

## SHORT COMMUNICATION

### Assessment of Compliance of Hand Hygiene Practices amongst Healthcare Care Workers in Tertiary Care Hospital, Multan

Nadia Khan<sup>1</sup>, Abdul Hakim<sup>2</sup>, Muhammad Sohail Zahid<sup>2\*</sup>

#### ABSTRACT

**Objective:** This study's objective was to assess hand hygiene practices compliance among health care workers in military hospitals.

**Study Design:** Cross-sectional descriptive study.

**Place and Duration of Study:** The study was conducted in Emergency Rooms (ERs), Intensive Therapeutic Care (ITCs), High Dependency Units (HDUs), and Wards of Combined Military Hospital (CMH) Multan, Pakistan from 8<sup>th</sup> March 2023 to 7<sup>th</sup> April 2023.

**Methods:** The statistics presented here were compiled using the World Health Organization's "Hand Hygiene Knowledge Questionnaire for Healthcare Workers." The survey was distributed in hard copy to the medical staff on duty at the various facilities during the data collection period. Participants were given time to complete it privately and then collected it after work.

**Results:** There were 26 (52%) doctors, including army and civil medical practitioners; 14 (28%) included AFNS/nurses and paramedical staff, and 10 (20%) were from housekeeping staff, including sweepers, janitors and building cleaners. All the participants, 50 (100%), in the study knew that hand hygiene is important for health. 49 (98%) respondents believed that hand hygiene is effective in preventing health care-associated infections, and only 1 (2%) didn't know whether hand hygiene is effective in preventing healthcare-associated infections or not. 45 (90%) respondents said that hand-cleaning products were readily available for staff and patient use, whereas 5 (10%) said that hand-cleaning products were not available for patients and staff to use. 31 (62%) of the respondents were satisfied with their hand hygiene practices, 11 (22%) were not satisfied. In contrast, 8 (16%) thought that there was still room for improvement in these practices.

**Conclusion:** It is necessary to encourage hand hygiene practices and educate health care workers according to WHO guidelines. This will not only reduce mortality and morbidity due to hospital-acquired infections but also improve and promote health at all levels.

**Keywords:** *Hand Hygiene, Health Care Quality, Health Personnel, Infection Control, Military Hospitals.*

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#### Introduction

Hand hygiene (HH) is one of the effective ways to control and prevent health care-associated infections (HCAIs). HCAIs not only increase and affect quality of life but also put an extra

burden on limited health resources. HCAIs though not preventable but reduced with hand hygiene practices. Adherence to these practices is poor around the world.<sup>1,2</sup> Patients in healthcare facilities are affected by multidrug-resistant pathogens, and most of these microorganisms are spread by the hands of healthcare workers (HCWs). Outbreaks of infections due to this cross transmission are frequent.<sup>3</sup> Hand hygiene (HH) practices can reduce both health care-associated infections (HCAIs) and antibiotic-resistant pathogens

<sup>1</sup>Department of Administration/ENT<sup>2</sup>  
Combined Military Hospital (CMH) Multan, Pakistan

Correspondence:

Dr. Muhammad Sohail Zahid

Resident, ENT

Combined Military Hospital (CMH) Multan, Pakistan

E-mail: [sohail.zahid126@gmail.com](mailto:sohail.zahid126@gmail.com)

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cross-transmission in both developed and developing countries. Non-compliance by health care workers (HCWs) to these hand hygiene practices is a major problem in hospital care.<sup>4,5</sup> The World Health Organization (WHO), in collaboration with the World Alliance for Patient Safety, as well as various supervisory, regulatory, and endorsing bodies, has consistently advocated for the crucial role of hand hygiene as a key indicator of safety, quality, and excellence in healthcare. This practice ensures the highest standard of care at all levels of healthcare programs, supported by a substantial body of evidence demonstrating a clear link between proper hand hygiene practices and reduced rates of healthcare-associated infections (HCAIs).<sup>6</sup> Though these WHO tools and guidelines were designed to be of use in any setting adaptation to local settings, needs and resources is necessary.<sup>7,8</sup> The World Health Organization (WHO) suggests that medical professionals use soap and water to clean their hands when they appear dirty, and alcohol-based hand sanitizers in all other cases.<sup>9</sup> The use of hand disinfection products containing alcohol (AHD) has replaced the more traditional methods of washing hands with soap and water. Compliance with hand hygiene practices not only reduces infections but also improves the standard of care amongst all HCWs. Hand hygiene practices are the need of the day to control hospital-acquired infections. Compliance to hand hygiene practices is simple, cheap and effective approach in infection control.<sup>10</sup>

To assess healthcare workers' perception, knowledge, and due importance of hand hygiene practices, this research was carried out at Combined Military Hospital Multan. Healthcare workers are considered to be potent threats in healthcare facilities. Hand hygiene practices through effective health education programs will not only reduce health care-associated infections but will play a pivotal role in safeguarding patients' health. Compliance

with hand hygiene amongst healthcare workers is mandatory in promoting safe environments in hospitals.

