

Original Research Article

Early education and clinical exposure on hand hygiene: a key for better compliance

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ABSTRACT

Background: India is underperforming when it comes to compliance to hand hygiene. Early education on followed by regular hand hygiene audits can bring positive changes in infection control practices.

Methods: Group I included the 3rd Semester MBBS students who had early education and training on hand hygiene and Group II included the post graduate residents who were exposed to Hand Hygiene later in their carrier were followed up for compliance of WHO Hand Hygiene moments for four months. Compliance among students and residents were observed and compared.

Results: Compliance rate was more (40.4%) among medical students as compared to residents (17%). The After moments had a better compliance than Before moments among both students and residents. The difference in the compliance rate was statistically significant.

Conclusions: Early clinical exposure of the students to any problem, is the key for better compliance thus explaining the better compliance rate among medical students. Better HH practice can bring down prevalence of Healthcare associated infection by multidrug resistant organism which is a major concern today.

Keywords: Hand hygiene audit, Hand hygiene compliance, Hand hygiene, Hospital acquired infection

INTRODUCTION

Prevention plays a pivotal role in medical practice in present time to reduce the increased number of healthcare associated infection (HAI) caused by Multidrug resistant (MDR) organisms, Strict enforcement of the World Health Organization (WHO) five moments of Hand Hygiene (HH) can bring down the rate of HAI drastically. The simple steps where HH is mandatory are known as WHO HH moments.¹ They are:

- Before touching a patient,
- Before clean/aseptic procedures,
- After body fluid exposure/risk,
- After touching a patient, and
- After touching patient surroundings.

However, the compliance rate of WHO Hand Hygiene (HH) moments are very poor amongst the health care workers, which may be due lack of awareness on importance of Hand Hygiene or poor attitude and practice towards HH.²

The medical curriculum in this country needs a drastic change and need to include formal training on HH and best infection control practices into the formal training curriculum.³

Proper sensitization about its importance followed by education and then monitoring of Hand Hygiene moments through Hand hygiene audits as per WHO guidelines can bring about positive change in compliance

of Hand Hygiene moments.¹ This study was planned with the aim to compare the compliance rate of HH amongst medical students who were given early education and exposure on HH compared to the Post Graduate residents who were exposed to importance of HH later in their carrier.

METHODS

This study was conducted by Hospital Infection Control Unit, Department of Microbiology, Subharti Medical College and its Associated Hospital, Meerut. WHO Hand hygiene audit tool kit was prepared and a prospective Hand Hygiene and it was done amongst various study groups working in the Hospital from April 2018 to July 2018 during their clinical posting.

Group I included the 3rd Semester MBBS students who had early education and training on Hand Hygiene and Group II included the post graduate residents who were exposed to hand hygiene later in their carrier.

An inclusion criterion was any WHO moments where HH was required i.e. hand wash or hands rub. For Hand rub minimum time taken was 20 seconds and for Hand wash 40 second. Exclusive indications where only Hand wash was recommended were excluded from the study i.e. Hands:

- Soiled with blood or body fluids
- Potential exposure to spore forming organisms (e.g., *Clostridium difficile*)
- Handling patients having diarrhea
- After using restroom.

Data of the audit were entered into separate audit form and the Hand hygiene compliance rate was calculated by using the following formula:

HH Compliance rate=Number of HH moments performed divided by number of HH opportunities multiplied by 100.

The comparison of compliance was analyzed by using Epi Info statistical software by Centers for Disease Control and Prevention taking p-value is less than 0.05 as significant.

RESULTS

A total of 824 and 508 HH opportunities were counted among students and residents respectively and overall compliance was found to be 40.4% among the students and 17% among residents. The details of HH compliance among student and residents is given in (Table 1 and Table 2) respectively.

Overall the Hand Hygiene compliance rate was more amongst the medical students (35.1% to 45.7%) as compared to residents (8.3% to 27.8%) (Figure 1).

