

# Knowledge, attitude, practice of hand hygiene among nursing staff in medicine ICU in a tertiary health care centre in Western India

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## \*Article History:

Received: 09/05/2018

Revised: 19/05/2018

Accepted: 20/05/2018

DOI: <https://doi.org/10.7439/ijbr.v9i5.4772>

## Abstract

**Background:** Hospital infection is one of the leading cause of public health related issue throughout the world. Hand hygiene is one of the leading measure used to prevent cross-transmission and thus to reduce health care associated infections.

**Aims & Objectives:** To assess knowledge, attitude and practice about hand hygiene in nursing staff in medicine ICU in a tertiary health care centre.

**Methodology:** Total 48 medicine ICU nursing staff were given open ended questionnaire on knowledge, attitude and practice of hand hygiene. Score were given for correct option and data was filled and analyzed in MS Excel software

**Results:** Compliance in knowledge (62 %) and attitude (81 %) for hand hygiene was good. Performance in practice of hand hygiene was 54 % which was comparatively lower.

**Conclusion:** Compliance of hand hygiene practice was lower compared to knowledge and attitude and needs to be addressed in the form of continued medical education.

**Keywords:** Knowledge, Attitude, Practice, Hand Hygiene.

## 1. Introduction

Health care associated infection (HAI) is one of the leading cause of public health related issue throughout the world.[1] The most common complications resulting in morbidity, mortality in hospitalized patient is due to hospital infection.[2] Hand hygiene is one of the leading procedure used to prevent cross-transmission and thus to reduce health care associated infections. Though this is a easy procedure, compliance of hand hygiene is too low among health care providers (40%).[3] Many strategies have been put forward to address this problem. One among them proposed by World Health Organization “My Five Moments Of Hand Hygiene” which are before touching the patient, before performing aseptic and clean procedure, after risk of exposure to body fluids, after touching patients body, and patients surroundings.

These steps will help in improving care, understanding, monitoring about hand hygiene among healthcare workers which will be useful in reducing

infections caused by cross transmission.[4] Medical health care providers and their compliance with hand hygiene will be helpful in preventing disease transmission in ICU’s.

It is very well recognized that risk of transmission of pathogens while providing medical care and incidence of hospital acquired infections can be kept low by using proper presentational procedures. [4] Nursing staff are associated with most of the patient related procedure or intervention directly or indirectly. [5]

Health care associated infection (HAI) is one of the prevalent reasons for mortality and disability among hospitalized patients. [6] This in turn increases in stay of patient in hospital leading heavy costs on patients and health medical system and most of the time complicating to mortality of patients. [7] The hospital infection prevalence is more in special care unit like ICU, CCU, and NICU. [8]

These healthcare related infections are transferred from hands of healthcare personnel. [9] One of the simplest method to reduce health care associated infection is proper

hand hygiene.[10] Hands of nurses are in close contact with patient and they may transfer infection to patients through during daily care including bed changing, touching, and by means of instruments. [9]

One of the important tasks of nurses is to protect the patients with observance of healthcare principles. [11] Nazarko *et al* found that most of nurses lacked adequate knowledge about hand hygiene and were busy and they could not take time for hand washing. [12] Many nurses use to wear gloves instead of washing hands and to dispose it without washing hands and or they were using the same glove for different patients. In few case of noncompliance of hand hygiene is due to the dermal lesions caused by using detergent and antiseptics. [7]

Even though hand hygiene is simple procedure, compliance with it among health care providers is as low as 40%. [3,13] To address this problem; continuous efforts are being made to identify effective and sustainable strategies. [13] Research on this subject area is less in Asia and in India, though the prevalence of nosocomial infections is high in this region. [14,15] Therefore, it is very much important to assess nurse's knowledge, attitudes, and practices about hand hygiene so that compliance of hand hygiene will be improved.

### 1.1 Aim

To detect awareness about hand hygiene in nursing staff in medicine ICU.

### 1.2 Objectives

To assess knowledge, attitude and practice about hand hygiene among nursing staff in medicine ICU.

## 2. Material and Methods

### 2.1 Ethical clearance

Ethical clearance was obtained from Institutional Ethical Committee.