### Methods

The descriptive cross-sectional study was conducted at Emergency Rooms (ERs), Intensive Therapeutic Care (ITCs), High Dependency Units (HDUs), and Wards of Combined Military Hospital (CMH) Multan, Pakistan, the biggest military surgical hospital in Southern Punjab, Pakistan from 8<sup>th</sup> March 2023 to 7<sup>th</sup> April 2023 after taking approval from the hospital vide letter no: 114/2023 held on dated: 25<sup>th</sup> January 2023. To assess the compliance of hand hygiene practices amongst healthcare workers, a sample of 50 healthcare workers was selected after receiving informed consent. A sample size of 50 respondents was calculated online by (OpenEpi.com) with a confidence interval (CI) of 95 percent and an error margin of 5 percent while taking the incidence of compliance with hand hygiene to be 40% among healthcare workers. The sampling technique adopted was the purposive sampling method.

All doctors, both army officers (till the rank of Brigadier) and CMPs, nurses, and the staff involved in housekeeping at Combined Military Hospital Multan were included in this research study. Those who were unwilling to participate in the study were excluded. Besides, senior officials were not included in this study.

The World Health Organization's "Hand Hygiene Knowledge Questionnaire for Healthcare Workers" was utilized to compile the statistics presented here. The survey was reproduced in hard copy and distributed to the medical staff on duty at the various facilities during the data-collecting period. Participants were given time to complete them privately and then collect them after work.

The data was analyzed on SPSS 23 and the results will be presented in the form of tables. The frequency and proportion would be reported for qualitative variables, and Mean SD would be reported for quantitative variables.

### Results

Among 50 respondents, 16 (32%) were

graduates, 10 (20%) were postgraduate, 8 (16%) were matric, 6 (12%) were middle, and 5 (10%) were either primary or illiterate. Out of 50 respondents, 26 (52%) were doctors, both army and civil medical practitioners, 14 (28%) included AFNS/nurses and paramedical staff, and 10 (20%) were from housekeeping staff, including sweepers, ayas, etc. Almost 18 (36%) were earning more than Rs 70,000/- per month, 13 (26%) were earning Rs 16,000/- to Rs 45000/- per month, 13 (26%) were earning Rs 15,000/- per month and 6 (12%) were earning Rs 46,000/- to Rs 70,000/- per month as shown in table-1.

All the respondents knew that hand hygiene is important for health. 50 (100%) participants in the study knew hand hygiene is important for health. The majority of the respondents had personal information about hand hygiene practices in item 1. (Table-2). 20 (40%) had personal knowledge about hand hygiene practices, 14 (28%) were given information about hand hygiene practices by doctors, 8 (16%) were given knowledge about hand hygiene practices by family and friends, and 8 (16%) came to know about hand hygiene practices through media in item 2. (Table-2). Almost all of the participants knew the importance of hand hygiene practices and their effectiveness in preventing health care-associated infections. 49 (98%) respondents said that hand hygiene is effective in preventing health care-associated infections, and only 1(2%) didn't know that hand hygiene is effective in preventing health care-associated infections in item 3. (Table-2). Most of the respondents thought that management kept hand hygiene practices either on high or moderate priority. 15 (30%) thought management gave high priority, 15 (30%) thought management gave moderate priority, 10 (20%) believed management gave very high priority and 10 (20%) thought management gave low priority to hand hygiene practices in their present set up in item 4. (Table-2).

The majority of the respondents believed that doctors and nurses regularly follow hand hygiene practices. 34 (68%) participants

believed that doctors and nurses regularly follow hand hygiene practices, 14 (28%) thought that nurses or doctors don't regularly follow hand hygiene practices, whereas 2 (4%) didn't know whether doctors and nurses follow hand hygiene practices or not in item 5. (Table-2). The majority of the respondents confirmed that hand cleaning products (e.g., soaps, alcohol-based handrubs) are readily available for staff and patients' use in the hospital. 45 (90%) said that hand-cleaning products are readily available for staff and patient use, whereas 5 (10%) said that hand-cleaning products are not available for patients and staff use in item 6. (Table-2).

