

Can hand hygiene observation and reporting be improved through a risk-based targeted approach?



To the Editor:

It is well accepted that good hand hygiene practice is important in reducing health care-associated infection and therefore saving lives.¹

Despite the intense research effort that has been undertaken over decades, a level of hand hygiene compliance that results in reduction in health care-associated infection has never been established. The World Health Organization program, My 5 Moments for Hand Hygiene, has resulted in an internationally accepted manner of observation and reporting of hand hygiene compliance.²

In Australia, Hand Hygiene Australia (HHA) requires quarterly reports that detail both the degree of compliance for each of the 5 moments and the number of observations, all stratified by health care worker type.³ Enormous hospital resources are spent on complying with this single activity, with the reported observation time taken to record each moment as 2.2 minutes.⁴ In a large tertiary hospital, HHA has a requirement of at least 10,000 observed moments each year, which equates to nearly 10 weeks of a full-time nurse, an annual cost of A\$17,000-\$21,000.

HAND HYGIENE COMPLIANCE AND REPORTING

Despite the World Health Organization assertion that direct observation is the gold standard method of reporting hand hygiene compliance, the Hawthorne effect is well recognized.⁵ Comparison of automated electronic hand hygiene estimates of compliance undertaken concomitantly with direct visual observation has shown a strong correlation between methods. When the direct observer was removed from the environment, hand hygiene rates dropped by an average of 60% from 21 episodes per hour to 8 episodes per hour.⁵

The My 5 Moments for Hand Hygiene, for reporting purposes, are currently considered of equal importance, but this may not be a valid assumption. Noncompliance with moment 2 (before a procedure) clearly poses a greater risk to patient safety than moment 5 (after touching patient surroundings). By far the greatest number of observations completed are for moments 1, 4, and 5.¹ Compliance with moment 4 (after touching a patient) is usually good, reflecting the self-protective behavior of health care workers.⁶ The vast majority of reported observations are of nurses, who are consistently more compliant in their hand hygiene practices than any other health care group, especially doctors. Therefore, reported results may be falsely reassuring.⁷

The basis for the 70% compliance target defined by HHA is difficult to ascertain, but it is consistent with other countries, such as Canada. Ontario hospitals are reporting hand hygiene compliance rates of nearly 90% before patient contact and >90% post patient contact.⁸ A systematic review of 96 empirical studies in 2010 reported a median compliance rate for hand hygiene of 40%.⁹ It is difficult to argue, and highly unlikely, that these current reported rates reflect true hand hygiene compliance rates.

Staphylococcus aureus bacteremia rates are often considered a marker of hand hygiene compliance¹⁰ and are usually associated with indwelling medical devices. The most common indwelling devices are intravenous catheters (IVCs), with an estimated 80% of

patients having an IVC while in hospital.¹¹ Given how common IVCs are in the clinical environment, and their ability to cause patient harm, observations of hand hygiene associated with IVC access should be a priority if a risk-based approach is adopted for auditing.

CONCLUSIONS AND COMMENTS

The time and financial resources currently spent on health care worker hand hygiene observation limit the ability of health care facilities to undertake a comprehensive multimodal hand hygiene program. Administrators are given a false sense of security about hand hygiene compliance rates when non-evidence-based targets are implemented and met largely because of the Hawthorne effect. Automated hand hygiene monitoring technology should be considered as an alternative to audits because although many of these systems are still reasonably expensive, they may have added benefits of improving compliance by providing reminders, improving feedback, and creating a continuous Hawthorne effect.¹²

Consideration should be given to simplifying the 5 moments to 3 moments to decrease health care worker confusion and improve compliance. If the message was hand hygiene before touching a patient, after touching a patient, and before all procedures, it would be much easier for health care workers to remember when to decontaminate their hands.

Where direct observation is undertaken, immediate performance feedback should be provided. Where the health care worker is noncompliant and is likely to cause significant harm (moment 2), auditors should intervene to prevent that harm occurring. Providing such feedback to noncompliant health care workers, particularly to medical officers, is often difficult because of the perceived power imbalance of the professions (nurses being the usual observers). Therefore, medical officers should be trained to participate in hand hygiene audits. Medical officers are also an important focus in terms of risk because they undertake many of the invasive procedures, have contact with large numbers of patients, and are highly mobile within the hospital environment.

A more focused approach to monitoring hand hygiene in a cost-effective, reproducible manner, without inherent bias, focusing on critical sites¹³ (often indwelling medical devices) and with realistic targets, is surely a topic which requires more broad discussion to achieve a practical and realistic, consensus approach.

References

1. Hand Hygiene Australia. Available from: <http://www.hha.org.au/>. Accessed May 9, 2016.
2. World Health Organization. Clean care is safer care: infection prevention and control. 2009. Available from: <http://www.who.int/gpsc/en/>. Accessed May 9, 2016.
3. MyHospitals. Data release: hand hygiene (explanatory notes). Available from: <http://www.myhospitals.gov.au/our-reports/hand-hygiene/december-2015/data-release>. Accessed May 9, 2016.
4. Azim S, Juergens C, Hines J, McLaws M-L. Introducing automated hand hygiene surveillance to an Australian hospital: mirroring the HOW2 Benchmark Study. *Am J Infect Control* 2016;44:772-6.
5. Haged S, Reischke J, Kesselmeier M, Winning J, Gastmeier P, Brunkhorst FM, et al. Quantifying direct observation with automated hand hygiene monitoring. *Infect Control Hosp Epidemiol* 2015;36:957-62.
6. Whitby M, McLaws M-L, Ross MW. Why healthcare workers don't wash their hands: a behavioural explanation. *Infect Control Hosp Epidemiol* 2006;27:484-92.
7. Azim S, Juergens C, McLaws M-L. An average hand hygiene day for nurses and physicians: the burden is not equal. *Am J Infect Control* 2016;44:777-81.
8. Health Quality Ontario. Hospital care sector performance. Available from: <http://www.hqontario.ca/System-Performance/Hospital-Care-Sector-Performance>. Accessed August 12, 2016.
9. Erasmus V, Daha TJ, Brug H, Richardus JH, Behrendt MD, Vos MC, et al. Systematic review of studies on compliance with hand hygiene guidelines in hospital care. *Infect Control Hosp Epidemiol* 2010;31:283-94.

10. Grayson L, Russo P, Cruickshank M, Bear J, Gee C, Highes C, et al. Outcomes from the first 2 years of the Australian National Handy Hygiene Initiative. *Med J Aust* 2011;195:615-9.
11. Stuart R, Cameron D, Scott C, Kotsanas D, Korman T, Grayson L, et al. Peripheral intravenous catheter-associated *Staphylococcus aureus* bacteraemia: more than 5 years of prospective data from two tertiary health services. *Med J Aust* 2013;198:551-3.
12. Srigley JA, Gardam M, Fernie G, Lightfoot D, Lebovic G, Muller MP. Hand hygiene monitoring technology: a systematic review of efficacy. *J Hosp Infect* 2015;89:51-60.
13. World Health Organization. WHO guidelines on hand hygiene in health care: a summary. Available from: http://www.who.int/gpsc/5may/tools/who_guidelines-handhygiene_summary.pdf. Accessed August 30, 2016.

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