



Hand Hygiene Compliance in a Medical-Surgical Intensive Care Unit in La Habana

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Abstract

Background: Hand hygiene plays a key role in the prevention of healthcare-associated infection in critical patients.

Objective: The current study aimed to evaluate compliance with hand hygiene practices.

Methods: An observational and descriptive study was carried out in a 35-bed medical-surgical critical care unit in La Habana (Cuba) from January 2017 to December 2018. The observational method recommended by the World Health Organization (WHO) was used.

Results: Overall compliance was 34.2% (5516/16125), with better compliance among physicians (39%) compared with nurses (31.4%) and ancillary staff (19.5%). Better compliance was observed after patient contact (65.7%) and after contact with patients' surroundings (42.0%) in comparison with greater focus on patient safety as before patient contact (23.3%) and before an aseptic task (11.4%). Hand washing was performed more frequently than hand rubs.

Conclusion: Compliance with hand hygiene practices is low and no improvement in compliance was observed during the study period. This practice is related to the high risk of transmission of healthcare-related infections in critical patients and requires quality improvement interventions.

Keywords: Hand Hygiene, Compliance, Critical Care Unit, Medical-Surgical, La Habana

1. Background

Hand hygiene (HH) compliance is a critical factor related to healthcare-associated infection transmission in healthcare facilities.¹ This issue is more relevant in critical patients, for whom their characteristics, the intensive use of invasive procedures, plus non-compliance with infection control practices determine the level of risk of acquiring healthcare-associated infections.²⁻⁵

A recently published report described compliance rates from 7% to 49.6% in intensive care units using the observational methods recommended by the World Health Organization (WHO).²⁻⁵ Two studies conducted in emergency medical services reported very low compliance.^{6,7} One study that used the WHO method to evaluate ambulance services from 4 European countries and a second study that used video-assisted observation in a trauma resuscitation setting reported compliance rates of 15% and 7%, respectively.^{6,7}

Limited data has been published about HH compliance in Cuban healthcare facilities.⁸⁻¹⁰ The International Nosocomial Infection Control Consortium report provides

data from medical-surgical intensive care units (ICU) in 19 countries, including data from a Cuban ICU.⁹ This report included data on 434 HH opportunities, and the overall compliance increased from 44% to 76% (95% CI 57.7–88.9; $P = 0.002$).

The Joaquín Albarrán Hospital is a 300-bed secondary referral center that serves an adult population of Western Habana, Cuba (around 400 000 inhabitants). Its 35-bed critical care unit provides clinical and surgical care, not including neurosurgery, cardiovascular surgery, complex trauma, or transplant surgeries.

2. Objective

The purpose of the current study was to measure compliance with HH practices among healthcare workers in this critical care unit.

3. Methods

This observational and descriptive study was carried out in a 35-bed medical-surgical critical care unit in La Habana, Cuba from January 2017 to December 2018. HH

was monitored by trained infection control nurses based on the WHO recommendations and using the observation method.¹ Observations were performed unobtrusively any day of the week for a maximum of 20 minutes per session, and HH moments (before patient contact, before performing an aseptic task, after exposure to body fluids, after patient contact, and after contact with patient's surroundings), staff category (nurse, physician, ancillary personnel), actions (hand rubs, hand washing, missed), and the product used (soap or alcohol) were recorded. All staff members assigned to patient care were observed, including nurses, physicians, and ancillary personnel.

The local infection control program included educational activities and feedback of compliance data to the staff as main components. The WHO goal for HH compliance (90%) was used by the local program.

The study procedure was considered a component of the infection control program and did not interfere with patient care. For this reason, no ethical approval was required.

The number of actions performed (hand rubs or hand washing) divided by the number of opportunities and

expressed as a percentage of opportunities was calculated for each HH moment and category.

4. Results

During the study period, 16 125 HH opportunities were observed with a compliance rate of 34.2%. The highest compliance was achieved by physicians (39%) followed by nursing staff (31.4%) and ancillary personnel (19.5%). HH practices were performed after patient contact in 65.7%, after body fluid exposure in 38.6%, and after contact with a patient's surroundings in 42% of opportunities. The lowest compliance rates were achieved before patient contact (23.3%) and before an aseptic task (11.4%) (Table 1). A predominance of hand washing (83.6%) and a low frequency of hand rub (16.4%) were observed.

During the first quarter of the study period, compliance was 9.4%; after that, it increased to between 28.5% and 39.9%. No clear trend of improvement in HH compliance was observed during the period (Figure 1).

5. Discussion

Compliance with HH was low in the critical care unit with no evidence of improvement during the study period. Previously in this unit, no system to monitor HH quality had been implemented nor actions taken for improvement.

Low compliance with HH practices is a well-known finding in studies of healthcare facilities worldwide.¹ There are three published studies about HH practices in Cuban healthcare facilities; 2 of them describe the results in critical care units with a compliance of over 50%.^{9,10} The overall compliance observed in the current study was similar to the data in the literature.²⁻⁷

There was no evidence of improvement during the study period, which could be related to various factors including deficiencies in staff education, irregular feedback, and loss of timely analysis of compliance data. Another factor, one relevant to improvement, is the weak leadership support to the infection control recommendations.¹

Better compliance after patient contact, exposure to body fluid, and contact with the patient's surroundings is frequently revealed in many reports.^{2,3,5} This behavior that favors staff protection over patient safety constitutes

Table 1. Hand Hygiene Compliance by Category and Moments in a Medical Surgical Critical Care Unit (by 100 Opportunities) (January 2017- December, 2018)