The majority of healthcare workers in this study attended health awareness programs on hand hygiene practices. 29 (58%) healthcare workers attended awareness programs for hand hygiene practices, whereas 21 (42%) didn't attend any awareness program related to hand hygiene practices item 7. (Table-2). 45 (90%) said that posters related to correct hand washing techniques are displayed at their work stations, whereas, 5 (10%) said that no correct hand washing techniques are displayed at their workplaces in item 8. (Table-2). The majority of the respondents confirmed that hand hygiene-related leaflets or pamphlets are readily available at their workplaces. 27 (54%) respondents stated that hand hygiene leaflets or pamphlets are readily available at their workplaces, whereas 23 (46%) stated that no leaflets or pamphlets related to hand hygiene are available at their workplaces in question no 9. (Table-2).

The majority of the respondents thought that the reason for non-compliance with hand hygiene practices is that people are too busy. 22 (44%) stated that in their opinion the reason for non-compliance is that people are too busy, 15 (30%) believed it's time-consuming, 11 (22%) believed that reason for non-compliance is that it causes skin irritation and 2 (4%) believed that lack of knowledge and habit are the main reason for non-compliance of hand hygiene practices in item no.10. (Table-2).

Majority of the health care workers in this study encouraged patients and attendants to follow hand hygiene practices. 46 (92%) encouraged patients and their attendants to follow hand hygiene practices, whereas 4 (8%) didn't encourage patients and attendants to observe hand hygiene practices in item no. 11. (Table-2). To prevent the spread of infection, 44 (88%) of respondents advocated hand hygiene practices to their colleagues, while just 6 (12%) did not in item no. 12. (Table-2). The majority of the health

care workers in this study were satisfied with their hand hygiene practices. 31 (62%) were satisfied with hand hygiene practices, 11 (22%) were not satisfied, and 8 (16%) thought that there is still room for improvement in hand hygiene practices in item no. 13. (Table-2).

**Discussion**

In this research, we examined how well medical staff at a military-run tertiary care hospital adhered to recommended hand hygiene procedures. Doctors, nurses, paramedical

**Table-1: Demographics of included respondents in study**

Variables	Characteristics	n (%)
Education	Illiterate	5 (10.0%)
	Primary	5 (10.0%)
	Middle	6 (12.0%)
	Matric	8 (16.0%)
	Graduate	16 (32.0%)
	Post-Graduate	10 (20.0%)
Occupation	Doctor	26 (52%)
	AFNS/Nurses & Paramedical Staff	14 (28%)
	House Keeping Staff	10 (20%)
	Rs >70,000	18 (36%)
Income per Month	Rs 46,000 to 7000	6 (12%)
	Rs 16,000 to 45000	13 (26%)
	Rs 15000	13 (26%)

**Table-2: A Questionnaire Assessing Healthcare Workers' Hand Hygiene Knowledge**

Item No.	Question	Response	n (%)
1	Do you think hand hygiene is important for health?	Yes	50 (100%)
		No	0 (0.0%)
		Don't Know	0 (0.0%)
2	Who gave you information about hand hygiene practices?	Personal Info	20 (40%)
		Family, Friends	8 (16%)
		Doctors	14 (28%)
		Media	8 (16%)
		No Knowledge	
		Other Please specify	
3	Do you think hand hygiene is effective in preventing health care associated infections?	Yes	49 (98%)
		No	0 (0.0%)
		Don't Know	1(2%)
4	How high of a priority hand hygiene procedures are in your current	Very High Priority	10 (20%)
		High priority	15 (30%)

