Research Paper Medical Science

Study of Hand Hygiene Compliance in Intensive Care Unit At A Tertiary Care Hospital

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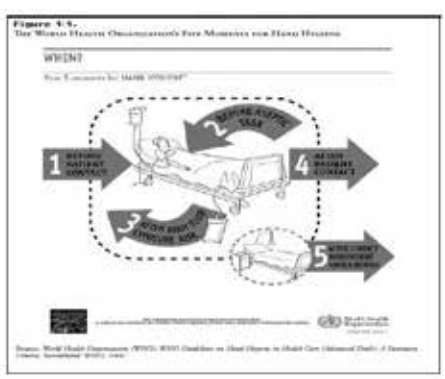
ABSTRACT *Healthcare Associated Infections (HAIs) are a burning problem in both Intensive as well as Non Intensive care units in hospitals. Healthcare Associated Infections (HAIs) are a burning problem in both Intensive as well as Non Intensive care units in hospitals. WHO 5 Moments of Hygiene observation tool and WHO Hand Hygiene Self Assessment Framework 2010 is utilized to assess the hand hygiene compliance. . The overall compliance of the study group was estimated to be 11.96%. The compliance rates were highest amongst the post graduate residents (23.8%) and the lowest was amongst the doctors (4.89%). Hospital administrators must strive to create an organizational climate and culture that stimulates and motivates for patient safety in the workplace. Hand Hygiene is undoubtedly the most important factor for improving on Healthcare associated Infections With these measures provided Hand Hygiene compliance certainly would increase and steer way for healthier and faster recovery of patients.*

KEYWORDS :

INTRODUCTION

Healthcare Associated Infections (HAIs) are a burning problem in both Intensive as well as Non Intensive care units in hospitals. A HAI is defined as an infection which develops 48 hours after hospital admission or within 48 hours after being discharged that was not incubating at the time of admission at the hospital [1]. Hospital-acquired infections complicate 7-10% of hospital admissions [2,3]. Organisms that cause nosocomial infections are most commonly transmitted by the hands of physicians, nurses, physiotherapists, and other hospital personnel [4-6]. Hand hygiene has often been singled out as the most important procedure in preventing nosocomial infection [7,8]. Hand hygiene (HH) is the single most important measure to prevent this but despite relative simplicity of HH procedures and recommendations; compliance with hand washing is still poor [9,10]. The importance of good hand hygiene practices in ICUs cannot be overemphasized, yet many published studies conducted in intensive care units have reported that health care workers (HCWs) failed to wash their hands more than half of the recommended times, and in many cases, the hand-washing procedure was inadequate [11-14].

Guidelines for hand hygiene are intended to promote improved hand hygiene practices that help health care institutions reduce transmission of microorganisms and the associated infections, which lead to increased morbidity, mortality, lengths of stay, and costs. The guidelines consist of specific recommendations that are based on scientific evidence and the consensus of experts in the field [15,16]. Such guidelines published by the Centers for Disease Control and Prevention and by the World Health Organization lay down the specific "WHO 5 moments of Hand Hygiene" [Figure 1], and also emphasize the importance of monitoring hand hygiene compliance and providing healthcare workers (HCWs) with feedback regarding their performance as components of multimodal hand hygiene promotion programs [16,17]. Currently, observational surveys conducted by trained personnel (often infection control professionals) are considered the gold standard for monitoring hand hygiene compliance practices among HCWs [16].



MATERIAL & METHODS

Study Design: Observational

Settings: The study was carried out in a 20 bedded ICU (Medical & Surgical) of a tertiary care hospital after obtaining approval from Institutional Ethics Committee over a period of three months.

Study population: The study population comprised of all the Health Care workers/professionals involved in patient care delivery in the ICUs. All the physicians on round in the ICU, Intensivists, all post graduate residents, nurses, therapists, technical staff or any other health related professional involved in patient care.

