ORIGINAL RESEARCH ARTICLE
pISSN 0976 3325 | eISSN 2229 6816
Open Access Article
www.njcmindia.org

Knowledge of Hand Hygiene in Health Care Workers of a Tertiary Hospital in Navi Mumbai

Fazila N Patankar[1], Abhiram Behera[2]

Financial Support: None declared
Conflict of Interest: None declared

How to cite this article:
Patankar FN, Behera A. Knowledge of Hand Hygiene in Health Care Workers of a Tertiary Hospital in Navi Mumbai. Natl J Community Med 2019;10(10):541-545

Author's Affiliation:
[1]Associate Professor; [2]Asst. Professor Cum Statistician, Dept. of Community& Medicine, Terna Medical College, Navi Mumbai

Correspondence
Dr. FazilaPatankar
fazilapatankar@yahoo.com

Date of Submission: 01-06-19
Date of Acceptance: 29-10-19
Date of Publication: 31-10-19

ABSTRACT

Background: Hand hygiene is recognized as the leading measure to prevent cross-transmission of microorganisms and to reduce the incidence of health care associated infections . Despite the relative simplicity of this procedure, compliance with hand hygiene among health care providers is as low as 40%.

Objectives- The research was undertaken to study knowledge regarding hand hygiene among healthcare workers in a tertiary care hospital; to study the socio demographic correlates of the same; and also to study association between training and knowledge of hand hygiene in health care workers (HCW) of a tertiary care hospital.

Methodology: A cross-sectional hospital based study was carried out in healthcare workers in a tertiary care hospital and FRU in Navi Mumbai. A total of 140 HCW's were interviewed and their knowledge was assessed using WHO's hand hygiene questionnaire for health care workers. Data Analysis: SPSS version software 21was used and appropriate tests of significance were applied.

Results: 88.54 % of the study subjects had average to poor knowledge and only 69.3% had received formal training in hand hygiene.

Keywords: Hand Hygiene, Health care workers, Health Care Associated infection.

INTRODUCTION

Hand hygiene is a general term referring to any action of hand cleansing. Hand rubbing with an alcohol-based hand rubs or hand washing with soap and water aimed at reducing or inhibiting the growth of micro-organisms on hands[1]. Health care-associated infection (HCAI) – also referred to as nosocomial infection – is defined as "an infection occurring in a patient during the process of care in a hospital or other health-care facility that was not present or incubating at the time of admission. This also includes infections acquired in the hospital but appearing after discharge and occupational infections among staff of the facility"[2] .Health care-associated infections affect hundreds of millions of patients worldwide every year. Infections lead to more serious illness, prolong hospital stays, induce long-term disabilities, add high costs to patients and their families, contribute to a massive, additional financial burden on the health-care system and, critically, often result in tragic loss of life.

Hand hygiene is recognized as the leading measure to prevent cross-transmission of microorganisms and to reduce the incidence of health care associated infections[3,4]. Despite the relative simplicity of this procedure, compliance with hand hygiene among health care providers is as low as 40%[5,6,7] . To address this problem, continuous efforts are being made to identify effective and sustainable strategies. One of such efforts is the introduction of

an evidence-based concept of **"My five moments for hand hygiene"** by World Health Organization[8]. These five moments that call for the use of hand hygiene include the moment.

i. before touching a patient,
ii. before performing aseptic and clean procedures,
iii. after being at risk of exposure to body fluids,
iv. after touching a patient, and
v. after touching patient surroundings.

This concept has been aptly used to improve understanding, training, monitoring, and reporting hand hygiene among healthcare workers[7]. In Asia there is a paucity of studies[9-12] exploring this subject, although the prevalence of health care associated infections is high in this region[13]. Therefore, it is absolutely essential to investigate and know about knowledge regarding hand washing so that appropriate strategies can be created to promote handwashing compliance. This study was therefore undertaken to study the knowledge regarding hand hygiene in tertiary care health care workers.

OBJECTIVES

The objectives of the present research were to study knowledge regarding Hand hygiene among healthcare workers in a tertiary care hospital and also to study association between training and knowledge of hand hygiene in health care workers of a tertiary care hospital.

This concept has been aptly used to improve understanding, training, monitoring, and reporting hand hygiene among healthcare workers[7]. In Asia there is a paucity of studies[9-12] exploring this subject, although the prevalence of health care associated infections is high in this region[13]. Therefore, it is absolutely essential to investigate and know about knowledge regarding hand washing so that appropriate strategies can be created to promote handwashing compliance. This study was therefore undertaken to study the knowledge regarding hand hygiene in tertiary care health care workers.

