Improving Hand Hygiene Compliance and Reducing Healthcare Associated Infections with Automated Hand Hygiene Compliance Monitoring

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Background
Hand hygiene is recognized as one of the most successful ways to reduce infections and improve patient outcomes. Shelby Baptist Medical Center used lessons learned from implementing an automated hand hygiene monitoring system in one unit to accelerate a successful implementation in a second unit. A program of routine, comprehensive, individual performance feedback based on data derived from an automated measurement system contributed to significant and sustained hand hygiene compliance improvements in both locations.

Methods
This 242-bed hospital installed the Proventix wireless radio-frequency identification system in an adult medical-surgical unit (IMC) and an adult critical care unit (MICU). Researchers monitored 56 soap and 64 sanitizer dispensers as well as 188 employees, 214,651 hours of caregiver activity, 710,970 caregiver-patient interactions and more than 2.27 million hand hygiene solution dispenses. Hand hygiene solution dispensing and compliance was measured from May 2011 to October 2013, and success was based on hand hygiene compliance rates and an algorithm-based electronic proxy for HAIs, Nosocomial Infection Marker® (NIM-Carefusion). With the successful implementation in IMC, leadership expanded the automated monitoring into the second unit, MICU.

Results
IMC increased hand hygiene compliance 41.6% (p < .0001) in seven months and in November 2011, IMC leaders began posting individual rates stimulating another 170.5% (p < .0001) increase. This experience helped the MICU deploy strategies that were proven effective for their facility and achieve a 119.4% higher baseline hand hygiene rate. Through October 2013, MICU hand hygiene compliance increased 43.3% (p < .0001). Simultaneously, IMC compliance rates increased another 24.3% (p < .0001). Comparing HAIs prior to installation with most recent months of service, aggregate rates declined 35.7% (51 HAIs, p < .0001) resulting in a cost savings of $476,697, improved profitability of $265,506, and 414 day length of stay reduction.

Conclusions
Hand hygiene compliance monitoring methods such as periodic surveillance, self-reporting, and aggregate volume measurements, are often inaccurate and hard to implement. In this case, the use of automated monitoring helped sustain improvements in hand hygiene compliance when paired with consistent and comprehensive individual performance feedback. These achievements resulted in improved clinical and financial outcomes. Experience gained from the first implementation positively influenced the second installation and contributed to more rapid change adoption.