Variable	Opportunities	Hand Hygiene	
		No.	%
Category			
Physicians	6857	2675	39.0
Nurses	8698	2730	31.4
Ancillary Personnel	570	111	19.5
Hand hygiene moments			
Before patient contact	5123	1193	23.3
Before aseptic task	2552	291	11.4
After exposure to body fluid	2253	870	38.6
After patient contact	2358	1550	65.7
After contact with patient's surroundings	3839	1612	42.0
Total	16125	5516	34.2

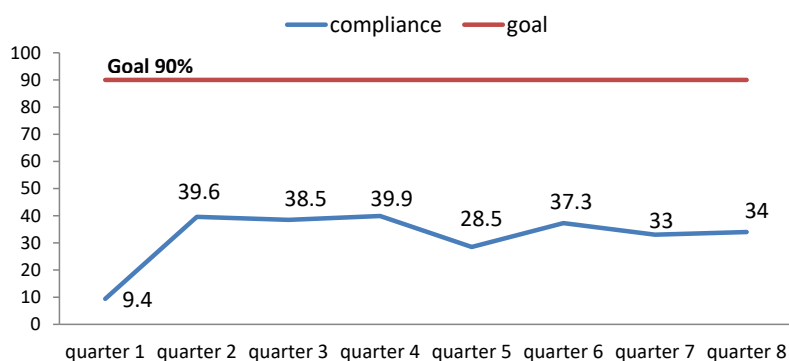


Figure 1. Hand Hygiene Compliance Per Quarter in a Critical Care Unit (by 100 Opportunities) (January, 2017-December, 2018).

Report Highlights

What Is Already Known?

Hand hygiene is an essential practice for infection prevention. It is strongly related to the risk of healthcare-associated infections in healthcare facilities. The World Health Organization recommends its monitoring during the five moments described.

What This Study Adds?

This is the first paper regarding compliance with hand hygiene practices in a Cuban facility published in a peer review journal. It provides insight into the quality of hand hygiene and the need for quality improvement intervention in a limited resource country.

a significant risk to critical care patients and could be modified with quality improvement intervention focus in staff education.

The low frequency of hand rubs and the higher compliance among physicians in comparison with other categories are probably related to deficiencies in staff education and the availability of facilities to comply with hand rubs in patient-care areas (e.g., wall-mounted dispenser, pocket bottle).

6. Conclusion

HH practices in critical care units constitute a significant risk for healthcare-associated infections, and urgent action is required for improving patient and staff safety.

Authors' Contributions

HGG: Study design, training research team, analysis and draft; LGA: Study design, data collection, analysis and draft review; AGV: Study design, data collection, analysis and draft review; KCG: Study design, data collection, analysis and draft review; GFS: Study design, data collection, analysis and draft review; FGG: Study design, training research team, analysis and draft.

Conflict of Interest Disclosures

The authors declare that they have no conflicts of interest.

Ethical Approval

The paper was approved for publication by the facility's QPS committee.

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References

1. World Health Organization (WHO). WHO Guidelines on Hand Hygiene in Health Care: First Global Patient Safety Challenge Clean Care Is Safer Care. Geneva: WHO; 2009.
2. Stahmeyer JT, Lutze B, von Lengerke T, Chaberny IF, Krauth C. Hand hygiene in intensive care units: a matter of time? *J Hosp Infect.* 2017;95(4):338-343. doi:10.1016/j.jhin.2017.01.011.
3. Fonguh S, Uwineza A, Catry B, Simon A. Belgian hand hygiene campaigns in ICU, 2005-2015. *Arch Public Health.* 2016;74:47. doi:10.1186/s13690-016-0159-3.
4. Karaaslan A, Kepenekli Kadayifci E, Atici S, et al. Compliance of healthcare workers with hand hygiene practices in neonatal and pediatric intensive care units: overt observation. *Interdiscip Perspect Infect Dis.* 2014;2014:306478. doi:10.1155/2014/306478.
5. Musu M, Lai A, Mereu NM, et al. Assessing hand hygiene compliance among healthcare workers in six Intensive Care Units. *J Prev Med Hyg.* 2017;58(3):E231-E237.
6. Vikke HS, Vittinghus S, Giebner M, et al. Compliance with hand hygiene in emergency medical services: an international observational study. *Emerg Med J.* 2019;36(3):171-175. doi:10.1136/emered-2018-207872.
7. Haac B, Rock C, Harris AD, et al. Hand hygiene compliance in the setting of trauma resuscitation. *Injury.* 2017;48(1):165-170. doi:10.1016/j.injury.2016.08.004.
8. Suárez Tamayo S, Garcell HG, Cañas Ávila N, Maldonado Castillo G, Benítez Martínez M. Adherencia a la realización del lavado de manos por el personal de enfermería de un hospital clínico quirúrgico de La Habana (Cuba). [Adherence to hand washing of nurses in a clinical surgical hospital of la Habana (Cuba)]. *Hig Sanid Ambient.* 2013;13(1):940-945.
9. Rosenthal VD, Pawar M, Leblebicioglu H, et al. Impact of the International Nosocomial Infection Control Consortium (INICC) multidimensional hand hygiene approach over 13 years in 51 cities of 19 limited-resource countries from Latin America, Asia, the Middle East, and Europe. *Infect Control Hosp Epidemiol.* 2013;34(4):415-423. doi:10.1086/669860.
10. Garcell HG, Nuñez Labrador L, Morales Pérez C, Fresneda Septiem G, Members of Provincial Infection Control Program. Compliance with Handwashing in Intensive Care Unit in University Hospitals of La Havana. *Medicrit.* 2008;5(1):23-26. doi:10.5413/mrmc.2008.51.93.