METHODOLOGY

A Cross sectional descriptive study was carried out during 18th January 2018 to 18th February 2018 amongst the Healthcare workers at First Referral Unit and teaching hospital in Navi Mumbai. All those who were available during the study period and gave consent were included in the study. Thus a total of 140 health care workers were included in the study.

Knowledge was assessed using WHO's hand hygiene questionnaire for health care workers which consists of 25 questions and includes multiple choice and "yes" or "no" questions.; each correct answer was given one point, and an incorrect answer was given zero. The answers to these questions were multiple choices/"yes" or "no" options.[14]

The maximum score obtainable for knowledge was 25. The scores were calculated and expressed in percentage. An overall score of more than 75% was considered good, 50–74% moderate, and <50% was taken as poor.

After obtaining consent from participants and permission from IEC, the study was started.

The questionnaire was distributed among Health care workers in various departments of both the hospitals and their responses were obtained.

Data analysis:

The data was entered in MS EXCEL and analyzed using SPSS version software 21. Descriptive statistics was used to calculate percentages for each of the responses given. Appropriate tests of significance were applied.

RESULTS

There were 75 females (53.6%) and 65 males (46.4%) in the study. Majority i.e. 108(77.2%) were in the age group 20 – 29 years. 80.6% of the study subjects were medical professionals i.e. doctors, residents, interns while 19.4% were para-clinical staff.

69.3% had received formal training in hand hygiene. 93.6% used alcohol based hand rub.

Table1: Main Route of Cross Transmission in a Health Care Facility (n=140)

Route of Cross Transmission	Participants
Healthcare workers hands when not clean*	93 (66.43)
Air circulating in the hospital	3 (2.14)
Patients exposure to colonized surfaces (i.e. beds, chairs, tables, floors)	27 (19.29)
Sharing non invasive objects (i.e. stethoscopes, pressure cuffs, etc.)	17 (12.14)

*correct response; Figures in the parenthesis indicate %.

Table 2: Most frequent source of infection responsible for healthcare infection (n= 140)

Most frequent source of infection	Participants
The hospitals water system	3 (2.1)
The hospital air	6 (4.3)
Germs already present on or within patient*	81 (57.9)
The hospital environment (surfaces)	50 (35.7)

*correct response; Figures in the parenthesis indicate %.

Table 3: Knowledge regarding timing of Hand hygiene actions to be taken to prevent transmission to the patient (n=140)

Hand hygiene actions to prevent transmission to the patient	Yes(%)	No(%)
Before touching patient	125 (89.3)*	15 (10.7)
Immediately after a risk of body fluids exposure	111 (79.3)	29 (20.7)*
After exposure to immediate surroundings of patient	95 (67.8)*	45 (32.2)
Immediately before clean/ aseptic procedure	115 (82.2)	25 (17.8)*

*** Correct response**

Table – 4: Statements on alcohol based hand rub and hand washing with soap and water

Participants opinion about the following statements	True (%)	False (%)
Hand rubbing is more rapid than hand washing	32 (22.9)*	108 (77.1)
Hand rubbing causes more skin dryness than hand washing	98 (70)	42 (30)*
Hand rubbing is more effective than hand washing	91 (65)*	49 (35)
Hand washing and hand rubbing to be performed in sequence	41 (29.3)	99 (70.7)*

*** Correct response**

Table 5: Knowledge regarding Hand hygiene action to prevent transmission to health workers

Hand hygiene actions to prevent transmission to healthcare workers	Yes (%)	No (%)
After touching a patient	117 (83.6)*	23 (16.4)
Immediately after risk of body fluid exposure	122 (87.1)*	18 (12.9)
Immediately before a clean / aseptic procedure	97 (69.3)	43 (30.7)*
After exposure to immediate surroundings of patient	97 (69.3)*	43 (30.7)

*** Correct response**

Table -6: Knowledge regarding Hand hygiene method required in following situation.

