



HAND HYGIENE AWARENESS AND ADHERENCE AMONG HEALTHCARE PROFESSIONALS IN PEDIATRIC INTENSIVE CARE UNIT OF A TERTIARY CARE TEACHING HOSPITAL: A CROSS-SECTIONAL STUDY

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ABSTRACT

Background: Hospital acquired infections are important cause for morbidity and mortality in Pediatric Intensive Care units worldwide. Safe hand hygiene practices can minimize those infections and improve patient outcomes. **Objective:** To assess the awareness and adherence of safe hand hygiene practices among healthcare professionals working in Pediatric Intensive Care Unit and to find out the weakest moment among WHO five hand hygiene moments. **Methods:** A Cross-sectional Study was conducted at Pediatric Intensive Care Unit (PICU) in the Department of Pediatric Medicine, Calcutta National Medical College and Hospital, Kolkata over a period of 3 months, after getting approval from the Institutional Ethics Committee. Total of 26 Healthcare Professionals working in PICU were selected for the study, among which 6 were doctors and 20 were nurses. WHO five moments of hand hygiene were taken into account. Awareness and Adherence to safe hand hygiene practices were studied and compared. **Results:** In this study, it is noted that the nurses had higher adherence rates than the doctors, though awareness and knowledge are higher in doctor group. Moment 3 that is after body fluid exposure risk, is the most aware and adhered moment followed by moment 1. Moment 5 that is 'after touching patients surroundings' is seemingly the weakest one. **Conclusion:** Proper hand hygiene practices significantly reduces Hospital Acquired infections in Pediatric ICU set ups, hence it should be followed meticulously.

KEYWORDS : Hand Hygiene, Awareness & Adherence, Healthcare Professionals, PICU

INTRODUCTION:

Health care-associated infections along with antibiotic resistance, are one of the leading risks for patient safety in intensive care units (ICUs). In developed countries, healthcare-associated infection (HCAI) concerns 5–15% of hospitalized patients and can affect 9–37% of those admitted to intensive care units (ICUs).[1] Hand hygiene practices in health care and in health-care settings are pivotal and barrier to prevent infections in ICU. Handwashing with soap and water is the single most effective and inexpensive way to prevent diarrhoea, respiratory infections and skin infections. When comparing different ICU types, Pediatric ICU often have the least acquired infection and complications. This low rate might be because of a careful attitude of healthcare professionals working with pediatric patients.

OBJECTIVES:

1. To find out and compare the awareness and knowledge of hand hygiene practice among doctors and nurses in pediatric ICU.
2. To find out adherence to safe hand hygiene practices among doctor and nurses in pediatric ICU.
3. To find out the weakest moment among WHO five moments in hand hygiene practice.

MATERIALS AND METHODS:

1. Study Design: Cross-sectional study

2. Place of study: The study was conducted at Pediatric ICU in the Calcutta National medical college.

3. Period of study: 3 months (August-October 2022)

4. Study population: Healthcare professionals (Doctors and Nurses) working in PICU of Calcutta National Medical College and Hospital

5. Selection Criteria:

- i) **Inclusion Criteria:** All the pediatric professional including doctors and nurses who were willing to participate and give informed consent were included.
- ii) **Exclusion criteria:** Doctors and nurses who denied consent was excluded from study.

6. Sampling And Sample Size:

The study was conducted with convenience sampling of 26 medical professionals working at PICU of CNMCH in the time

period of 3 months. Among the study population of 26 professionals, 20 were nurses and 6 were doctors.

