BRIEF COMMUNICATION

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Assessment of Trained Hand Hygiene Observers Using Parallel Observations

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ABSTRACT

Objectives: To validate hand hygiene (HH) observers following training and determine the concordance between the observers and the Kappa index. ***Methods***: This study was conducted during June 2017. HH observers from 15 hospital units received eight-hours training including a two-hour workshop conducted by the infection control practitioner and hospital epidemiologist. After its completion, parallel observations were conducted by trained nurses from each respective unit for a maximum of 20 minutes per session at any time or day. ***Results:*** A total of 789 parallel observations were performed. In observed HH actions, the percentage of agreement between trained and experienced observers was 75.4%, with a Kappa index of agreement of 0.61 (95% confidence interval (CI): 0.57–0.66). For the observed HH moments, the agreement among observers was 83.8% with a Kappa index of 0.71 (95% CI: 0.66–0.75). ***Conclusions:*** HH observers were validated after a dedicated training in correspondence with the recommendation to improve HH monitoring. Additional studies should focus on evaluating the sustainability of the agreement, the requirement of retraining, and other alternatives for observers' validation.

The monitoring of hand hygiene (HH) and feedback of its compliance constitute a key component for the prevention and control of healthcare-associated infection.[1] Direct observation is the gold standard recommended by the World Health Organization (WHO) to implement HH in healthcare facilities. However, there are a few disadvantages that should be considered, including the variability of the result according to the observer's experiences and training.[1,2]

A study in 2010 compared the HH compliance rate reported by unit-based observers and non-unit-based observers and found a lower compliance reported by the non-unit-based observers.[3] Similar results were reported in another study using trained medical students as covert observers (compliance 44.1%) in comparison with infection control nurses (74.4%) and HH ambassadors (94.1%).[4]

Accordingly, training of observers should be performed on annual basis and should include general issues on healthcare-associated infections and the technique for monitoring HH.[5] Validation of HH compliance data and the observers are also recommended by the WHO.[5]

In Hamad Medical Corporation facilities, Qatar, the WHO strategies for HH improvement using unit observers are implemented. They receive training upon selection and additional training when required. During the analysis of facility data, we identified high compliance according to the unit observers with figures between 85–90%, which appeared overestimated in relation to the real compliance.[6] Consequently, the decision of providing training to the observers was taken with the objective of improving the quality of the observation, and data collection and analysis. The study aims were to validate the HH observers after the training.

METHODS

An observational study was carried out at The Cuban Hospital, Qatar. During June 2017, 15

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hospital unit observers received eight-hours training, which included a two-hour workshop, conducted by the infection control department. The practical session included: 1) a training film included in the WHO Implementation Toolkit which provided case scenarios of the five moments for HH;[1] 2) demonstration and test of the HH technique using a fluorescent substance; and 3) parallel observation with a member of the teaching team.

After completion of the training course, parallel observations were conducted in the same unit of the observers (surgical and medical inpatient wards, emergency department, and critical care unit). The maximum time of the session was 20 minutes and could take place at any time or day. Each unit observer was assigned to one trained observer for the session. In the scene, only one unit observer and one trained observer was allowed. The unit observers were registered nurses who were selected because of the requirement of annual training for all HH observers. The parallel observers were seven nurses with previous experience and competence in performing HH observations. They completed the WHO observation form separately while observing the same healthcare worker and care sequence. The observation technique was the WHO direct observation method. There was no previous notification to the healthcare workers of the units being observed and no interference of the care activities. Handrubs, handwashing, glove use (without previous HH action), and no HH performed (missed) were considered HH actions. HH moments occurred before patient contact, after patient contact, after blood and body fluid exposure, and after contact with the patient's surrounding.

The evaluation of observers was conducted as a component of the infection control program and is the reason why a waiver of ethical approval was given.

Analysis of the data was performed using SPSS Statistics (IBM Corp. Released 2013. IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp.) and MedCalc Stata 12.0 (StataCorp, College Station, TX).