### 2.2 Study set up:

The study was conducted in a tertiary care Hospital (KH & MRC), medicine ICU set up. (Hospital based)

**2.3 Type of Study:** Study was cross sectional.

### 2.4 Sample Size:

According to Nair compliance for hand hygiene was up to 62.1%. [4] Formula used to calculate sample size was  $n = 4pq/L^2$  where  $p=62.1\%$ ,  $q=100-P$ ,  $q=37.9\%$   $L = 15\%$  (Variation)

So  $n=42$ . But in the study a total of 48 willing nursing staff were included.

**2.5 Study Period:** Two months- July 2017 to August 2017

### 2.6 Study Methodology

All 48 participants submitted their questionnaire set for which 20 minutes time was given. The questionnaire included 12 questions related to knowledge, 10 self structured questions related to attitude and 5 self structured questions related to practice. Questions were closed ended questions.

## 2.7 Questionnaire – Hand Hygiene

### 2.7.1 Questionnaire regarding Knowledge

- |   |                                      |             |
|---|--------------------------------------|-------------|
| 1) Did you receive formal training in hand hygiene in last three years?   | Yes                                  | No          |
| 2) Do you routinely use alcohol-based hand rub for hand hygiene?  | Yes                                  | No          |
| 3) What is the minimal time needed for alcohol-based hand rub to kill most germs on your hands?                                   |                                      |             |
| a) 20 seconds   | b) 3 seconds                         | c) 1 minute |
| d) 5 seconds  |                                      |             |
| 4) Which type of hand hygiene among RUBBING, WASHING, NONE is required in following situations?                                   |                                      |             |
| a) Before palpation of the abdomen  | b) Before giving an injection        |             |
| c) After emptying the bedpan  | d) After removing examination gloves |             |
| e) After making patients bed  | f) After visible exposure to blood   |             |
| 5) In which of the following step, hand hygiene prevents transmission of germs to patient?  |                                      |             |
| a) Before touching patient  | Yes                                  | No          |
| b) Immediately after a risk of body fluid exposure  | Yes                                  | No          |
| c) After exposure to immediate surroundings of patient  | Yes                                  | No          |
| d) Immediately before a clean/aseptic procedure   | Yes                                  | No          |
| 6) Which of the following should be avoided, as associated with increased likelihood of colonization of hands with harmful germs? |                                      |             |
| a) Wearing jewellery  | Yes                                  | No          |
| b) Damaged skin   | Yes                                  | No          |
| c) Artificial hand nails  | Yes                                  | No          |
| d) Regular use of hand cream  | Yes                                  | No          |
| 7) Which of the following is the main route of transmission of harmful germs between patients?                                    |                                      |             |
| a) When hands are clean   | b) When hands are not clean          |             |
| 8) Hand rubbing is more effective against germs than hand washing?  | Yes                                  | No          |
| 9) Hand rubbing is more rapid for hand cleansing than hand washing?   | Yes                                  | No          |
| 10) Hand washing and hand rubbing are recommended to be performed in sequence?  | Yes                                  | No          |
| 11) Using antiseptic will be necessary before wearing gloves and after taking it off ?  | Yes                                  | No          |
| 12) The glove should be replaced during care giving to the patient upon displacement from contaminated part to clean part?        | Yes                                  | No          |

### 2.7.2 Questionnaire regarding Attitude

- |   |     |    |
|---|-----|----|
| 1) I am having sufficient knowledge regarding hand hygiene.   | Yes | No |
| 2) The hand hygiene has become as a habit in my personal life?  | Yes | No |
| 3) Emergencies, other priorities make hygiene more difficult at times.  | Yes | No |
| 4) When others omit hand hygiene, I feel frustrated.  | Yes | No |
| 5) If I omit hand hygiene, I feel guilty.   | Yes | No |
| 6) It is more important for me fulfill my tasks than doing hand hygiene.  | Yes | No |
| 7) Adhering to hand hygiene practice is very much simple in the current setup.                                    | Yes | No |
| 8) Sometimes I miss hand hygiene because I forget it.   | Yes | No |
| 9) Due to lack of time, it is difficult for me to attend hand hygiene courses.                                    | Yes | No |
| 10) Execution of hand hygiene properly by me, will reduce mortality of patients under the recommended conditions. | Yes | No |

