

Disclosures. All authors: No reported disclosures.

1324. Sustained Improvement in Hand Hygiene Compliance Using a Decentralized, Technology-Based Approach

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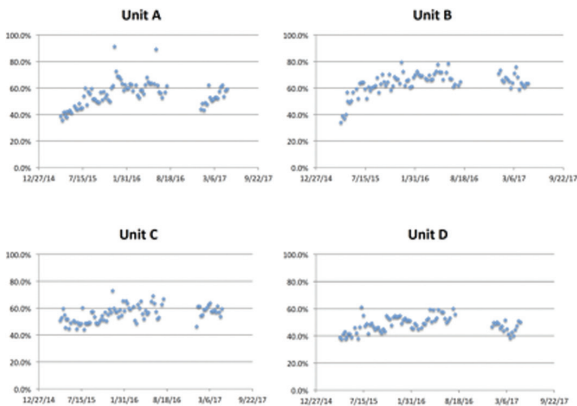
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Background. We aimed to use weekly PI calls in conjunction with 24/7 hand hygiene monitoring technology (HHMT) to engage front-line Intensive Care Unit (ICUs) clinicians in improving Hand Hygiene (HH) compliance

Methods. HHMT is used to monitor aggregate, unit-based HH compliance in real time and displayed on monitors at the nursing stations at our academic medical center. After installation and validation were completed, unit-based teams of nursing and physician leadership joined weekly 15-minute HH PI calls to discuss their previous week's compliance rate, next steps in their own PI plan, and share successes and failures. Calls were suspended for 6 months and restarted in early 2017.

Results. Graph representation of weekly HH compliance rates for the ICUs are shown in figure 1. Units A and B underwent physical moves during the break, Unit C had no change, and Unit D moved and consolidated with other ICUs constituting a major change in personnel and patient population. Each ICU participated in 84 calls and recorded approx. 50,000-100,000 HH opportunities during each month resulting in over 8 million opportunities for HH compliance recorded during the call-in periods. Unit A had an average compliance of 39% for the first 4 weeks of calls and 64% during the same 4 week period one year later ($P < 0.0001$). After 6 months without the calls, HH compliance was 48% ($P < 0.0001$ compared with baseline compliance) and unit A implemented 20 separate PI interventions over the course of the calls. Compliance was also significantly improved ($P < 0.0001$ for all comparison to baseline) for units B, C, and D (Unit B: 42% baseline, 71% at 1 year, 67% after the break, 23 interventions; Unit C: 54% baseline, 58% at 1 year, 59% after the break, 19 interventions; Unit D: 41% at baseline, 56% after 1 year, 49% after the break, 19 interventions). Attendance was >90% for nursing leadership and <25% for physician leadership.

Conclusion. Weekly 15-minute calls were successful in engaging local nursing leadership to undertake performance improvement interventions and significantly improved HH compliance that was sustained over 18 months of calls and did not drop back to baseline even after a 6 month break.



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1325. Electronic Hand Hygiene Monitoring: A Tool to Drive Improvement and Measure Impact

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Background. Hand hygiene (HH) is a basic principle of infection control, yet national HH adherence rates are only 40%. Challenges to improving HH rates include finding effective ways to promote and sustain change and collecting unbiased observations to measure the success of interventions. Our institution implemented an electronic HH (eHH) monitoring system on select hospital units with the goal of using this technology to both improve and measure HH rates.

Methods. In Apr 2016, Denver Health installed the HillRom Hand Hygiene Compliance Solution in 4 inpatient units (2 adult wards, 1 intensive care unit, and 1 progressive care unit). Sensors were installed on all HH dispensers and at the thresholds of patient rooms on the units. Registered nurses and certified nursing assistants wear badges that track HH upon entry and exit from the room. Appropriate eHH was defined as the use of waterless hand sanitizer or soap within 60 seconds before or after entering or exiting a room. Baseline data was collected for 2 months; a series of interventions, including public recognition of top performers, private individualized feedback, and posters emphasizing social pressures, were undertaken beginning in June 2016 (Figure 1). Descriptive statistics, chi-squared tests, and interrupted time series analyses were used to analyze the data.

Results. The median number of total daily observations was 4083 (IQR 3801-4437). The mean eHH adherence rate in the baseline period (Apr/May 2016) was 46% (IQR 44%-49%) and increased to 76% (IQR 75%-78%) in Mar 2017. Over the study period, there was a significant decreasing trend in the proportion of nurses with eHH rates <50% ($P < 0.0001$, Figure 2) and a significant increasing trend in the proportion of nurses with eHH rates ≥80% on all units ($P < 0.0001$, Figure 3).

Conclusion. eHH provides thousands of objective observations per day. eHH rates improved over the study period both due to an increase in nurses with eHH ≥80% and a decrease in the proportion of nurses with eHH <50%.