Observations Include:

Moment 1 (before touching a patient), Moment 2 (before a clean or aseptic procedure), Moment 3 (after body fluid exposure risk), Moment 4 (after touching a patient) and Moment 5 (after touching the patient's surroundings). The WHO guideline also includes hand hygiene technique and the duration of the entire procedure: 20 to 30 seconds for hand hygiene with alcohol-based formulation and 40 to 60 seconds for hand hygiene with soap and water on an average ten times per person within study period. [2]

7. Study Variables:

- i. Healthcare Professional- Doctor/Nurse
- ii. Awareness and knowledge of hand-hygiene practices
- iii. Adherence to safe hand-hygiene practices
- iv. WHO five moments of hand hygiene

8. Data collection and interpretation:

After getting clearance from the Ethical Committee, the study was conducted in the PICU of Department of Paediatric Medicine, Calcutta National Medical College and Hospital. Healthcare Professionals with inclusion criteria were taken for study and observed for the outcomes.

9. Statistical analysis: All Data were analyzed by using SPSS software version 16.0

10. Ethical Considerations:

Ethical approval for the study was taken from Institutional Ethical Committee. Informed written consent was taken from professionals to participate in the study.

RESULTS:

The study was based on WHO moment of observations over professionals for monitoring hand hygiene, compliance and observation of the professionals during their work shifts. [3, 4]. Among the study population of 26 professionals, 20 were nurses and 6 were doctors.

The analysis of the moments showed that the percentage of compliance to the practice of hand wash was 88.2%. The mean compliance rate for doctor was 84%. Mean compliance for nurses was 92%.

Among doctors, 96% of study population were aware of maintaining hand hygiene before touching the patient (moment 1). 95% believe that hand hygiene immediately before a clean/aseptic (moment 2) procedure and 98% believe that hand hygiene actions immediately after a risk of body fluid (moment 3) exposure prevents transmission. 92% knows that hand hygiene after touching patient (moment 4) prevents cross infection. 80% are aware of the importance of hand hygiene after touching patient surroundings (moment 5).

In terms of adherence, 88% of doctors were maintaining a hand hygiene practice before touching the patient (moment 1). 90% were washing hands immediately before a clean/aseptic (moment 2) procedure and 90% were performing hand hygiene practice immediately after a risk of body fluid exposure (moment 3). 58% practiced hand hygiene after touching patient (moment 4). 36% observations was noted to adhere to hand hygiene after touching patient surroundings (moment 5).

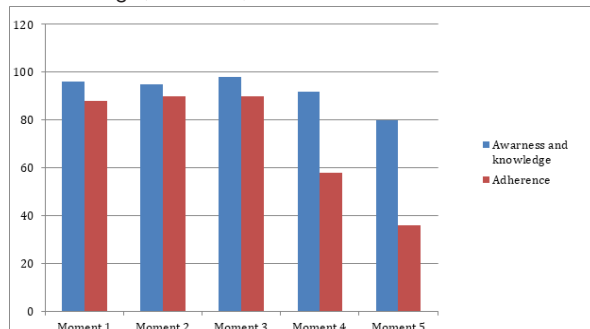


Figure 1: Comparison between awareness and knowledge and Adherence for hand hygiene among Doctors

Among nurses, 94% of study population were aware of maintaining hand hygiene before touching the patient (moment 1). 92% believed that hand hygiene immediately before a clean/aseptic procedure (moment 2) and 96% believed that hand hygiene actions immediately after a risk of body fluid exposure (moment 3) reduces infection. 92% knew that hand hygiene after touching patient (moment 4) actions prevents cross infection. 82% were aware of hand hygiene importance after touching patient surroundings (moment 5).

In terms of adherence, 90% of nurses were maintaining hand hygiene practice before touching the patient (moment 1). 90% were washing hands immediately before a clean/aseptic procedure (moment 2) and 94% were performing hand hygiene practice immediately after a risk of body fluid exposure (moment 3). 86% practiced hand hygiene after touching patient (moment 4). 42% observations were noted to adhere to hand hygiene after touching patient surroundings (moment 5).