### 2.7.2 Questionnaire regarding Practice

- |  |     |    |
|--|-----|----|
| 1) I perform hand hygiene practice during following procedure  |     |    |
| a) Before entry in ICU   |     |    |
| b) Before wound dressing /invasive procedure   |     |    |
| c) After wound dressing /invasive procedure  |     |    |
| d) After going toilet  |     |    |
| e) After touching potentially dirty objects  |     |    |
| f) After touching blood or body fluids   |     |    |
| 2) During alcohol based hand rub I practice hand hygiene for following duration?                           |     |    |
| a) 20 seconds  |     |    |
| b) 10 seconds  |     |    |
| c) 30 seconds  |     |    |
| d) 1minute   |     |    |
| 3) I adhere to correct hand hygiene practices at all times   | Yes | No |
| 4) The frequency of hand hygiene required makes it difficult for me to carry it out as often as necessary. | Yes | No |
| 5) I follow how to hand rub & hand wash photographs in the ICU to do hand hygiene properly.                | Yes | No |

All questionnaires were assessed and score was given based on correct option selected by the participant nursing staff. For this one mark each was given for correct selected or written answer. [3,5] A grading system for score was used to assess performance for different variables .70 % and above of total score in knowledge related questions was considered as good score, 40 -69 % as average and <39 % as poor. [3,5] Similar scoring system was used to assess performance in attitude and practice.

### 2.7 Statistical Methods

Data was entered in Ms Excel software (2013.) and analyzed using SPSS software.

## 3. Observations and Results

Of the 48 participants, 40 (84%) were female staff while 8 (16 %) were male staffs. A formal training was received by 45 (94 %) of nursing staff.

As mentioned in material and methods, one score was given to each correct answer for each question in each section. Average score of all participants was as shown in **Table I**.

Participant had maximum score in attitude towards hand hygiene (80.60 %) while lowest was observed (54.10%) in hand hygiene practices.

**Table I: Average score of Participant for Hand Hygiene variants**

No	Variant	Average Score / Out off	Percentage (%)
1	Knowledge	16.75/22	76.13
2	Attitude	8.06/10	80.60
3	Practice	5.41/10	54.10

**Table II: Distribution of number of participants according to grade system used to access Hand Hygiene**

No.	Grading	Knowledge No.(%)	Attitude No.(%)	Practice No.(%)
1	Good	30(62)	39 (81)	26 (54)
2	Average	18(38)	9 (19)	22 (46)
3	Poor	00 (00)	00 (00)	00 (00)

30 (62 %) and 39(81 %) of the participant were having good score in knowledge and attitude respectively. In the study, 22 (46 %) of the participants scores for practice of hand hygiene were in average grade. (**Table II**)

## 4. Discussion

The average score of the studied group was 76.13 % and 80.60 % for the knowledge and attitude respectively. But the average score in practices of hand hygiene (54.10 %) was on lower side in the present study. This explains that, though hand hygiene practices are simple and easy to learn, but practicing them ideally is a challenging task.

62 % of the nursing staff in present study was having good knowledge about hand hygiene. Almost similar (74.5 %) findings were observed by Alireza S *et al.* [5] Shinde MB *et al* found it on lower side in a 2014 study in the same institute of present study. [16]

Good attitude was observed in 81 % of study population in the present study. In the study of Alireza S *et al* 70 % of study population showed similar finding. [5] Again present study has more positive attitude approach compared to earlier study done by Shinde MB *et al.* [16]

46 % that is 22 out of 48 participants had average grade score in ideal practicing of hand hygiene. The average performance may be explained due to increased working stress, change in work-shifts, infection risk in patients, and allergy to antiseptics. [17]

In the present study, majority had good compliance compared to previous (2014) study in the same institute. This may be explained on the fact that in the present study, participants included were only ICU staff compared to Shinde *et al* in which nursing staff from hospital was included. Also this hospital has undergone many continued medical education (CME) and training on hand hygiene as a part of accreditation with NABH since 2016, contributing improved compliance.

## 5. Conclusion

Present study showed good compliance in knowledge (62 %) and attitude (81 %). Performance in good practice of hand hygiene was 54 % which was comparatively lower. Results indicate that compliance can be improved by repeated training or CME on Hand Hygiene practices.

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