Figure 1. Timeline of electronic hand hygiene interventions and performance, Apr 2016-Mar 2017

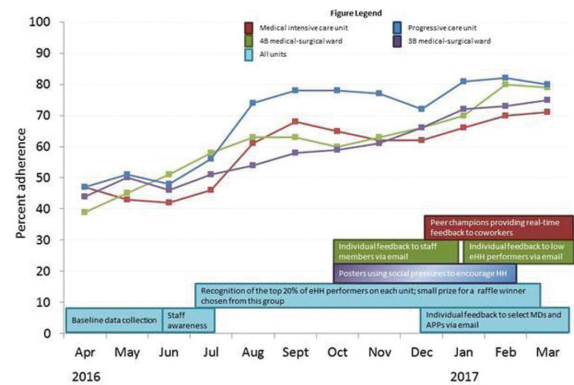


Figure 2. Proportion of nurses with electronic hand hygiene adherence <50%, Apr 2016-Feb 2017

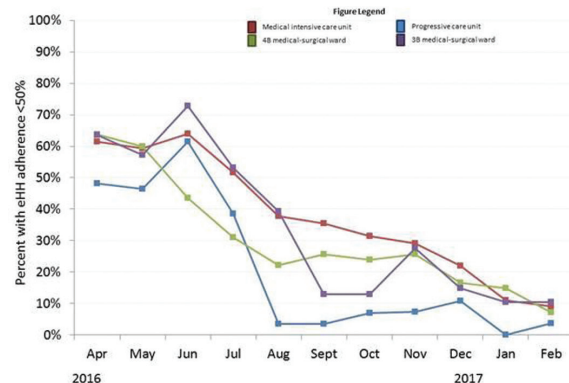
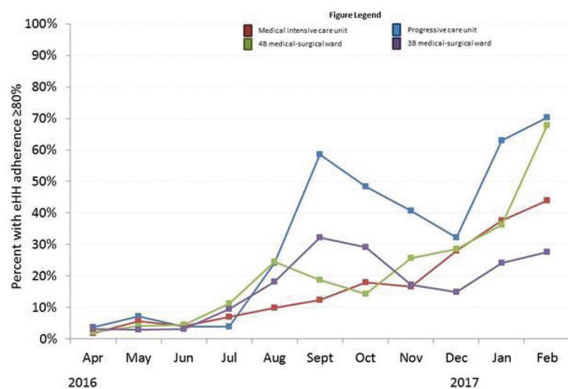


Figure 3. Proportion of nurses with electronic hand hygiene adherence $\geq 80\%$, Apr 2016-Feb 2017



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1326. Improving Hand Hygiene: Anonymously Validated Data Driven Approach Producing Sustainable Culture Change Utilizing “One and Up” Accountability Agents across a Healthcare System- a Cost-effective National Best Practice.

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Background. Inadequate hand hygiene is a major contributor to hospital infections worldwide. Before 2012, in our healthcare system, hand hygiene was monitored by unit managers, nurses, and infection control staff with reported compliance rates of $>90\%$. A five month independent audit by an anonymous observer revealed actual rates of 14–33%. This discordant result was typical of hospitals across the country then and now who have provided intensive education, used peer feedback, and maximized physical hand hygiene supplies. A commitment was made to rigorously improve hand hygiene utilizing validated data, social psychology with disciplinary consequence, and no additional expensive technology.

Methods. Employed dedicated “secret shopper”/anonymous observers were deployed across five hospitals, all units and all shifts, and all job roles to collect valid anonymous hand hygiene observations without local bias. Twice monthly hand hygiene data was shared by hospital, unit, shift, and job role to executive leadership and down to frontline unit staff for daily huddles. Additionally, over 100 “One and Up” Accountability Agents from management ranks were recruited, trained, and performed weekly standardized unit-based hand hygiene observations openly, giving feedback real-time to non-compliant employees and medical staff; noncompliance was reported to the hospital epidemiologist; and emails on his behalf were sent to the employee’s manager, and the manager’s manager “One and Up”. A four step disciplinary process was begun. The same process was applied to the medical staff.

Results. Over 188,000 anonymous secret shopper validation observations, and hundreds of thousands of Accountability Agent observations have been performed. Hand hygiene compliance has been $>94\%$ for 22 months and $\geq 97\%$ for the last 6 months in all five hospitals. No employee or medical staff member advanced beyond the second disciplinary step.

Conclusion. This model represents a national best performance model, with validated and sustained results, accomplished with cultural change and aligned multitier accountability (not technology). It is truly a low cost blueprint for other healthcare systems that seek rapid, honest, and sustained hand hygiene improvement across all job roles, shifts, and different sized hospitals and cultures.

