

A cross sectional study regarding awareness and importance of hygiene hand washing practices among health care professionals

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Abstract

Background: Transmission of health care associated pathogens generally occurs via the contaminated hands of health care workers often transmitting virulent and multidrug resistant strains. Though preventable with the simple hand washing, health care workers are reluctant to adopt recommended practices to curb these infections. The World Health Organization(WHO) has issued guidelines for procedural hand washing in order to reduce prevalence of hospital acquired infections but lack of knowledge amongst health care workers is associated with poor compliance. **Objective:** To assess the level of knowledge and attitude among residents and staff nurses in surgery wards of tertiary care hospital. **Methodology:** A cross sectional study was conducted at KMCT Medical College and Hospital, Calicut from March 2016 to April 2016. All the residents and nursing staff of surgical wards (Department of Orthopedics, Surgery, Gynecology and Obstetrics) of KMCT Medical College Hospital who were posted for duty during the study period were included in the study. A total of 35 respondents were included in the study. Out of the 35 respondents, 22 Junior Residents and 13 Staff nurse were included in the study. **Results:** In our study, both study groups had moderate knowledge on hand hygiene, which was a positive finding. 58 % of all participants knew that unhygienic hands of HCWs were the main route of transmission in a health care facility (HCF). However, only 23% of residents and 30% of nurses were aware that the main source of germs in a HCF was from patients, with nurses having better knowledge in this aspect. **Conclusion:** Present study highlights the importance of training sessions regarding hand hygiene practices among the residents and staff nurses to provide the current and updated knowledge in the area of nosocomial infections and prevention of infections. It would also translate in a behavioral change of attitudes and practices that would help in reducing the incidence of nosocomial infections.

Key Word: Hand Washing, Professionals, Health Care, Hygiene, Disease Transmission.

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INTRODUCTION

Infection caused due to hospital acquired microbes is an evolving problem worldwide and horizontal transmission of bacterial organisms continues to cause a high

nosocomial infection rate in health care settings. Nosocomial infection due to poor hand hygiene are a major cause of increasing morbidity, mortality and health care costs among hospitalized patients worldwide.¹ Transmission of health care associated pathogens generally occurs via the contaminated hands of health care workers often transmitting virulent and multidrug resistant strains. Though preventable with the simple hand washing, health care workers are reluctant to adopt recommended practices to curb these infections.² The World Health Organization(WHO) has issued guidelines for procedural hand washing in order to reduce prevalence of hospital acquired infections but lack of knowledge amongst health care workers is associated with poor compliance.³ Despite evidence and expert opinion that hand hygiene reduces transmission of

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potential pathogens or antimicrobial resistant organisms, sustained improvements in adherence to hand hygiene recommendations and proper hand washing technique among health care workers are uncommon,⁴ even after educational efforts. At the same time, some hospitals there is not even proper training of the employees regarding hand hygiene practices. This is shown by the lack of even basic awareness about hand washing guidelines among the hospital staffs and residents. With this background, the present study was undertaken to assess the level of knowledge and attitude among residents and staff nurses of surgical wards of tertiary sector hospital, Calicut regarding hand hygiene and also to identify gaps in knowledge and poor attitudes regarding hand hygiene practices among residents and staff nurses to enhance good practices and working ethics in future. According to WHO guidelines on hand hygiene in health care provides health care workers (HCWs) hospital administrators and health authorities with a thorough review of evidence on hand hygiene in health care and specific recommendations to improve practices and reduce transmission of pathogenic microorganisms to patients and HCWs. The present guidelines are intended to be implemented in any situation in which health care is delivered either to a patient or to a specific group in population.³ Permanently or occasionally performed, such as homecare by birth attendants. These guidelines and the associated WHO Multimodal Hand Hygiene Improvement Strategy and an Implementation Toolkit are designed to offer health care facilities in Member States conceptual framework and practical tools for the application of recommendations in practice at the bedside. While ensuring consistency with the guidelines recommendations, individual adaptations according to the local regulations, settings, needs, and resource is desirable.⁵

OBJECTIVES

To assess the level of knowledge and attitude among residents and staff nurses in surgery wards of tertiary care hospital.