The statistical technique for frequency distribution analysis was used. For each of the categories of 'actions' and 'moments' for the trained observers, the absolute and relative frequencies (percentages) of the categories were calculated for the same variables as the experienced observer. To determine the concordance between each pairs of observers the Kappa index and its 95% confidence interval (CI) were used. The agreement was considered slight (0.20), fair (0.21–0.40), fair/moderate (0.41–0.60), substantial (0.61–0.80), and almost perfect (≥ 0.81).

RESULTS

A total of 789 parallel observations were performed. In observed HH actions, the percentage of agreement between trained and experienced observers was 75.4% [Table 1], with a Kappa index of agreement of 0.61 (95% CI: 0.57–0.66), indicating a high and statistically significant agreement. For the observed HH moments, the agreement among observers was 83.8% [Table 2], with a Kappa index of 0.71 (95% CI: 0.66–0.75), which also indicates a high and statistically significant agreement.

DISCUSSION

Our study showed an acceptable agreement between the trained HH observers and experienced observers, achieving the validation of the observers to contribute to the quality of the monitoring of this preventive practice in healthcare facilities.

Table 1: Agreement between trained and experienced observers in the observed hand hygiene (HH) actions.

Trained observers	HH actions for experienced observers									
	Gloves		Handrubs		Handwashing		Missed		Total	
	n	%	n	%	n	%	n	%	n	%
Gloves	45	70.3	14	21.9	5	7.8	0	0.0	64	100
Handrubs	7	1.8	307	79.9	54	14.1	16	4.2	384	100
Handwashing	12	4.5	42	15.6	196	72.9	19	7.1	269	100
Missed	3	4.2	12	16.7	10	13.9	47	65.3	72	100
Total	67	8.5	375	47.5	265	33.6	82	10.4	789	100

Table 2: Agreement between trained and experienced observers at the time observed for hand hygiene (HH) moments.

Trained observers	HH moments for experienced observers									
	Aft-bf[a]		Aft-p-surr[b]		Aft-pat[c]		Bef-pat[d]		Total	
	n	%	n	%	n	%	n	%	n	%
Aft-bf	94	83.9	0	0.0	0	0.0	18	16.1	112	100
Aft-p-surr	3	12.0	17	68.0	0	0.0	5	20.0	25	100
Aft-pat	0	0.0	0	0.0	131	72.4	50	27.6	181	100
Bef-pat	16	3.4	0	0.0	36	7.6	419	89.0	471	100
Total	113	14.3	17	2.2	167	21.2	492	62.4	789	100

[a]: after blood body fluid exposure; [b]: after patient surrounding; [c]: after patient contact; [d]: before patient contact.

Previous studies conducted in seven units of the same facility demonstrated significant differences in the compliance reported by the unit and using cover observers (who unobtrusively observed HH practices),[6] which could be evidence of observer bias. Other studies demonstrate that infection control nurses and unit ambassadors overestimated the compliance by 30.3% and 50.0%, respectively.[7] This could be corrected with the proper training of observers, but it is important to be aware of the objective of the HH monitoring system for reducing the transmission of healthcare-related infection. Jeanes et al,[6] comment on this important risk of infection issue and the trend of achieving the HH compliance goal against collecting accurate data and contributing to reducing the risk of transmission.

An important challenge for the infection control program is the training of observers taking into consideration the specific characteristic of the healthcare services and settings. It is important to consider the limitation of time to perform the observation by the staff assigned and the need to identify the best methods of monitoring accordingly. Additionally, the physical barriers in selected settings could interfere with the possibility to conduct an observation of the five moments of HH according to WHO recommendations and the possible use of entry/exit methods to minimize them.[1,7]

Despite the WHO recommendation of validating the observers, few reports about this topic are available.[8,9] Nevertheless, clearer and greater numbers of methodologies to validate observers could facilitate the promotion of HH and demonstrate its benefits.

There are some limitations of our study. First, we did not evaluate the long-term effect of training. Nevertheless, it is recommended to perform an annual evaluation of the HH monitoring system, training, and validation of observers. Second, concordance to HH observations could be related to other factors, like previous experience and training in monitoring HH, which could be clarified in additional studies.

CONCLUSION

HH observers at our institute were validated after a dedicated training in correspondence with the recommendation to improve HH monitoring. Additional studies should focus on evaluating the sustainability of the agreement, retraining requirements, and alternatives for observers' validation.

Disclosure

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