Changing hand hygiene behaviors with innovative technology solutions

Froedtert Hospital (Milwaukee, WI) is one of the premier academic medical centers in the U.S. The 500-bed Froedtert Hospital is staffed by the faculty of The Medical College of Wisconsin and serves as a referral center for advanced medical practice care in 37 specialties and subspecialties.

In 2009, Froedtert joined seven other healthcare institutions on the Hand Hygiene Project, a patient safety initiative of the Joint Commission Center for Transforming Healthcare. The goal was to find systematic and sustainable methods that hospitals nationwide can adopt to improve hand hygiene compliance, a critical factor in delivering safe, high-quality patient care via prevention of nosocomial infections.

In late 2009, Froedtert engaged the GE Healthcare Performance Solutions team to trial an innovative technology solution with consulting services to assist this effort. The technology offers room-level specificity for tracking badged clinicians as they enter and/or exit patient care rooms and records their compliance with hand hygiene. The solution was piloted in two areas: a medical surgical (med/surg) unit and a medical intensive care unit (MICU).

Three Froedtert Hospital leaders are heading up the initiative: Cathy Buck, President; Cheryl Jenks, MSN, RN, Director of Medicine Nursing; and Beth Lanham, RN, BSN, MBA, Director of Process Improvement. They recently spoke about the impact of innovative solutions in helping the hospital reach its hand hygiene compliance goals.

Why were you interested in GE’s technology solution?

Lanham: One of the first difficulties encountered in the Joint Commission project was finding a way to reliably and accurately measure hand hygiene compliance. Most healthcare providers are taught to wash their hands before and after patient contact; however, measuring this accurately on a large scale is extremely difficult, if not impossible.
As a result, the group defined compliance as hand hygiene upon entering and/or exiting a patient room. The only method available to collect data during the first phase of the project was through the use of “secret shoppers,” that is, having a staff member covertly monitor other clinicians and report the observed behaviors.

We knew that the secret shopper method had some inherent bias and limitations. People realize they are being observed and tend to alter their behaviors (Hawthorne effect). Even the observers themselves introduce bias, as they may consciously or unconsciously choose observations to support compliance or non-compliance.

Additionally, the secret shopper approach produces a limited sample size and reflects only the numerator of the equation, meaning a count of how many times healthcare providers actually washed or did not wash their hands. We had no way of measuring the denominator, meaning the number of times per day or per shift the healthcare providers had the opportunity to wash their hands while entering or exiting patient rooms. We also were concerned about the long-term sustainability of our solutions without an ongoing, less labor-intensive method of collecting and providing feedback to healthcare providers.

These early constraints made it apparent to the Joint Commission group that a technology solution would be useful to generate valid and reliable data. We desired something that would produce automated data in real time and felt it could help with sustaining compliance long term and encouraging healthcare workers to make permanent behavior changes in hand hygiene compliance.

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Beth Latham, RN, BSN, MBA
Director of Process Improvement
Froedtert Hospital

How did the monitoring technology improve on manual observation?

Lanham: For starters, it gave us that denominator. It captured the actual entry/exit numbers and they were very high—on the order of 70 to 100 times per day per clinician. So we had a realistic idea of how many times a day our clinicians should be washing their hands. This was fascinating to us, as we had been unable to find anything in the literature that indicated the actual traffic into and out of patient rooms.

Buck: And it gave us hard data on actual compliance. Our manual observations had suggested that clinician compliance was between 80 and 90%. According to the monitoring system, however, our compliance rate was much lower.

What did you learn from the clinician-specific nature of the data?

Lanham: We were particularly surprised at the tremendous variation in compliance among caregivers. Some were washing their hands virtually all of the time while others were far less compliant. This explained why the overall “unit” compliance rates were lower than expected. The ability to assess compliance of individual providers also helped us identify high performers who could model optimal behaviors and help lead change as well as those individuals with the largest opportunities for improvement. Interviews of both high and low performers provided insight into ongoing obstacles/barriers in workflows.
We also learned that patient care assistants (PCAs) were significant drivers of overall unit compliance. On average they had 100+ entry/exit opportunities per shift to wash their hands, while nurses had around 70. We had no idea that PCAs were in and out of rooms so much more frequently than everyone else.

**Buck:** Many clinicians enter a patient’s room to do one small task—like pick up a chart—and subconsciously rationalize that they don’t need to wash their hands. Once they get inside, the patient needs care in ways they hadn’t anticipated. So accepting the idea of always washing their hands before and after entering a room can help clinicians manage the unpredictability of patient encounters.

**Lanham:** The volume of clinician traffic in and out of empty rooms was an eye-opener. Once a room has been professionally cleaned, how do you prevent contamination, short of locking the door? It doesn’t occur to most clinicians to wash their hands upon entering or exiting an empty room because they are focused on patients. So the finding has generated more internal discussions on how to secure patient-ready empty rooms.

**Buck:** Clinicians on the units thought they were washing their hands more than they actually were. When we showed them the numbers, many were quite surprised. When the data is staring you in the face, it provides evidence that behavior modification is required. Having data in hand helped us break down resistance to change and opened the door to meaningful discussions on hand hygiene improvement.

**Jenks:** The most common reaction from staff members with poor compliance numbers was “Wow—this is what I perform at? Let me see what I can do to improve.” It was a matter of opening lines of communication. The GE team was good at meeting with staff members, explaining the findings, and having ongoing conversations with clinicians around improving compliance. They created work groups that brought together the staff with the highest and lowest reported compliance on a weekly basis to share information. GE wasn’t here to just put some technology in place; they were interested in the actual improvement of patient care and workflow.

**Jenks:** Seeing how often PCAs were going in and out of rooms led to workflow modifications that helped improve both compliance and efficiency. Running back and forth for supplies was driving much of the traffic. By taking time to think about the supplies they need before entering a patient’s room, PCAs have been able to reduce the frequency of in-outs. That, in turn, has given them more time to spend one-on-one with patients. They have more time to talk with patients, to walk with them, to console and soothe them. They have time to do things that have a real impact on patient satisfaction. As one PCA commented: “It’s not just about washing your hands. It’s about a better relationship with your patients.”

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**Cathy Buck**
President
Froedtert Hospital
Lanham: In approximately six months, compliance rates have increased significantly on both units. There is still a long way to go. Staff can improve their overall compliance by either increasing their numerator (number of times they wash on entry/exit) or by decreasing their denominator (number of times they enter/exit rooms). We are now focusing more on the workflows that contribute to frequent entries/exits of rooms, i.e, looking for supplies, etc. Within this pilot, we detected ~85% of clinician behavior and achieved very high hand washing compliance of 80%. We collaborated with GE to identify other important clinician behaviors for the product version of the solution which will help us achieve our goal of 100% compliance. By enabling us to provide staff with as close to real-time feedback as possible on hand hygiene compliance, the technology is helping us make it easier for people to do the right thing.

Buck: Our hospital has a strategic priority to improve hand hygiene at the system level because we believe it is a critical component in reducing hospital-acquired infections. It is the right thing to do. It will improve the quality of care. It will make patients safer.

Buck: We would like to roll this technology out across the organization and implement the necessary processes for continuous measurement and feedback to help clinicians improve their performance. Expansion beyond our two pilot units will allow additional data to link hand hygiene compliance with lower rates of infection. That’s the missing piece of the equation right now. We’re in the process of implementing a clinical intelligence platform to collect and analyze data on healthcare-associated infections. Our goal is to have the numbers to show that the units with the highest hand hygiene results have the lowest infection rates.

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