Hand hygiene method required in following situations:	Rubbing (%)	Washing (%)	None (%)
Before palpation of abdomen	98 (70)	42 (30)	0 (0)
Before giving an injection	98 (70)	42 (30)	0 (0)
After emptying a bedpan	98 (70)	42 (30)	0 (0)
After removing examination gloves	57 (40.7)	83 (59.3)	0 (0)
After making a patient's bed	40 (28.6)	100 (71.4)	0 (0)
After visible exposure to blood	29 (20.7)	111 (79.3)	0 (0)

Table 7: Association of knowledge about Hand hygiene with gender, training status and cadre

Parameters	Knowledge				$\chi 2$ test	p-value	Significant at 5% level
	Poor	Average	Excellent	Total			
n	2(1.4%)	122(87.14%)	16(11.4)	140 (100)			
Gender							
Female	1 (50)	73 (59.8)	1 (6.3)	75	16.34	<0.001	**Yes**
Male	1 (50)	49 (40.2)	15 (93.8)	65			
Training							
No	2 (100)	83 (68)	12 (75)	97	1.222	0.543	**No**
Yes	0 (0)	39 (32)	4 (25)	43			
Staff							
Non Medical	1 (50)	24 (19.7)	2 (12.5)	27	1.697	0.428	**No**
Medical	1 (50)	98 (80.3)	14 (87.5)	113			

Artificial finger nails should be avoided to prevent colonization of hands with germs was answered correctly by (68.6%) of the participants while wearing jewellery (79.3%) and damaged skin (77.0%) were not considered to cause colonisation of germs by the participants. About 48.6% people gave correct response for minimal time required to kill germs by use of alcohol based hand rub i.e. 20sec. No association could be found between training taken and level of knowledge. Also there was no difference in knowledge levels of medical and paramedical staff. Only significant factor was found to be gender with males having better knowledge.88.54 % of the study subjects had average to poor knowledge. Only 11.4 % had an excellent knowledge regarding hand hygiene.

After obtaining consent from participants and permission from IEC, the study was started. The questionnaire was distributed among Healthcare workers in various departments of both the hospitals and their responses were obtained.

DISCUSSION

In our study we found that 88.7% had moderate knowledge regarding hand hygiene which is similar to a studies carried out in previous studies[15,16].

66.43% could answer correctly about Main route of cross transmission in a health care facility is arising from healthcare workers hands when unclean,which is comparable to a study carried in SriLanka where 72% of all participants knew that unhygienic hands of HCW's were the main route of transmission in a health care facility (HCF)[16].

Only 57.9% i.e. 81 participants answered correctly about the Most frequent source of germs responsible for healthcare infection is from or within patient himself. These findings are comparable to a study carried out in a tertiary health care setting of Bhopal city by Maheswari et al only 45% of residents & 27% of nurses knew that the most frequent source of germs responsible for HCAI's were the germs already present on or within the patient, with residents having significantly better knowledge in this aspect[15].

In a study carried out in a Tertiary teaching institute in Navi Mumbai[17] amongst undergraduate medical, dental and nursing students it it was seen that <50% undergraduate students (medical 46.4%, dental 48.6%, and nursing 37.5%) knew that unhygienic hands of healthcare workers were the main route of transmission of potential harmful germs and <35% students (medical 23.1%, dental 36.4%, and nursing 25%) were aware that the main source of germs in HCAI was from patients. Only, a few undergraduate students (medical 40.4%, dental 37.8%, and nursing 32.5%) knew that 20 s is the minimum time required for effective alcohol-based hand rub as per the WHO guideline.

The current study shows better levels of knowledge as our study sample consisted mainly of residents and interns and paramedical workers who are actively involved in patient care. Moderate levels of knowledge can be attributed to the fact that HCW's were more conscious of preventing infection to patients through their unclean hands versus that from the patient himself. As most of our study subjects were residents and interns, importance of hand hygiene is stressed upon by seniors leading to better knowledge levels. Besides our sample consisted of HCW's directly involved with patient care and it has been seen that Knowledge regarding Hand hygiene practices are better when health care workers are involved in patient care rather than as part of theoretical syllabus[18] .

CONCLUSIONS

The awareness about the hand hygiene practices among health care workers is low. Nearly 30 % of the respondents never received any formal training in hand hygiene

RECOMMENDATIONS

The findings of this study suggest that formal training in hand hygiene needs to be inculcated at the undergraduate level. A formal hand hygiene education can have a positive influence on the attitude and practices of undergraduate students. It is important that undergraduate students or professionals working in the healthcare sector maintain good hand hygiene because they are directly involved in primary patient care. To improve hand hygiene among the undergraduate students, there should be increased emphasis on hand hygiene education, behaviour, and the implementation of hand hygiene training modules. Hand hygiene practices should be a requisite for clinical skills assessment.