	setup?	Moderate Priority	15 (30%)
		low priority	10 (20%)
5	Do doctors and nurses regularly follow hand hygiene practices?	Yes	34 (68%)
		No	14 (28%)
		Don't Know	2 (4%)
6	Are hand cleaning products (e.g Soaps, Alcohol based handrubs) readily available for staff and patients use?	Yes	45(90%)
		No	5 (10.0%)
7	Whether you attended any awareness program for health care workers relating to hand hygiene practices?	Yes	29 (58%)
		No	21 (42%)
8	Are there any posters related to correct hand washing techniques displayed at your work stations?	Yes	45(90%)
		No	5 (10%)
9	Are hand hygiene related leaflets or pamphlets readily available at your work places? What is the main reason for non-compliance?	Yes	27 (54%)
		No	23 (46%)
10	What is the main reason for non-compliance?	Too Busy	22 (44%)
		Skin Irritation	11 (22%)
		Time Consuming	15 (30%)
		Others (lack of knowledge, lack of habit)	2 (4%)
11	Do you encourage patients and their attendants to follow hand hygiene practices?	Yes	46 (92%)
		NO	4 (8%)
12	Do you recommend hand hygiene practices to other health care workers for infection control?	Yes	44 (88%)
		No	6 (12%)
13	Are you satisfied with your hand hygiene practices?	Satisfied	31 (62%)
		Not satisfied	11 (22%)
		Still Room for Improvement	8 (16%)

workers, and even housekeepers were included in this research. These medical professionals interact with patients at the military hospital more frequently and directly than any others.<sup>8,9</sup> The descriptive analysis of the study revealed

that 26 (52%) were doctors, including both army and civil medical practitioners, 14 (28%) included AFNS/nurses and paramedical staff, and 10 (20%) were from housekeeping staff, including sweepers, ayas, etc. Most of the

respondents in the study were doctors and specialists. 49 (98%) respondents stated that hand washing is excellent at preventing infections brought on by healthcare, only 1 (2% of those surveyed) were unaware that good hand hygiene can help avoid illnesses linked to healthcare. 45 (90%) said that hand-cleaning products are readily available for staff and patient use, whereas 5 (10%) said that hand-cleaning products are not available for patients and staff use.

Kim et al. conducted research in Korea and found that HCWs have low knowledge and perception of hand hygiene. Despite being a basic and widely practised skill, HCWs were reported to have low levels of understanding and awareness of hand hygiene.<sup>11</sup> As the number of HAIs continues to rise, the global gap poses a significant threat to patient safety. In contrast to nurses, who have the greatest perception score, their knowledge is higher among paramedical professionals. Nabavi et al. conducted research in Iran and found that residents have a moderate understanding of the need for hand hygiene but generally have bad attitudes and practices.<sup>12</sup> Afzal et al. of Pakistan found similar results regarding the inadequate training of house officers on hand hygiene. A national research conducted at eight major hospitals found that medical staff compliance with infection control criteria in both inpatient and outpatient settings was lower than it should have been.<sup>13</sup> Janget et al. took a different approach to the same problem, observing that hand hygiene instruction is largely ineffective so long as HCWs practise hand hygiene for self-protection. They also mentioned that despite excessive workloads, it is crucial to educate carers on excellent communication patterns, collaboration, and how to adhere to hand hygiene rules.<sup>14</sup>

When compared to other researches our findings on HH's comprehensive knowledge were consistent.<sup>15-17</sup> In addition, Nobile et al. found that among Italian medical professionals, 53.8% had correct answers to questions about how to prevent hospital-acquired infections.<sup>15-17</sup>

Doran JA et al. did a study in Chicago among third- and fourth-year medical students to assess their comprehension of hand hygiene and found that students displayed the best knowledge and worst practices among all healthcare employees.<sup>18</sup>

In our region of the world, religious faith and culture are pretty influential. These treatments, once implemented, have the potential to alter the hand hygiene practices of healthcare providers. A large corpus of literature has examined the conformity rates of hand hygiene in various healthcare settings. The strength of this study lies in its evaluation of hand hygiene compliance among healthcare personnel who routinely provide direct services to patients in a military hospital. Our sample size was low because it only included one hospital. Better findings may be obtained from a multi-center study that provides an overview of the procedures used by staff at various hospitals. The degree to which the WHO standards are followed and implemented in all hospitals across Pakistan should be the subject of a larger, more in-depth investigation.

### Conclusion

Encourage hand hygiene practices and educate health care workers, as per WHO guidelines. This will not only reduce mortality and morbidity due to hospital-acquired infections but also improve and promote health at all levels.

It is recommended that such studies be carried out at large scale at all hospitals to promote hand hygiene.

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**Conflict of Interest:** The authors declare no conflict of interest

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#### Authors Contribution

**NK:** Idea conception, study designing, data collection, data analysis, results and interpretation, manuscript writing and proofreading

**AH:** Study designing, data collection, data analysis, results and interpretation, manuscript writing and proofreading

**MSZ:** Data collection, data analysis, results and interpretation, manuscript writing and proofreading