Table 1: Compliance of HH among students.

Month	HH opportunity	HH compliance	Percent compliance
April	168	59	35.1
May	186	76	40.8
June	210	79	37.6
July	260	119	45.7
Total	824	333	40.14

Table 2: Compliance of HH among residents.

Month	HH opportunity	HH compliance	Percent compliance
April	120	10	8.3
May	122	13	10.5
June	126	27	21.4
July	140	39	27.8
Total	508	89	17

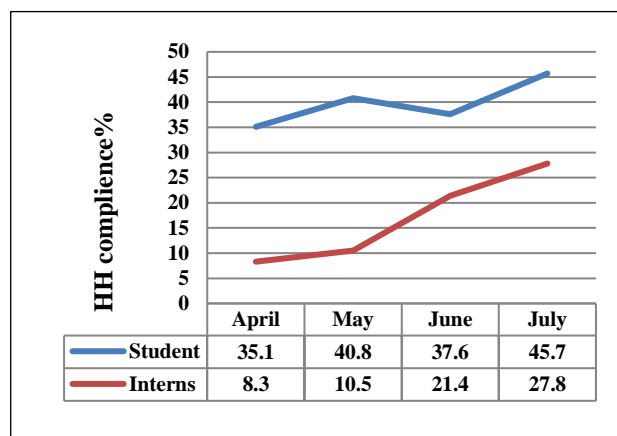


Figure 1: HH compliance amongst students and residents for four months.

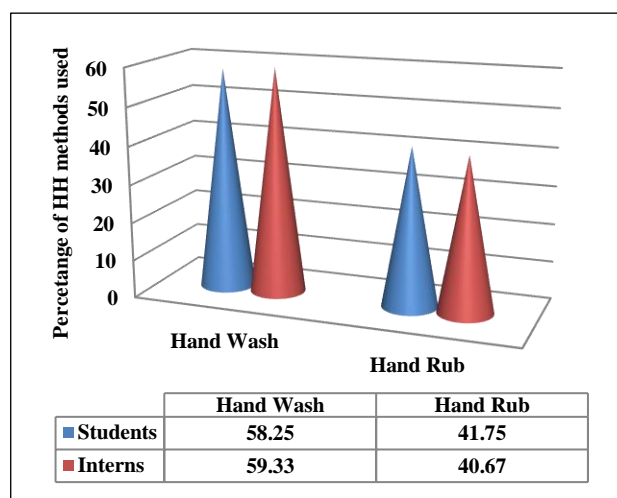


Figure 2: Methods for HH used by participants.

The WHO after Moments had a better compliance rate both amongst students as well as residents as compared to

WHO before moments out of all the HH moments audited (Table 3 and Table 4). Comparing the choice of Hand Hygiene methods used it was seen that Hand

sanitizer (58.25% students 59.33% residents) was more frequently used by both the groups as compared to Hand wash (41.75% students 40.67% residents) (Figure 2).

Table 3: Compliance rate to various indication of HH among students.

WHO before/after Moments	Opportunity	Performance	Compliance percent
Before touching a patient,	309	98	31.7
Before clean/aseptic procedures,	62	27	43.5
After body fluid exposure/risk,	45	31	68.8
After touching a patient, and	256	147	57.4
After touching patient surroundings	152	30	19.7
Total	824	333	40.4

Table 4: Compliance rate to various indication of HH among residents.

WHO before/after Moments	Opportunity	Performance	Compliance percent
Before touching a patient,	226	28	12.38938
Before clean/aseptic procedures,	46	18	7.964602
After body fluid exposure/risk,	48	29	12.83186
After touching a patient, and	122	11	4.867257
After touching patient surroundings	66	3	1.327434
Total	508	89	17.51969

Table 5: Compliance rate to various indication of HH among students and residents.

indication of HH	Students	Residents
With hand sanitizer yes	66	5
Without hand sanitizer no	46	38
Total	112	43
Percentage	58.92	11.62

Table 6: Comparison of compliance rate among students and residents (2 by 2 Table).

