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

Satyajeet K. Pawar*1, Rajvardhan R. Patil2, R.V. Shinde1 and G. S. Karande3

*Associate Professor, Department of Microbiology, KIMS, Karad, India
2UG Student (3rd MBBS) KIMS, Karad, India
3Professor and Head, Department of Microbiology, KIMS, Karad, India

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
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/L² 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  
   b) Immediately after a risk of body fluid exposure  
   c) After exposure to immediate surroundings of patient  
   d) Immediately before a clean/aseptic procedure
6) Which of the following should be avoided, as associated with increased likelihood of colonization of hands with harmful germs?
   a) Wearing jewellery  
   b) Damaged skin  
   c) Artificial hand nails  
   d) Regular use of hand cream
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?
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) 1 minute

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. [5] 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.

References

[1]. Llata E, Gaynes RP, Fridkin S, Weinstein RA: Measuring the scope and magnitude of hospital-associated infection in the United States: the value of prevalence surveys. Clin Infect Dis 2009; 48(10): 1434-1440.

[2]. Defez C, Fabbro-Peray P, Cazaban M, Boudemagh T, Soto A, Daure JP: Additional direct medical costs of nosocomial infections: estimation from a cohort of patients in French University hospital. J Hosp Infect 2008; 68(2): 130-136.

[3]. Nair SS, Hanumantappa R, Hiremath S G, Siraj M, Raghunath P."Knowledge, Attitude, and Practice of Hand Hygiene among Medical and Nursing Students at a Tertiary Health Care Centre in Raichur, India” ISRN Preventive Medicine, Volume 2014; ID 608927. DOI: http://dx.doi.org/10.1155/2014/608927.

[4]. Basurrah MM, Madani TA, Hand washing and gloving practice among health care workers in medical and surgical wards in a tertiary care centre in Riyadh, Saudi Arabia. Scand J Infect Dis. 2006; 38(8): 620-4.

[5]. Alireza S, Azizollah A, Abbas B, Sudabeh A, Hamed HK. “Knowledge, Attitude, and Performance of Nurses toward Hand Hygiene in Hospitals” Global Journal of Health Science, 2016; 8(8): 57-65

[6]. Morrison LG., Yardley, L. What infection control measures will people carry out to reduce transmission of pandemic influenza? A focus group study. BMC Public Health, 2009; 9: 258.

[7]. Wilcox MH, Dave J. The cost of hospital-acquired infection and the value of infection control. J Hosp Infect, 2000; 45(2): 81-84.

[8]. Moody J, Septimus E, Hickok J, Huang SS, Platt R, Gombosov A et al. Infection prevention practices in adult intensive care units in a large community hospital system after implementing strategies to reduce health care-associated, meticillin-resistant Staphylococcus aureus infections. Am J Infect Control 2013; 41(2): 126-130.

[9]. Abd Elaziz KM, Bakr IM. Assessment of knowledge, attitude and practice of hand washing among health care workers in Ain Shams University hospitals in Cairo. J Prev Med Hyg, 2009; 50(1):19-25.

[10]. Larson E, Silberger M, Jakob K, Whittier S, Lai L, Della LP et al. Assessment of alternative hand hygiene regimens to improve skin health among neonatal intensive care unit nurses. Heart & Lung: 2000; 29(2): 136-142.

[11]. Cambell, R. Hand-washing compliance goes from 33% to 95% Steering team of key player’s drives process 2010. https://www.ahcmedia.com/articles/115081

[12]. Nazarko L. Potential pitfalls in adherence to hand washing in the community. Br J Community Nurs 2009; 14(2): 64-68.

[13]. Pittet D, Hugonnet S, Harbarth S, Mournouga P, Sauvan V, Tovunneau S. Effectiveness of a hospital-wide programme to improve compliance with hand hygiene, The Lancet, 2000; 356, (9238):1307–1312.

[14]. Anwar MA, Rabbi S, Masroor M, Majeed F, Andrades M, Baqi S. Self-reported practices of hand hygiene among the trainees of a teaching hospital in a resource limited country, J Pak Med Assoc 2009; 59(9): 631-634.

[15]. Alabulrub RF, “Nursing shortage in Jordan: what is the solution?” J Prof Nurs, 2007; 23(2): 117-120.

[16]. Shinde MB, Mohite VR. A study to assess knowledge, attitude and practices of five moments of hand hygiene among nursing staff and students at a tertiary care hospital at Karad. International Journal of Science and Research 2014; (3): 311-321.

[17]. Erasmus V. Systematic review of studies on compliance with hand hygiene guidelines in hospital care. Infect Control Hosp Epidemiol. 2010; 31(3): 283-94.