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Knowledge of hand hygiene among healthcare providers in a tertiary care hospital, Bengaluru

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ABSTRACT

Background: Healthcare providers (HCPs) have been identified as the most common vehicle for transmission of hospital acquired infections (HAIs) from patient to patient and within the healthcare environment. Hand hygiene has been identified as the single most important, simplest and least expensive means of preventing HAIs. This study was conducted to assess the knowledge of hand hygiene among healthcare providers in a tertiary care hospital in Bengaluru.

Methods: A cross sectional descriptive study was conducted among all the health care providers who have been working in the hospital for more than one year. Total 122 health care providers were included in the study. A semi-structured, self-administered questionnaire was developed and used to obtain information on respondent's socio-demographic characteristics, and knowledge of hand hygiene. For collecting data in this study, the World Health Organization (WHO) "Hand Hygiene Knowledge Questionnaire "revised 2009 edition was used. Descriptive statistics was used as necessary.

Results: A total of 122 health care providers participated in the study. Among them 78 (63.9%) have received formal training in hand washing. The mean age of the study participants was 29.11±8.6 years. Majority opined that hand rubbing is required before palpation of the abdomen (86.9%) knowledge about hand hygiene was found to be moderate in majority of the study subjects (144 out of 200, 74%).

Conclusions: In the present study the knowledge on hand hygiene among health care providers is moderate it highlights the importance of improving the current training programs targeting hand hygiene practices among health care providers.

Keywords: Health care providers, Hand hygiene, Knowledge

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 infections due to poor hand hygiene are a major cause of increasing morbidity, mortality and health care costs among hospitalized patients worldwide. In other words, health care workers' hands due to poor hand

hygiene are the most usual type of vehicle for the transmission of health care-associated infections.²

Considering the tremendous advancement in medical care in the past few decades, it is strange that the healthcare settings still remain unsafe for patients worldwide, principally as a result of hospital acquired infections (HAIs). Healthcare providers (HCPs) have been identified as the most common vehicle for transmission of HAIs from patient to patient and within the healthcare environment.³

The total number of hand exposures in a hospital may range from several tens to thousands per day. With each hand-to-surface exposure a two directional exchange of microorganisms occurs between hands and the touched object and the transient hand-carried flora is thus continuously changing. Most of the healthcare workers hand flora gradually gets replaced by pathogenic microorganisms, which can spread throughout a health care environment in a short span of time.⁴

According to the World Health Organization (WHO), HAIs affect an estimated 1.4 million patients at any time worldwide. Hand hygiene has been identified as the single most important, simplest and least expensive means of preventing HAIs.³

This study was conducted to assess the knowledge of hand hygiene among healthcare providers in a tertiary care hospital in Bengaluru.

Objectives

To assess the knowledge of hand hygiene among healthcare providers in a tertiary care hospital in Bengaluru.

METHODS

A cross sectional descriptive study was conducted during January 2017-March 2017 to assess the knowledge of hand hygiene among the health care providers in a tertiary care hospital Bengaluru. Complete enumeration of all the health care providers (nurses and doctors) who have been working in the hospital for more than one year were considered for the study. Total 122 health care providers were included in the study.

A semi-structured, self-administered questionnaire was developed and used to obtain information on respondent's socio-demographic characteristics, and knowledge of hand hygiene .For collecting data in this study, the World Health Organization (WHO) "Hand Hygiene Knowledge Questionnaire "revised 2009 edition was used⁵. The questionnaire contained questions on the

participants' age, gender, profession, year of the course, formal training in hand hygiene and 27 multiple choice and "yes" or "no" questions to assess HH knowledge. For each correct answer one point was considered, and an incorrect answer was given zero. Overall scores were expressed in percentage; so that an overall score of >75% was considered as good, 50–74% as moderate and <50% as poor knowledge.

Ethical clearance was obtained and informed consent was obtained after explaining the nature of study to all participants.

Statistical analysis

The data was collected and compiled in MS Excel and analyzed by using SPSS software version 20.0. Descriptive statistics was used as necessary, all qualitative variables were presented as frequency and percentages. All quantitative variables were presented as mean and standard deviation.

RESULTS

Among the total of 122 study participants, 78 (63.9%) have received formal training in hand washing. The mean age of the study participants was 29.11±8.6 years. Table 1 shows the socio-demographic characteristics of study participants.

Table 1: Socio-demographic characteristics of the study participants (n=122).