Inclusion Criterion: Activities and procedures pertaining to all the patients admitted to the ICUs during the study period and no stratification was done between critically ill, ventilated or non ventilated patients.

Hand Hygiene action: Hand washing included washing hands with an unmedicated/medicated soap (antiseptic hand washing) water for

a minute. Hygienic hand rubbing with an antiseptic solution or alcohol based hand rub using small quantity (1-2 ml) (hand rubbing) for at 20 seconds till hands are dry.

Opportunities: An opportunity was any potential HH action needed during the patient care as per WHO 5 moments of Hand Hygiene. Compliance was recorded against the opportunities for hand hygiene that occurred.

Observation tool: WHO Five Moments of hand hygiene format.

Observers: Three post graduate residents worked as observers.

Questionnaire: WHO Hand Hygiene Self Assessment Framework 2010

METHODOLOGY

Direct observation was carried out in respect of all HCWs. Individual HCW was observed during routine patient care by observers with respect to potential HH opportunities available. The observer conducted observations openly but the identities of HCWs were kept confidential. At a given time 2 of the observers noted for compliance simultaneously and in case of any doubt, inter rater agreement was taken into account. Each observation session lasted for 20 min. Observations were distributed over a period of three months. HH action whether by hand washing, alcohol based hand rubbing or using gloves were the main variable outcome. Failure to remove gloves after patient contact between caring of two patients or between a dirty and clean body site on the same patient was considered as non adherence.

After the observations were made, all the HCWs were asked to fill the Hand Hygiene Assessment Framework form [18] which comprised of questions about the System Change (6 Questions), the training and education given(9 questions), its evaluation and feedback (10 questions), reminders in the workplace (7 questions) and regarding Institutional Safety climate (16 questions). Each of the categories could score a maximum of 100 marks.

STATISTICAL ANALYSIS

Compliance was calculated as a percentage of HH actions performed to number of opportunities. Study variables included WHO 5 moments of hand hygiene & professional status of HCWs (Doctors, Nurses, Post graduate Residents & other paramedical staff). The calculations were done using MS Excel.

OBSERVATIONS

During our study, over a period of three months, observations were made which made upto a total of 1321 Hand Hygiene opportunities. The overall compliance of the study group was estimated to be **11.96%.** The compliance rates were highest amongst the post graduate residents (23.8%) and the lowest was amongst the doctors (4.89%). The compliance amongst various professional groups is as shown in Table 2. As per WHO 5 Moments, the highest compliance was 'Before Aseptic Procedure' i.e. 56.5% and the lowest was 'After touching patient surroundings of 3.7%. Compliance rates for different moments are as shown in Figure 2.

Table 1. Compliance rates as per the profession of HCW

Profession	Total Opportunities	Non Compliance	Compliance	% Compliance
Doctors	322	307	15	4.89
Nurses	339	307	32	9.43
Para medical Staff	270	252	18	6.66
Residents	390	297	93	23.8

