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Major Article

Social cohesion: The missing factor required for a successful hand hygiene program

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Background: There are limited explorations into hospital staff reactions to automated hand hygiene surveillance or hand hygiene interventions.
Methods: An automated surveillance system with daily feedback and a behavioral intervention component was trialed in 2 wards in an Australian tertiary teaching hospital. After 9 months, 12 clinicians from each ward were interviewed prior to the completion of the trial to explore satisfaction with the system and behavioral component of nudging each other with a reminder to comply. Only on completion of the trial were transcripts analyzed for themes.
Results: Staff from the ward with improved compliance described a socially cohesive team with a well-liked nurse unit manager who accessed daily compliance rates and worked with staff to set goals. This contrasted with the ward without improvement in compliance, whose staff described their great reluctance and discomfort to nudge each other to comply and distrust of the authenticity of the rates established from the automated system.
Conclusions: Interventions for improving compliance are more likely to be successful in a ward with a social cohesive team. Patient safety interventions, in the first instance, may benefit from purposeful selection of wards with cohesive teams and skilled leaders who can transform clinicians into early adopters of the program.

BACKGROUND

It is universally agreed that the prevention of health care–associated infections (HAIs) is an important patient safety activity, and good hand hygiene has both a financial and ethical imperative.[1] Mandatory hand hygiene compliance rates, in accordance with Hand Hygiene Australia (HHA), were introduced into Australian hospitals in 2010.[2] The HHA rate is considered a process indicator of patient safety, and public hospitals are now required to reach a minimum compliance threshold for accreditation.[2] However, mandatory measurements may not necessarily reflect an improved positive social normative belief about the practice or improved organizational culture, but rather they reflect management expectations.[3] Improvement in organizational culture, in settings outside the hospital, has been linked with real improvements in quality and productivity, not measurements for mandatory thresholds.[1,2]

In the hospital setting, improved organizational culture and accountability have resulted in improved patient safety in terms of reduced infection rates and length of stay.[4] Multiple publications discuss the importance of leadership, team building, and followership as central elements in a hospital's strategy to reduce HAIs.[4-11] Theoretical discussions are published on the importance of organizational culture in relation to HAIs,[9-11] but there is a paucity of research into the impact of social cohesion of a team on team building.[5,12] Social cohesiveness has largely remained an unmeasured factor in hand hygiene compliance or unexamined for poor or unsustainable hand hygiene compliance.

We introduced an automated system to improve the validity of our measurements of changes in hand hygiene compliance after the introduction of a behavioral intervention.[13,14] The automated audit

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Box 1. Trial phases

- The prephase occurred over 1 week and included overt mandatory human audits undertaken in accordance with Hand Hygiene Australia (HHA) that required periodically auditing until at least 350 hand hygiene opportunities were collected for each ward and a human audit of hand hygiene for 24 hours for 7 days (24/7) using certified auditors. Rates for this phase were as follows: HHA audits for the medical ward and surgical ward were 68% (256/377; 95% confidence interval [CI], 63%-73%) and 73% (290/399; 95% CI, 68%-77%), respectively. For the 24/7 human audit, the rates were as follows: for the medical ward 63% (5,927/9,378; 95% CI, 62%-64%) and for the surgical ward 71% (6,449/9,039; 95% CI, 70%-72%).
- Phase 1 occurred over 5 months covertly running of the newly installed automated hand hygiene surveillance system for 1 month. During this month, nurse unit managers (NUMs) received training to access the previous 24-hour compliance rates from the dashboard to provide health care workers (HCWs) on their ward with compliance rates that they would provide at the morning clinical handover meetings. Both NUMs also received weekly compliance rates via e-mail. Automated rates for this period are as follows: medical ward 31% (96,622/314,488; 95% CI, 23%-41%) and surgical ward 53% (102,857/195,250; 95% CI, 37%-78%).
- Phase 2 occurred over 7 months when HCWs were provided the daily compliance rates at the morning clinical handover meetings and asked to set compliance goals. HCWs were all reminded at the meetings and routinely over the next 7 months to give their colleagues a friendly nudge to perform moment 1, before entering the patient's room, by asking each other to "take a moment." Focus discussion groups and individual interviews were undertaken between the second and fifth month of phase 2. Automated rates for this period were as follows: medical ward 32% (46,693/147,364; 95% CI, 25%-38%) and surgical ward 62% (84,842/137,335; 95% CI, 41%-85%).
- Phase 3 ran for 4 months with the automated system collecting data passively, whereas no reminders were given to nudge, share compliance, or set goals. Automated rates for this period were as follows: medical ward 29% (36,852/128,104; 95% CI, 28%-29%) and surgical ward 49% (58,428/118,525; 95% CI, 49%-50%).
- Phase 4 consisted of a single 8-hour human audit that was compared with the automated audit results for the same period. The trial then ceased. For details of all phases and compliance rates for each phase, see details elsewhere.[14] Human audit rates for the 8-hour period were as follows: medical ward 85% (405/476; 95% CI, 82%-88%) and surgical ward 70% (479/683; 95% CI, 67%-74%). Automated rates for the 8-hour period are as follows: medical ward 88% (477/542; 95% CI, 85%-91%) and surgical ward 87% (594/683; 95% CI, 84%-89%).

