

Research Article

Hand hygiene practices among health providers working in tertiary care hospitals in and around Hyderabad, Telangana State, South India

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ABSTRACT

Background: Infection control is ac knowledge universally as a solid and essential basis towards patients' safety and support the reduction of health care association infection and their consequences. Simple hand hygiene is cost effective method in preventing cross transmission of microorganism. The compliance of health providers with hand washing guidelines seems to be vital in preventing the disease transmission among patients but unfortunately hand hygiene practices have been found to be faulty in most of the health care facilities including tertiary care hospitals.

Methods: A cross-sectional study was conducted to evaluate the awareness and compliance of hand hygiene among different health care providers, that includes 100 doctors, 100 nurses, 100 medical students, 50 ward boys working in different tertiary care Hospitals attached to medical colleges, in and around Hyderabad, in Telangana state (India) from April to July - 2014. Knowledge was assessed using WHO hand hygiene questionnaire. Attitude and practices was evaluated by using self-structure questionnaire. A value less than 0.05 was considered significant.

Results: Only 16.5 % of participants had good knowledge regarding hand hygiene. Nurses' knowledge is better than doctors, Knowledge, attitude and practices of doctor and nurses were better than medical students and ward boys, trained staff have better knowledge on hand hygiene and effective infection control committees have some impact on hand hygiene practices

Conclusion: Hand hygiene practices among health providers irrespective of public sector or private sector hospitals were found to be low. It was concluded that serious efforts are need to improve the hand hygiene practices among all health providers.

Keywords: Hospital acquired infections (HAI)

INTRODUCTION

Infection control is ac knowledge universally as a solid and essential basis towards patients' safety and support the reduction of health care association infection and their consequences.

The importance of hand hygiene is universally acknowledged by organizations such as the Joint

Commission, World Health Organization (WHO) and Centers for Disease Control (CDC), which recommend or require hand hygiene practices and interventions to improve hand hygiene compliance in order to reduce health care-acquired infections.^{4,5}

Although numerous studies have demonstrated that hand hygiene reduces health care-associated infection

rates,⁶ adherence to hand hygiene guidelines remains uniformly low among health care workers.⁷⁻¹⁰

To address this problem of lack of compliance with hand hygiene, continuous efforts are being made to identify effective and sustainable strategies. One of such efforts is the introduction of an evidence-based concept of “My five moments for hand hygiene” by World Health Organization. These five moments that call for the use of hand hygiene include the moment before touching a patient, before performing aseptic and clean procedures, after being at risk of exposure to body fluids, after touching a patient, and after touching patient surroundings. This concept has been aptly used to improve understanding, training, monitoring, and reporting hand hygiene among healthcare workers.¹²

In spite of being a very simple action, compliance with hand hygiene among health care providers is as low as less than 40%.¹⁻³

METHODS

This is a cross sectional study conducted at 3 tertiary care hospitals includes public and private sector in and around Hyderabad. Health care providers such as doctors, nurses, Medical students and ward boys posted in various departments were observed for hand hygiene compliance. Later survey was conducted through a questionnaire to assess their knowledge about hand hygiene.

Sample size

315 health care providers

Study population

This includes 90 doctors, 90 nursing staffs, 90 Medical students, 45 ward boys from 3 different tertiary care Hospitals working in different locations.

Study

In the present study 315 health care workers working at different important locations will be monitored for hand hygiene compliance.

Direct observing

This involves directly watching and recording the hand hygiene behaviour of health care workers. It is also observed that type, amount and frequency of disinfectants used by the health care providers

Conducting surveys

Surveys of health care workers can give information about perceptions and behaviour related to hand hygiene compliance.

RESULTS

The WHO methodology for undertaking hand hygiene observational audits was adopted with a sample size of 315 health care providers, (nursing staffs, medical students, ward boys from 3 different tertiary care hospitals working in different locations were observed for their compliance against the WHO ‘5 moments of hand hygiene. Results were entered into a Microsoft excel sheet tool and later analyzed using SPSS version 12 software.

Hand hygiene compliance rate is calculated by using the following formula:

$$\text{Compliance rate} = \frac{\text{Number of times hand hygiene performed}}{\text{Number of hand hygiene opportunities}} \times 100$$

The audit was carried out across 6 selected wards (Ward-4, ward-6, gynaecology, paediatrics, ICU and General Surgery). The results were analyzed and classified in to 2 different categories.