Fig 2: Compliance as per WHO 5 Moments fession

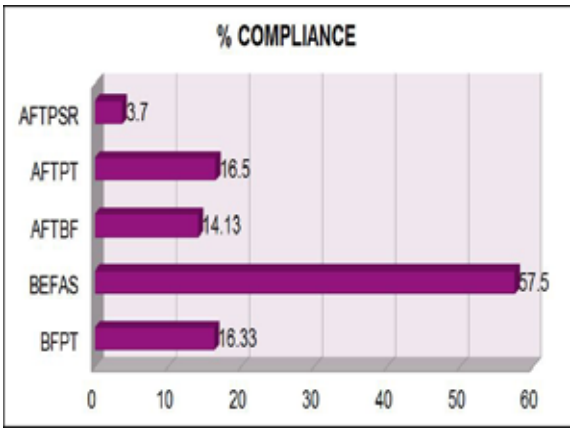
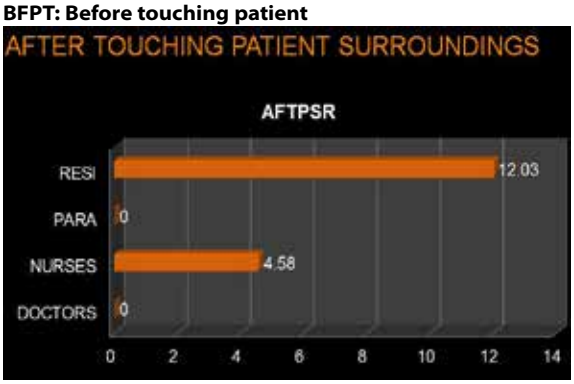
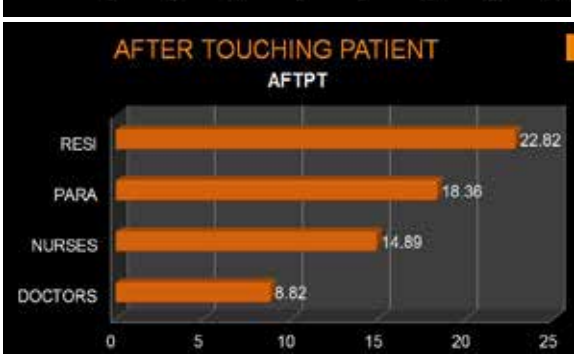


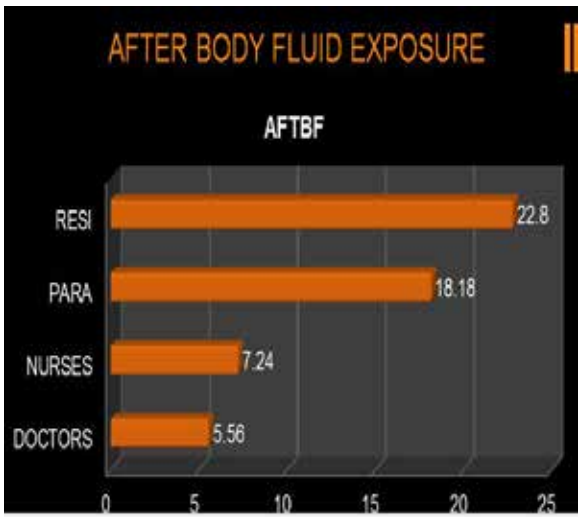
Fig 3: Compliance as per Profession

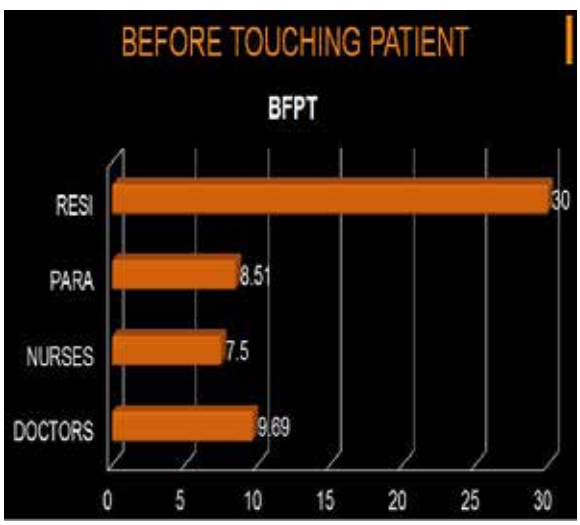
AFTPSR: After touching patient surrounding
AFTPT: After patient touching
AFTBF: After touching Body Fluids
BEFAS: Before Aseptic procedure