system established daily rates from complied hand hygiene events captured when hand hygiene solution dispensers were depressed divided by the average number of hand hygiene opportunities (HHOs) identified from a 24 h/d, 7 d/wk (24/7) audit and adjusted by daily bed occupancy.[13] In the first 5 months after installation, baseline compliance rates were covertly established. The intervention was then introduced, and during the intervention HHA human audits were performed quarterly in accordance with the World Health Organization guidelines.[14] The Hawthorne effect cannot be eliminated during direct overt audits. Without the covert automated period, health care workers (HCWs) on the 2 intervention wards would not have been provided with valid baseline rates with which to effect real change.[14] We provided the HCWs with the magnitude of the Hawthorne effect between the convergent rates from the HHA and 24/7 audits compared with the baseline rate.[14]

The automated auditing was then run overtly and provided HCWs with nonpunitive daily compliance feedback,[13] and HCWs were asked to give their peers a friendly reminder or nudge[14] to hand hygiene on entry to a patient's room. The difference in response to the intervention of overt daily feedback and cooperation with providing peers with a nudge suggested there was an unmeasured effect of ward organizational culture.[10] Nine months into the automated surveillance system trial we interviewed HCWs on both wards to explore the satisfaction with the daily hand hygiene compliance feedback and comfort with nudging peers. We report here our exploration of the interview transcripts to identify factors such as ward leadership[6] that may be drivers of different responses to the trial on the 2 wards.

METHODS

Setting

The trial wards in the tertiary teaching hospital included a 24-bed, high-dependency medical ward (ie, 1:1 nurse-to-patient ratio) and a 20-bed, medium-dependency surgical ward (ie, 1:4-8 nurse-to-patient ratio). The denominator entered into the automated system for each ward reflected daily dependency (ie, daily bed occupancy).

All HCWs on the medical and surgical wards participated in the automated hand hygiene audit system trial; on the day shift, there were 21 nurses and 13 physicians on the medical ward and 23 nurses and 9 physicians on the surgical ward. All phases of the study received ethics approval from The University of New South Wales Australia Human Research Ethics Committee and Local Health District Human Research Ethics Committee. Interviews coincided with HCWs having experienced the first 3 phases (prephase, phase 1, and phase 2) of a 4-phase trial (Box 1).

Recruitment

All HCWs on both wards that were involved in the automated surveillance system trial were invited to participate in focus discussion groups and individual interviews. These interviews were advertised on the HCWs' notice board and on the nursing unit managers' (NUMs') office door in both wards. The participant information and consent forms were placed in the staff room, and investigators also explained the aims and process at a staff meeting and asked HCWs to obtain the NUM's or medical director's permission to take time to be interviewed during their shift. Interviews occurred at the convenience of the participants either before or after shifts and during breaks in a closed interview room on the ward. Enrollment ceased once NUMs, clinical nurse educators, and audit nurses, referred to as gold standard auditors who have completed an intensive HHA audit course, were interviewed and both nurses and physicians were represented. The interviewer was cognizant of the prephase and phase 1 baseline compliance rates but was unaware of the differences in rates between the 2 wards during phase 2. Interviews were performed before analysis of the final compliance rates