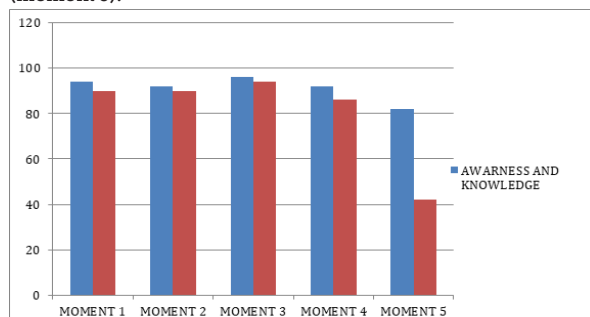


Figure 2: Comparison between awareness and knowledge and Adherence for hand hygiene among Nurses

Among nurses, 80% had the practice of routinely using an alcohol hand rub whereas 20% had the habit of using soap and water. Among doctors, 84% preferred using alcohol-

based formulation and rest chose to use soap and water (16%). Alcohol-based hand rub is considered as the gold standard of hand hygiene [5].

Regarding the time of hand wash duration and adherence with directed technique, compliance was far below in comparison to awareness and knowledge. Among doctors, 58% adhered with the hygiene technique recommended by the WHO and the duration of the entire procedure only registered 30% of the observations. Among nurses, 72% adhered with the hygiene technique recommended by the WHO and the duration of the entire procedure only registered 50% of the observations.

In both groups, after touching patient surroundings (moment 5) is seemingly the weakest moment in hand hygiene practice.

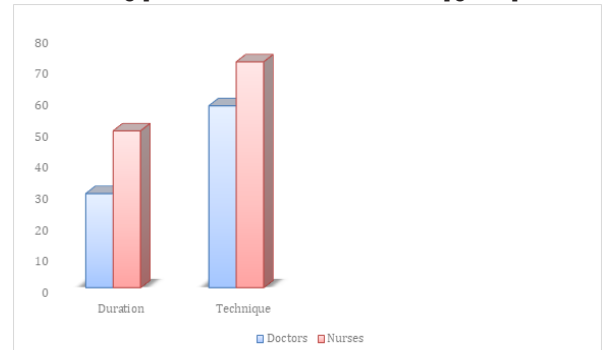


Figure 3: Adherence to Duration and Technique of Handwashing among Doctors and Nurses

DISCUSSION:

In spite of evidence for the beneficial effect of hand hygiene on prevention of HCAs, adherence to hand hygiene practice in a ICU is challenging due to significant shortage of manpower, and shortage in hand hygiene resources and busy doctor and nursing officials.[6,7,8]. In this study, we were able to demonstrate a significant increase in the hand hygiene care, comparing the results with another study conducted in 2019 [9]. Kampf suggested six golden rules to improve HHC: select an alcohol-based hand rub with good skin tolerability and acceptability to HCPs; ensure easy availability of hand rub; implementation of educational interventions to promote hand hygiene; creation of a budget to cover all finance relevant to preventable HCAI; senior staff to set a good example for juniors; and ensure an appropriate patient-staff ratio. [10]

In this study, it is noted that the nurses had higher adherence rates than the doctors, though awareness and knowledge are higher in doctor group. Similar observation was made by bartholini et al [11]. Dr Kumaril Goswami et al showed majority of medical and nursing students had good knowledge and attitude towards hand hygiene and also majority follows proper hand hygiene practices. [12].

Moment 3 that is after body fluid exposure risk is the most aware and adhered moment followed by moment 1. Moment 5 that is 'after touching patients surroundings' is seemingly the weakest one. Positive attitudes toward hand hygiene, method for cross-training and cross-motivation and hand hygiene auditing can increase the behavioural changes towards hand washing. Ghazali et al also supported that view. [13]

CONCLUSION:

Best practice for improving hand hygiene in ICUs remains unestablished. [14]. The availability of handrubs, soaps, water facility must be increased. WHO hand wash charts in hand wash corner must be displayed. Hand hygiene improvements contribute to stopping the cross- infections and improve wellbeing of ICU patients.

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