Category-1: Over all hand hygiene compliance in the selected wards.

Category-2: Hand hygiene compliance by the five WHO 5 moments of hand hygiene.

315 health care providers from (which includes 90 doctors, 90 nursing staffs, 90 medical students, 45 ward boys) 3 different tertiary care hospitals working in different locations were monitored for hand hygiene compliance.

Male ward, female ward, gynaecology, paediatrics, ICU and surgery departments were considered for the study. Paediatrics department had the highest compliance rate of 56% and surgery had the lowest compliance rate of 31%. Even WHO 5 moments of hand hygiene were observed. After body fluid exposure (moment 3) had the highest compliance of 83.3% while before touching the patient (moment 1) had the lowest compliance of 12%.

315 health care providers from (which includes 90 doctors, 90 nursing staffs, 90 medical students, 45 ward boys) 3 different tertiary care hospitals working in different locations were monitored for hand hygiene compliance.

WHO 5 moments across all wards

Compliance with hand hygiene can be divided into the five WHO moments:

- i. Before touching a patient
- ii. Before clean/aseptic procedure
- iii. After body fluid exposure risk
- iv. After touching a patient
- v. After touching a patient surroundings.

Table 1: WHO 5 moments - hand hygiene compliance.

WHO 5 moments	Hand hygiene opportunities	Hand hygiene actions	Percent compliance
Before touching a patient	286	46	16.08
Before clean / aseptic procedure	110	31	28.18
After body fluid exposure risk	36	32	88.89
After touching a patient	213	128	60.09
After touching patient surroundings	101	56	51.37
Total	746	293	

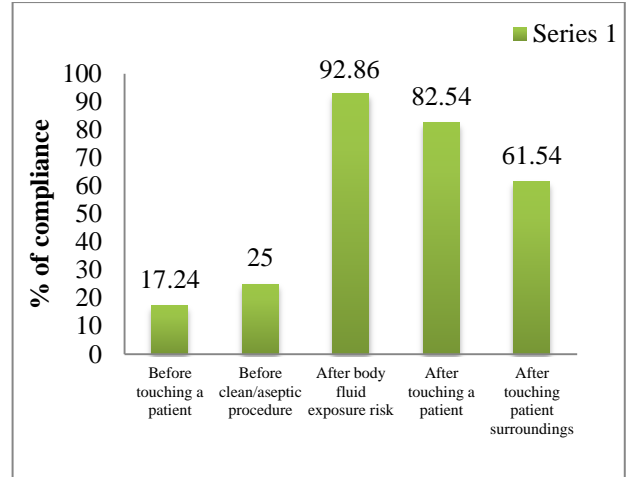


Figure 2: WHO 5 moments - hand hygiene compliance among doctors.

Table 3: Moments - hand hygiene compliance among nurses.

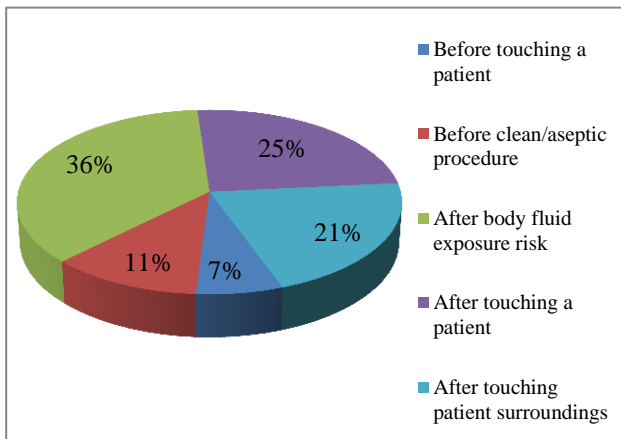


Figure 1: Percentage of compliance.

WHO 5 moments	Nurses		Compliance
	Hand hygiene opportunities	Hand hygiene actions	
Before touching a patient	92	18	19.57
Before clean / aseptic procedure	45	11	24.44
After body fluid exposure risk	16	15	93.75
After touching a patient	72	60	83.33
After touching patient surroundings	40	26	65

Table 2: Moments - hand hygiene compliance among doctors.