METHODOLOGY

A cross sectional study was conducted at KMCT Medical College and Hospital, Calicut from March 2016 to April 2016. All the residents and nursing staff of surgical wards (Department of Orthopedics, Surgery, Gynecology and Obstetrics) of KMCT Medical College Hospital who were posted for duty during the study period were included in the study. A total of 35 respondents were included in the study. Out of the 35 respondents, 22 Junior Residents and 13 Staff nurse were included in the study. Hand hygiene knowledge questionnaire for health care workers

designed by WHO and revised on August, 2009 which contains both multiple choice and YES/NO questions in the knowledge section. Measurement of knowledge was done on the basis of 15 questions and attitude was done on basis of 7 questions. The study was carried out for a period of one month to assess the knowledge and attitude regarding hand hygiene amongst residents and staff nurses of a tertiary care hospital in Calicut. The investigators visited both the groups (residents and staff nurses) and explained the nature of study. Verbal consent was obtained from those who volunteered to participate. Data collected was entered in excel and after cleaning and coding was represented in the form of tables. All the 35 individuals (residents and staff nurses) were included in the study. Measurement of attitude was done on the basis of 7 questions where the subjects had to give their opinion on a 1-5 points Likert scale ranging from strongly disagree to strongly agree. For scoring, 1 point was given for each correct response to good level of knowledge and 0 represents negative knowledge.

RESULTS

Hand hygiene is a single most effective preventive measure against hospital acquired infections, and can contribute to shorter hospital stay, reduction in patient morbidity and health care costs¹⁶. It is important to carry out training programs on hand hygiene regularly for health care workers as it has been associated with increased compliance to hand hygiene practices and reduction of infection^{17,18}. Our study group consisted of residents and nurses. It is important to instill correct hand hygiene practices, good attitudes and correct knowledge regarding hand hygiene. In our study, both study groups had moderate knowledge on hand hygiene, which was a positive finding. 58 % of all participants knew that unhygienic hands of HCWs were the main route of transmission in a health care facility (HCF). However, only 23% of residents and 30% of nurses were aware that the main source of germs in a HCF was from patients, with nurses having better knowledge in this aspect. (Table 1 and Table 2) Use of alcoholic hand rub solutions or gels has been shown to be effective for hand antisepsis¹⁹. In our study, 90% of residents and 100% of nurses were aware that hand rubbing is more rapid for hand cleansing. Knowledge about hand washing as a more effective method was found to be better among nurses when compared to the residents. An unexpected finding was that only few residents and nurses (38% and 23% respectively) knew that 20 seconds is the minimum time required for effective hand hygiene as documented in the WHO guideline.(Table 3) Compared to nurses, residents have good knowledge regarding the correct method of use, prior to palpation of abdomen (76%), after emptying

a bed pan (61%), after visible exposure to blood (71%) and after making a patient's bed (76%). Both residents and nurses had a good knowledge of the proper method of hygiene before giving injection (76% and 84%). (Table 4) In our study, both the groups showed better attitudes towards hand hygiene. They had sufficient knowledge about hand hygiene. Further, hundred percentage of respondents reported adhering to correct hand hygiene methods and having sufficient knowledge and training about hand hygiene among health care workers. 85% of respondents claimed that they felt guilty about omitting

hand hygiene. Although they had a better overall attitudes regarding hand hygiene, they did not recognize important practical aspects such as the importance of hand hygiene. (Table 5) All the respondents in our study were of the same opinion that palm was the major source of infection, followed by fingers (94.1%). Only 50 % of the respondents said that Dorsum of the hand and the web spaces were the main source of infection. (Table 6) P value less than 0.05 is considered as significant. According to that, no significant difference was observed in our study groups.

Table 1: Which of the following hand hygiene action prevent transmission of germ to the patient?

	Residents (22)		Nurses (13)		P value
	N	%	N	%	
Before touching the patient {yes}	21	95.5	13	100	0.988
Immediately after risk of body exposure{yes}	20	90.1	13	100	0.814
After exposure to immediate surroundings of a patient{No}	17	77.3	12	92.3	0.822
Immediately before a clean /aseptic procedure{yes}	12	54.5	13	100	0.500

Table 2: Which of the following hand hygiene action prevent transmission of germ to the health care ?

	Residents (22)		Nurses (13)		P value
	N	%	N	%	
After touching a patient (yes)	21	95.5	12	92.3	0.825
Immediately after a risk of body fluid exposure?(yes)	20	90.1	13	100	0.814
After exposure to immediate surrounding of a patient?(no)	18	81.2	13	100	0.653
Immediately before a clean /aseptic procedure {no}	12	54.5	13	100	0.507

Table 3: Which of the following statement on alcohol based hand rub and hand washing with soap and water are true?

	Residents (22)		Nurses (13)		P value
	N	%	N	%	
Hand rubbing is more rapid for hand cleansing than hand washing(true)	19	86.3	13	100	0.825
Hand rubbing causes skin dryness more than hand washing(false)	12	54.5	10	76.9	0.507
Hand rubbing is more effective against germ than hand washing (false)	6	27.3	8	61.5	0.637
Hand washing and hand rubbing are recommended to be performed in sequence?(false)	13	59.1	11	84.6	0.817
What is the minimal time needed for alcohol based rub to kill most germs on your hand{20 second}	8	36.4	3	23.1	0.487

Table 4: Which type hand hygiene method is required in following situation.

