period	Evaluation Period
Number of HA-SSI during study period	12	4
Extrapolated Number of HA-SSI for 1 Year	24	8
Cost of one Surgical Site Infection has been agreed upon as $15,646.00		
Cost of all HA-SSI identified for 1 year	375,504	$125,168
Cost of antimicrobial dressings	$19,346	
Potential cost benefits to Rush Foundation Hospital for 1 year	$230,990	

The procedures measured in this study are representative of the above numbers. However, it should be assumed that further reductions were seen in other procedures not included in this study. Therefore, the actual cost savings to the institution is expected to be significantly greater.

REFERENCES

1 Stone PW, Larson E, Kawar LN. A systematic audit of economic evidence linking nosocomial infections and infection control interventions: 1990-2000. *Am J Infection Control*. May 2002; 30(3): (145-152.)

OTHER RESOURCES

Davis, Stephen; et al. The Use of a New Antimicrobial Gauze: Effects on the rate of Epithelialization on Partial Thickness Wounds

Barnard, Bonnie M. Fighting Surgical Site Infections. *Infection Control Today* 2002; 04

Getting Started Kit: Prevent Surgical Site Infections, How to Guide from the 100,000 Lives Campaign, *The Institute for Healthcare Improvement (IHI)*, 2005; Jan

Hospital–acquired Infections in Pennsylvania. PHC4 *(The Pennsylvania Health Care Cost Containment Council, Research Briefs,* 2005; Issue No. 5, July

Jenney AW, Harrington GA, Russo PL, Spelman DW. Cost of Surgical Site Infections Following Coronary Artery Bypass Surgery. *ANZ Journal of Surgery*, 2001; Nov 71 (11): 662-4

National Nosocomial Infections Surveillance (NNIS) System Report, data summary from January 1992 through June 2004. *Am J of Infection Control*. October 2004; 470-485

Press, Gainey: Summary Cost of Nosocomial Infections

* P-value of .024, One-Tailed Fisher's Exact Test (98% confidence level)

** While the initial results are encouraging, sample size was too small to be statistically valid.

The duration of the study was six months.

This paper was presented at the Georgia Infection Control Network Meeting.

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Kendall

15 Hampshire Street
Mansfield, MA 02048
1-800-962-9888
508-261-8000

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