WHO 5 moments	Doctors		Compliance
	Hand hygiene opportunities	Hand hygiene actions	
Before touching a patient	87	15	17.24
Before clean / aseptic procedure	32	8	25
After body fluid exposure risk	14	13	92.86
After touching a patient	63	52	82.54
After touching patient surroundings	39	24	61.54

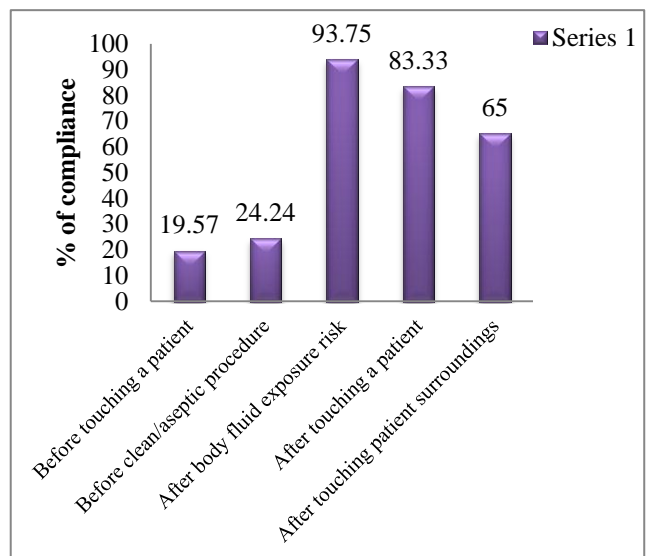


Figure 3: WHO 5 moments - hand hygiene compliance among nurses.

Table 4: Moments - hand hygiene compliance among medical students.

WHO 5 moments	Nurses		Compliance
	Hand hygiene opportunities	Hand hygiene actions	
Before touching a patient	65	10	15.38
Before clean / aseptic procedure	23	7	30.43
After body fluid exposure risk	4	3	75
After touching a patient	46	12	26.09
After touching patient surroundings	13	4	30.77

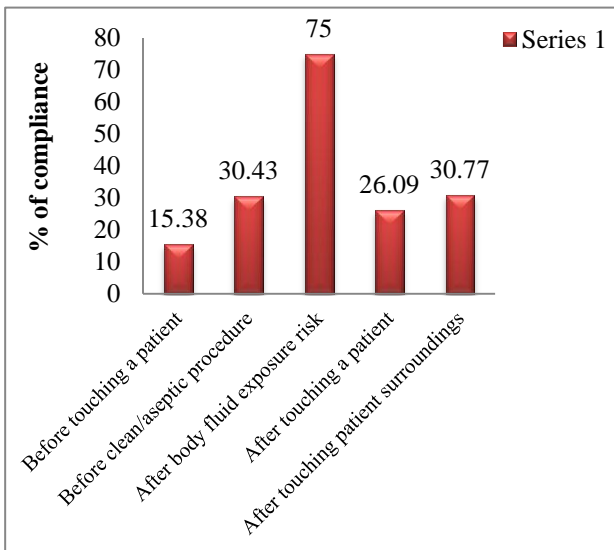


Figure 4: WHO 5 moments - hand hygiene compliance among medical students.

Table 5: Moments - hand hygiene compliance among ward boys.

WHO 5 moments	Nurses		Compliance
	Hand hygiene opportunities	Hand hygiene actions	
Before touching a patient	42	3	7.14
Before clean / aseptic procedure	10	5	50
After body fluid exposure risk	2	1	50
After touching a patient	32	4	12.5
After touching patient surroundings	9	2	22.22

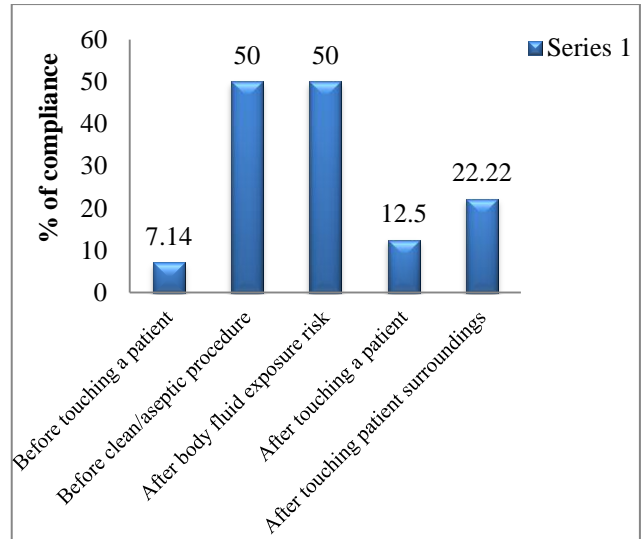


Figure 5: WHO 5 moments - hand hygiene compliance among ward boys.