Limitation of the study: It was a cross-sectional survey conducted with a limited sample size. A self-reporting questionnaire was used for assessment, and thus, likely to be affected by bias (recall and self-observation).

Our sample distribution was not uniform in the field of hospital units. The main cause was the difference of the staff numbers and also cooperation of the staff. Also, we could not assess the participant's belief and attitude since we were not able to observe them in their wards.

In an attempt to strengthen the study, the knowledge level of different health care workers in a hospital unit was assessed Also, data collection was carried out in two main tertiary hospitals in order to get a more representative sample.

REFERENCES

1. World Health Organisation. Save Lives, Clean your hands. Hand hygiene technical reference manual, WHO; 2009.-p 4
2. World Health Organisation. Prevention of hospital-acquired infections: A practical guide 2nd edition WHO/CDS/CSR/EPH/2002.12,p-1
3. D. Pittet, S. Hugonnet, S. Harbarth et al."Effectiveness of a hospital-wide programme to improve compliance with hand hygiene." The Lancet 2000; 356(9238):1307–1312.
4. J. M. Boyce and D. Pittet, "Guideline for hand hygiene in health-care settings; Recommendations of the healthcare infection control practices advisory committee and the HICPAC/SHEA/APIC/IDSA hand hygiene task force," Morbidity and MortalityWeekly Report, 2002;23(12):S3–S40.
5. Y. Longtin, H. Sax, B. Allegranzi, F. Schneider et al."Videos in clinical medicine. Hand hygiene," The New England Journal of Medicine, 2011;364:, article 24.
6. Tibballs J. Teaching hospital medical staff to hand wash. Med J Aust 1996:164(7):395–398.

7. D. Pittet, S. Hugonnet, S. Harbarth et al. Effectiveness of a hospital-wide programme to improve compliance with hand hygiene. The Lancet, 200; 356(9238):1307–1312.

8. 8.Study of hand washing .WHO Guidelines on Hand Hygiene in Health Care, 2009. , Available from: http://www.whqlibdoc.who.int/publications/2009/9789241597906_eng.pdf Accessed February 18th 2019.

9. P. I. Buerhaus, D. I. Auerbach, and D. O. Staiger. Recent trends in the registered nurse labor market in the U.S.: short-run swings on top of long-term trends. Nursing Economics, 2007; 25(2):59–66.

10. R. F. Abualrub. Nursing shortage in Jordan: what is the solution? J professional Nursing, 2007;23(2):117–120.

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

12. K. Patarakul, A. Tan-Khum, S. Kanha, D. Padungpean, and O.-O. Jaichaiyapum. Cross-sectional survey of hand-hygiene compliance and attitudes of health care workers and visitors in the intensive care units at King Chulalongkorn Memorial Hospital. J Med Asso of Thai 2005; 88(4):S287–S293.

13. K.-M. Kim, M.-A. Kim, Y.-S. Chung, and N.-C. Kim. Knowledge and performance of the universal precautions by nursing and medical students in Korea. American Journal of Infection Control, 2001;29(5):295–300.

14. World Health Organization. Hand Hygiene Knowledge Questionnaire for Health-Care Workers. World Health Organization. 2009. Available from:http://www.who.int/gpsc/5may/Hand_Hygiene_Knowledge_Questionnaire.doc?ua=1 .Accessed February 18th 2019.

15. Maheshwari V, Kaore NC, Ramnani VK, Gupta SK, Borle A, Kaushal R. A Study to Assess Knowledge and Attitude Regarding Hand Hygiene amongst Residents and Nursing Staff in a Tertiary Health Care Setting of Bhopal City. J ClinDiagn Res. 2014;8(8):DC04–7.

16. HosseinialhashemiM, SadeghipourKermani F, Palenik CJ, Pourasghari H, Askarian M. Knowledge, attitudes, and practices of health care personnel concerning hand hygiene in Shiraz University of Medical Sciences hospitals,. Am J Infect Control. 2015;43(9):1009–11.

17. MHJD Ariyaratne, TDCP Gunasekara, MM Weerasekara et al. Knowledge, attitudes and practices of hand hygiene among final year medical and nursing students at the University of SriJayewardenepura. Sri lankan Journal of Infectious Diseases. 2013;3(1):15–25.

18. Thakker VS, Jadhav PR. Knowledge of hand hygiene in undergraduate medical, dental, and nursing students: A cross-sectional survey. J Family Med Prim Care. 2015;4(4):582-6.