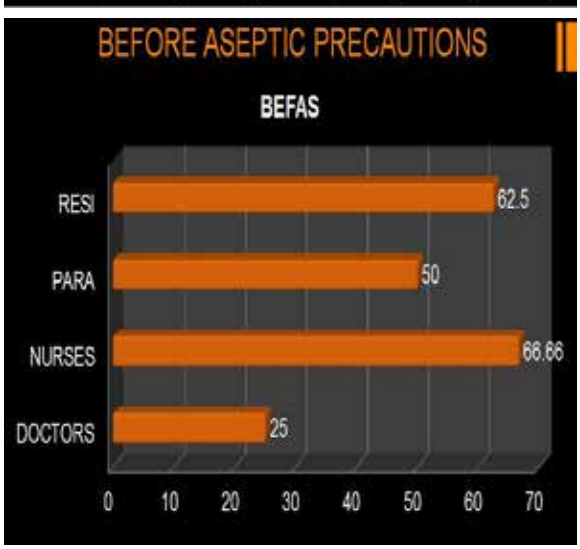
BFPT: Before touching patient











WHO Hand Hygiene Assessment Framework form was given to a total of 32 HCWs of which were 9 Consultant doctors, 10 Nurses, 9 Residents and 4 Paramedic workers. Each of the parameter had certain questions with a total score of 100 each. Every HCW assigned the score depending on the facility available in the institution. The average of score out of 100 given by each professional category is taken.

The results pertaining to the Hand Hygiene Assessment Framework form are as shown in Table 2.

Table 2: Scoring as per Hand Hygiene Assessment Framework form

S No.	Parameter	Consultants	Nurses	Residents	Paramedics	Mean
1.	System change	70.55	63.5	61.11	38.75	58.47
2.	Training & Education	52.77	33.5	53.33	48.75	47.08
3.	Evaluation & Feedback	46.9	46.75	42.2	47.5	45.83
4.	Reminders	59.4	42	45.27	12.5	39.79
5.	Institutional Safety Climate	36.66	15	33.33	31.25	29.06

The Institutional Safety climate has been scored the lowest of 29.06, while the parameter of system change scores the maximum at 58.47.

DISCUSSION

Healthcare associated Infections continue to occur worldwide and have been a constant source of concern. They not only increase the morbidity and mortality but also result in additional costs [19,20].

Our study displays the HH compliance to be lowest amongst the doctors at 4.89% amongst all the professional categories. It is substantiated by a previous study by Pittet et al [10], where hand hygiene compliance was also found to be the lowest amongst physicians.

In response to the questionnaire, amongst the infrastructural parameters, Institutional safety climate was scored to be the lowest (39.79), whereas the system change was the best (58.47). The consultants scored all the parameters, the highest amongst all the professional categories but ironically their adherence to hand hygiene was the lowest!

Residents' compliance to hand hygiene was found to be the highest at 23.88 and also their score for Training and Education component in the Questionnaire scored the highest (53,33). Thus this may be an important reason for their higher compliance.

All the categories found Institutional Safety climate inadequate, which may be considered as an important factor for low compliance rates. The next important factor may be deduced to be lack or less number of reminders in the facility, which has been scored only 39.79 out of 100.

Improvements in hand hygiene compliance can be expected by improving upon the education programs, posters demonstrating correct techniques of hand wash, regular monitoring and feedback, motivational posters and active involvement of administration. This has been shown in a previous study by Sharma et al [21], and also by our study.

CONCLUSION

Hand Hygiene is undoubtedly the most important factor for improving on Healthcare associated Infections. The guidelines on hand hygiene [15,16] measures definitely need to be adhered. Further studies need to be done to evaluate the HH compliance in India, and also assessment of factors for improvement should be done. Institutions should look into the issue and provide for adequate infrastructure, put up reminders and posters, regular education and training and also follow up with regular evaluation and feedback programs. Hospital administrators must strive to create an organizational climate and culture that stimulates and motivates for patient safety in the workplace. With these measures provided Hand Hygiene compliance certainly would increase and steer way for healthier and faster recovery of patients.

FUNDING : None
CONFLICT OF INTEREST: None

LIMITATIONS

Absence of control group, exclusion of other areas like casuality, operation theatre, wards etc, short duration of study, improvement in compliance due to awareness of being observed (Hawthorne effect) and absence of intervention at any stage could be some of the limitations of the study.

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