DISCUSSION

The adherence to good hand hygiene practices is necessary for preventing all health care associated infections. Hand hygiene is the most important and effective infection prevention strategy to prevent the spread of microorganisms causing HAIs. Despite this, compliance with hand hygiene protocols by health care providers continues to be challenging.

Hand washing before touching the patient was a part of global participation in this study. In addition, this study was focused on increasing awareness among our healthcare givers, which is one of the 6 golden rules to improve compliance in hand hygiene. Hand hygiene prevents cross infection in the hospitals and play a major role in reduction of HAI. Every Health care institution has to ensure 100% safe, and infection free care and it is the fundamental right of the patient.

Good hand hygiene compliance of health care providers as measured by this study was found to be 39%.

- Moment 1: before touching a patient
- Moment 2: before clean / aseptic procedure
- Moment 3: after body fluid exposure
- Moment 4: after touching a patient
- Moment 5: after touching patients’ surroundings

There are many factors that can contribute to improving healthcare workers hand hygiene compliance which are as follows:

1. Increased access to alcohol based hand rubs at the point of care.
2. Calibrated bedside bottle holders and wall mounted bottle holders to be made available.

3. Increased awareness through training programs.
4. Support from senior management/clinicians and an informed patient population.
5. Presence of robust system for measuring hand hygiene compliance in terms of direct observation, automated electronic monitoring, product consumption and self-reporting by HCW.

In our study the overall hand hygiene compliance rate was observed as 39.28%. On literature review we found the compliance rate in our study is consistent with other studies like Vicki Erasmus (41%) and Ahmed A. Mahfouz (40%). It is measured based on WHO 5 moments of action.

The lowest compliance rate among all health care workers were observed for moment 1 (Before touching patient.) doctors (17.2%), nurses (19.57%), medical students (15.38%), ward boys (7.14%). Highest compliance rate was observed for moment 3 (After body fluid exposure risk).

The compliance with hand hygiene among medical students after exposure of body fluids were 75%. Compared to doctors and nurses the compliance rate after body fluid exposure was lower among medical students and ward boys. This may be due to the lack of proper orientation and lack of knowledge.

Lowest compliance rate was observed in male and female wards and the highest compliance rate was observed in surgery department. After body fluid exposure (moment 3) had the highest compliance of 83.3% while before touching the patient (moment 1) had the lowest compliance of 12%.

In intensive care unit, the situation was different from the above because the overall compliance rate among doctors was higher than the nurses and technicians. It indicates that only ICU doctors were found more careful to the patients in performing hand hygiene as compared to their colleague nurses and technicians.

Another important observation was hand hygiene compliance among all health care providers (doctors, nurses, medical students and ward boys) was thought to be better in the wards compared to the compliance observed in the emergency centres. In spite of getting ample time to take care of hand hygiene practices the compliance rate was surprisingly comparatively low.

Thus low HH compliance among health workers may be associated with insufficient time to perform HH procedures as a result of high workload or understaffing. Other observational studies have also shown that the time required for health workers to leave a patient's bedside or examination point, to go to a sink and wash

and dry their hands before attending to the next patient, is a deterrent to a high HH compliance.

The magnitude of the task of fixing this substandard quality of care has challenged infection control professionals worldwide for many years.^{11,12} It is very essential to perform hand washing at all levels to prevent nosocomial infections. Hand washing should be done using soap and water or any other antimicrobials. Using an alcohol rub is also one of the effective ways to perform hand washing. Hand washing should be performed each and every time while attending a patient to prevent infections.

Hand hygiene among health care worker is low, and there is still much room for improvement to ensure that patients remain free from Healthcare Associated Infections (HAI).

CONCLUSIONS

The overall compliance rate observed is at average of 39.28%. Following are factors observed which are affecting compliance to hand hygiene:

- Wearing gloves and gowns will substitute for hand hygiene.
- Hand washing agents are causing irritation and dryness of hands.
- Sinks are inconveniently located in the wards/inadequate availability of alcohol based hand rubs.
- Patient overcrowding leading to insufficient time.
- Belief of low risk of acquiring infection from the patient
- Belief of hand hygiene interferes with healthcare worker relationships with the patients.
- Inadequate knowledge on guidelines and protocols.
- Lack of role models among colleagues or superiors.

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Ethical approval: The study was approved by the institutional ethics committee

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