	Residents (22)		Nurses (13)		P value
	N	%	N	%	
Before palpation of abdomen {rubbing}	16	72.7	6	46.2	0.658
Before giving injection{rubbing}	16	72.7	11	84.6	0.988
After emptying a bed {washing}	13	59.1	6	46.2	0.487
After removing examination of gloves{rubbing/ washing}	9	40.1	7	69.2	0.822
After visible exposure to blood(washing)	15	68.2	9	69.2	0.487
After making patient bed (rubbing)	11	50	6	46.2	0.653

Table 5: Responses of Study Subjects on Knowledge , Attitude and Practices about hand washing Techniques.

	Positive answer	%	Negative answer	%	Neutral answer	%	P value
Correct hand hygiene practices should be followed at all times	34	100.00	0	0.00	0	0.00	0.838
A health care personnel should have sufficient knowledge and training about hand hygiene	34	100.00	0	0.00	0	0.00	

You feel guilty when you omit hand hygiene	29	85.29	0	0.00	5	14.7	0.723
You feel uncomfortable when others omit hand hygiene	29	85.29	2	5.88	3	8.82	0.754
Hand washing is cumbersome in cases of emergencies	24	70.58	4	11.16	6	17.64	0.389
A health care person should act as a role model for others	32	94.11	0	0.00	2	5.88	0.225
A health care personnel should enroll in regular training session regarding hand hygiene practices	30	88.83	0	0.00	4	11.16	0.734

Table 6: perception of the dirty area of the hand.

	Positive answer	%	Negative answer	%	Neutral answer	%	P value
Palm	34	100.00	0	0.00	0	0.000	0.844
Finger	32	94.11	1	2.9	1	2.9	0.507
Finger Tip	31	91.17	1	2.9	2	5.88	0.534
Dorsum Of Hand	17	50.0	9	26.47	8	23.52	0.335
Nail	28	82.35	0	0.00	6	17.74	0.483
Web Space	17	50.0	5	14.7	12	35.29	0.357

DISCUSSION

The knowledge about good hand washing practices according to WHO guidelines amongst health care workers is essential for lowering the health care associated infections. In this study, both residents and nurses had average knowledge on hand hygiene. Sixty-one percentage of respondents answered correctly when asked about the main route of transmission of potentially harmful germs between patients. In a study conducted at Peoples College of Medical Science and Research, Bhopal ⁶ which reported 75% of respondents knew that unhygienic hands of health care workers were the main route of transmission. In the study done by Elaziz *et al*⁷ and Randle *et al*⁸ also opined that unhygienic hands of the health care professionals are one of the main route of the transmission of infection. However, only 23% of residents and 30% 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 nurses having better knowledge in this aspect. WHO recommends alcohol based hand rubs for hand antisepsis based on its intrinsic advantages of fast acting, broad spectrum microbicidal activity. Our findings about the minimum time needed for effective hand hygiene as mentioned in WHO guidelines were similar to a study carried out at the University of Sri Jayewardenepura ⁹, wherein 35% and 25% of residents and nurses showed inappropriate hand washing due to short contact time. In the study conducted at Peoples College of Medical Science and Research, Bhopal; both groups have answered below satisfaction level regarding type of hand hygiene method required before palpation of abdomen (33%), before giving an injection (27%), after making a

patients bed (21%). Where as in our study respective values of the above said are 64%, 65% and 50%. Both the groups were aware of the type of hand hygiene method before giving an injection (76% and 85%) and also after visible exposure to blood (71% and 69%) respectively and thus showed a good knowledge in this respect. In the study conducted by Veena Maheshwari *et al.*⁶ they found a good knowledge among both the groups regarding the awareness of the type of hand hygiene method required after removing examination gloves (70% and 83%) and also after emptying a bed pan (69% and 80%) respectively. However, overall knowledge regarding the type of hand hygiene method needed in the required clinical situation was unsatisfactory and thus this study identified gaps in their knowledge and areas needed for improvement. Hundred percent of respondents agreed that correct hand hygiene practices should be followed at all times and health care personnel should have sufficient knowledge and training about hand hygiene as well as enroll in regular training sessions regarding hand hygiene practices. 85% of respondents felt guilty about omitting hand hygiene and also felt uncomfortable when others omit hand hygiene. Corresponding values for MHID Ariyaratne in Sri Lanka⁹ are 69% and 39% respectively.

CONCLUSIONS

Present study highlights the importance of training sessions regarding hand hygiene practices among the residents and staff nurses to provide the current and updated knowledge in the area of nosocomial infections and prevention of infections. It would also translate in a behavioral change of attitudes and practices that would

help in reducing the incidence of nosocomial infections. The World Health Organization (WHO) contributes to this effort through the Patient Safety Program with its First Global Patient Safety Challenge “Clean Care is Safer Care” (CCiSC), launched in 2005 and dedicated to the prevention of HCAI.

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