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1327. Monitoring Hand hygiene Compliance among Healthcare Workers at a Tertiary Care Center: Use of Secret Observers Is the Way Forward

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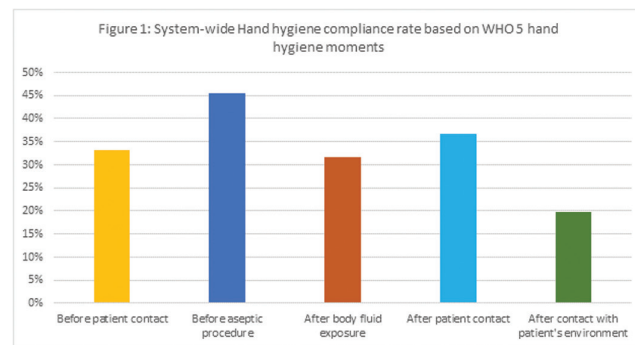
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Background. Hand-hygiene (HH) is known to be the most effective way to reduce healthcare acquired conditions (HACs). Despite being a simple answer to the complex HAC issue, compliance with HH practice has been abysmal with reported compliance rate of 40% among healthcare workers (HCWs). In 2015, compliance rate with HH at Detroit Medical Center (DMC) was reported to be 100% when direct observers were used to monitor compliance. In order to confirm the previously reported compliance rates, this study used secret observers to audit HH compliance and provide performance feedback to HCWs.

Methods. A prospective observational study was conducted at DMC from June 2016 to December 2016. Hand hygiene committee was established comprising of Infection Prevention and Hospital leadership members. Trained medical residents were appointed as “secret observers” to provide accurate HH reporting. HH auditing was performed using the smartphone app “Speedy audits” to survey and capture the 5 moments of hand hygiene among HCWs. Compliance reports based on different professions, hospital sites, unit locations and auditors were generated using online web portal and analyzed to determine HH compliance rate.

Results. During the 7-month study period when secret observers were used, a total of 1229 HCWs were observed. Overall, the HH opportunity compliance rate was 31% (916 complied opportunities /2939 opportunities). Hand hygiene compliance rates drastically fell when secret observers were used (31% compared with 100% in 2015 using direct observers). Based on two major before and after patient contact indications, 1022 compliances were observed from 3343 opportunities (30.5% compliance rate). The other compliance rates were 44% before aseptic procedure, 35% after body fluid exposure and 20% after patient environment contact [Figure 1]. Based on profession, compliance rates were lowest among nurses (613/2058; 30%) and medical students (36/169; 21%) when compared with physicians (445/957; 46%).

Conclusion. Hand-hygiene monitoring by secret observers with use of smartphone app is a feasible and accurate way for tracking HH compliance. The advantage of generating profession-based and unit-based reports for feedback will help to promote HH awareness and improve adherence rates.



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1328. What Psychological Theories of Behavior Change Can Teach Us about Improving Hand Hygiene Adherence: Do We Mean What We Say?

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Background. Health care worker (HCW) hand hygiene is effective in reducing healthcare associated infections, yet hand hygiene rates are suboptimal. Psychological theories of behavior change can be used to improve and sustain hand hygiene adherence. While past research has examined HCW explicit attitudes towards hand hygiene (ie., self-reported attitudes), it is unclear if these explicit attitudes are consistent with implicit attitudes (ie., attitudes outside of one’s awareness). Understanding HCW explicit and implicit attitudes is important when designing effective interventions to improve hand hygiene rates. This study examined explicit attitudes towards HCW hand hygiene and compared these to implicit attitudes.

Methods. HCWs (N = 420) from 70 long-term care facilities in Ontario, Canada completed: (1) a survey tool based on psychological theories of behavior change to examine explicit attitudes towards hand hygiene, and (2) a computer administered implicit association test (IAT) and affect misattribution procedure (AMP) to evaluate implicit attitudes towards hand hygiene. Sociodemographics and self-reported hand hygiene adherence were measured. Factor analysis was performed to identify themes. Correlations were conducted between explicit and implicit measures.

Results. Factor analysis identified key explicit attitudes themes: (1) beliefs about consequences to self and others, (2) environmental resources, (3) time pressure and workload, and (4) social/professional role and identity. AMP and IAT results indicated that these procedures can be successfully applied to hand hygiene. While results suggested implicit positive attitudes towards hand hygiene, implicit test scores were neither correlated with explicit attitudes nor with self-reported hand hygiene adherence.

Conclusion. Explicit attitudes did not predict implicit attitudes. So, what we say is not always what we really think or do. Interventions have successfully targeted implicit attitudes to foster behavior change when targeting explicit attitudes alone did not work. This is yet to be explored in the hand hygiene arena, and is a key area for future research in order to guide the development of successful interventions to sustainably improve hand hygiene rates.

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