

Efficacy of an Electronic Hand Hygiene Surveillance and Feedback Monitoring Device Against Healthcare Associated Infections



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ABSTRACT:

Background:

Healthcare associated infections (HAIs) account for thousands of lives and millions of dollars lost every year. The Centers for Disease Control, The World Health Organization (WHO) and The Joint Commission indicate effective hand hygiene as the single most important way to reduce infection risk. However, hand hygiene compliance monitoring methods, such as periodic surveillance, self-reporting, and aggregate volume measurements, are often inaccurate and hard to implement. High levels of sustained hand hygiene compliance are elusive in healthcare facilities around the world.

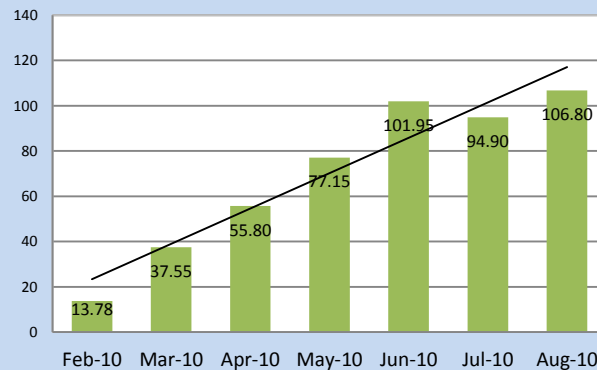
Design:

A seven-month-long study of an automated, point-of-care compliance monitoring and communication system implemented in a single 41-bed post-surgical unit went live in February 2010. This technology is soap dispenser neutral and doesn't require a specific soap, alcohol or gel for monitoring. Employees (51), including nursing and housekeeping personnel, were issued badges that triggered the system to record their hand hygiene events and prompted active messaging as the individual engaged the soap or alcohol dispenser. Dispensing counts from both hand sanitizer and soap dispensers were automatically tracked by hour, day, and month with the same system. Results were measured and compared with electronic infection markers from the same time for the previous year.

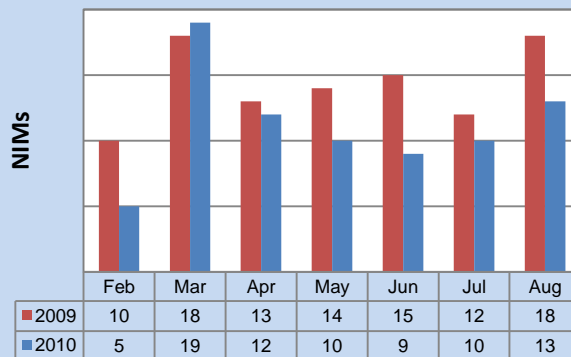


RESULTS:

Cleansing Dispenses per Patient Admission



Unique NIMs Before and After Intervention



Acknowledgements: We thank hospital administration for providing the funding for this study. We thank Proventix Systems, Inc. for providing the technology and clinical support.

Results: Cont'd.

Results:

At the seven-month mark of the study, the infection markers had decreased by 22.0% overall on the unit as compared to the same months during the previous year. The number of patient admissions was accounted for during this study and there was very little difference in total admits to the pilot unit (2602 versus 2652) over the seven months with only slight month-to-month variation. We attribute these results to a combination of the personalized tags being distributed, the education provided by and about the RFID technology, and the active messaging at the control unit. Also noted and reflected in the chart was an increase in dispenser usage after the tags were issued as well as a subsequent decrease of infection incidence.

Conclusions:

Improved hand hygiene increased the quality of patient care. The implementation of an electronic hand hygiene surveillance and feedback-monitoring device resulted in a significant reduction in electronic infection markers. This confirms numerous studies that indicate that while hand hygiene education is important, compliance improves when personnel are monitored. The cost studies for our hospital over this seven-month period of hand hygiene monitoring on just 2652 patient admissions reflected a decrease of 159 patient days and reduced net losses by over \$133,000. These results indicated additional cost saving opportunities. The hand hygiene monitoring device has since been installed in other areas of the hospital with anticipated hospital-wide rollout.

Overall Results of Pilot

	Seven Month Pilot
NIM Reduction	22.00%
Length of Stay Reduction	159 Patient Days
Reduction in Net Losses	\$133,386
	Annualized Estimate
NIM Reduction	22.00%
Length of Stay Reduction	273 Patient Days
Reduction in Net Losses	\$228,662