	HH done (+)	HH not done (-)	Total HH opportunities
Student	333	491	824
Resident	89	419	508
Total	422	910	1332

Odds Ratio 3.1 (2.44-4.17), P value -0.

During the study period the infection control team also carried out a random survey (among 112 students and 43 residents) to assess the attitude and practice of the participants if they were carrying their own hand sanitizer to workplace or not. It was observed that 58.92% of the students carried personal Hand sanitizer to their workplace as compared to only 11.62% Residents (Table 5). The difference of compliance of HH between Students and Residents was statistically analysed by using 2 by 2 table and analysed by using Epi Info statistical software

by Centers for Disease Control and Prevention. And it showed significant difference between students and Residents (Table 6).

DISCUSSION

Routine HH audit is yet to be initiated in most of the Health care centers in India. Overall adherence to HH compliance is very low, as focus till now has been education and assessment of knowledge part of Hand Hygiene which has definitely shown improvement over the past few years may be because of celebration of World HH day on 5thMay every year.³⁻⁵

The average HH compliance rate amongst student and residents was 40.14 % and 17 % respectively in this study. The other workers have also reported much lower HH compliance rate amongst doctor in India 13.75% by Gupta et al, 9% by Saiet al, and Kumar 28%.^{2,6,7} There are limited studies to compare the compliance of

HH rate in India. However, a study from Saudi Arabia has reported a compliance rate of 29%.⁸

In the present study maximum participants (87%) followed the “After moments” especially after exposure to body fluids and least followed was “Before moments” especially before touching the patients. This finding of this was in concordant with that of other study.⁶

The reason for lower compliance rate of hand Hygiene may be multifactorial such as Lack of knowledge of “WHO my 5 HH moments” and its role in prevention of HAI. It may be due to paucity of HH facility at workplaces including unavailability of soaps.⁶ Due to lack of supply of hand sanitizers especially in a charitable hospital like these where cost is an important factor. Therefore, to minimize the cost for patient, less of HAIs and for better patient outcome the doctors, residents, medical students and other healthcare workers have to be a role model and take an initiative and carry Hand rub in their pockets for their benefit as well as for the benefit of patients.

This study highlights another important finding that is, “Early clinical exposure” of the students to any problem, is the key for better compliance thus explaining the better compliance rate among medical students. This is also the aim of new Competency based MCI curriculum.⁹ As a policy for imparting knowledge of clinical microbiology amongst MBBS students- lecture, demonstration and practical classes on Hand Hygiene are being taken on the first week of Microbiology classes since last three years which also coincide with first week of clinical posting in the ward.

In these classes’ students are being taught on importance and benefits of Hand Hygiene with practical examples; role play and videos. The students are also given idea regarding HH audits. Students are also strictly advised to use a Hand Hygiene sanitizer as and when required and moreover, the Hospital Infection Control Committee (HICC) team members also play role model to them as basic of infection control still remains the five moments of Hand Hygiene.¹⁰ Various obstacles are faced in compliance of HH moments, especially amongst people who are already into the system.

CONCLUSION

Hospitals in India have miles to go to achieve an ideal compliance with the various infection control practices including hand hygiene. Analysis of knowledge, attitude and practice (KAP) of the healthcare worker is important along with modification in the orthodox educational system to increase the compliance rate.

The much awaited competency based undergraduate curriculum which is to be implanted from August 2019 in all colleges across India by MCI is a positive change in this time of inertia. In the current scenario increased HAI with MDR microbes with limited therapeutic option, the best which can be done is to resort to strict infection prevention in all health care facility.

Moreover, the HIC team can use the data of HH audit as a measurable tool to monitor HH practices and this data should be regularly shared with the respective units in the

Hospital and groups of healthcare workers for better compliance.

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