Variables	Frequency	Percentage (%)
Gender		
Female	83	68
Male	39	32
Department		
Medicine	43	35.2
Surgery	38	31.1
ICU	8	6.6
Emergency	9	7.4
Obstetrics	13	10.7
Pediatrics	11	9.0

Table 2: Assessment of hand hygiene knowledge among health care workers.

S No	Knowledge statements (correct statements)	Frequency	Percentage (%)
1.	The main route of the cross transmission of harmful germs between the patients is when Healthcare worker's hands are not clean	91	74.6
2.	The source of germs responsible for nosocomial infections are germs already present on or within the patient 50		41.0
3.	Hand hygiene actions which prevent transmission of organisms to patients		
-	Before touching a patient	106	86.9
_	Immediately after body fluid exposure	82	67.2
_	After exposure to immediate surroundings of the patient	49	40.2
_	Immediately before a clean/aseptic procedure	87	71.3

Continued.

S No	Knowledge statements(correct statements)	Frequency	Percentage (%)
4.	Hand hygiene actions which prevent transmission of organisms to health care workers		
_	After touching a patient	99	81.1
_	Immediately after a risk of body fluid exposure	89	73.0
_	Immediately before a clean/aseptic procedure	35	28.7
_	After exposure to immediate surroundings of the patient	74	60.7
5.	True statement on alcohol based hand rub and hand washing with soap and water		
_	Hand rubbing is more rapid for hand cleansing than handwashing (true)	68	55.7
_	Hand rubbing does not cause skin dryness more than hand washing (false)	47	38.5
_	Hand rubbing is more effective against germs than hand washing (false)	74	60.7
_	Hand washing and hand rubbing are not recommended to be performed in sequence (false)	42	34.4
6.	Type of hand hygiene method required in the following situations		
_	Before palpation of the abdomen (Rubbing)	106	86.9
_	Before giving an injection (Rubbing)	71	58.2
_	After emptying a bedpan (Washing)	110	90.2
_	After removing examination gloves (Rubbing/Washing)	116	95.0
_	After making a patient's bed (Rubbing)	40	32.8
_	After visible exposure to blood (Washing)	104	85.2
7.	Actions to be avoided during hand hygiene		
_	Wearing jewellery (Yes)	94	77.0
	Damaged skin (Yes)	98	80.3
_	Artificial fingernails (Yes)	91	74.6
_	Regular use of a hand cream (Yes)	70	57.4

Among the 122 study participants 110 (90.2%) of them routinely used an alcohol-based hand rub. 64 (52.5%) of the study participants knew that 20secs is the minimal time needed for alcohol-based hand rub (sterillium) to kill most germs on your hands.

Table 3: Level of hand hygiene knowledge among health care providers.

Hand hygiene knowledge	Frequency	Percentage (%)
Good	42	34.4
Moderate	54	44.3
Poor	26	21.3
Total	122	100

The percentages of correct responses to the individual questions on hand hygiene knowledge of the study participants are given in Table 3.

DISCUSSION

The knowledge about good hand washing practices and compliance of the same according to WHO guidelines amongst health care workers is essential for lowering the health care associated infections.

Among the study participants 74.6% of them answered correctly when asked about the main route of transmission of potentially harmful germs between patients. Our results are comparable with other studies^{6,1} which reported that 75% of participants knew that unhygienic hands of health care workers were the main route of transmission.

Minimal time needed for alcohol based hand rub to kill most germs on the hands was correctly known to 64 (52.5%) of the study participants these results were lower than the results in the study done by Zakeri et al and timothy et al where 64.8%, 67% of them knew the correct time for hand washing.^{7,8}

Among the total of 122 study participants 78 (63.9%) have received formal training in hand washing, while in the study done by timothy et al 56.5% of the respondents and in the study done by Kumar et al 40% of the respondents received training.

In the present study, knowledge about hand hygiene was found to be moderate in majority of the study subjects (144 out of 200, 74%). Similar results were observed in study done by Ariyaratne et al and Nair et al.^{6,10} On the other hand, in a study from South West Nigeria majority of respondents (83.0%) had good knowledge of hand

hygiene, which could have been due to greater number of training activities been provided in Nigeria than in our study.⁸

Majority opined that hand rubbing is required before palpation of the abdomen (86.9%) in this study. This is in contrast to the study findings reported by Maheshwari et al where about 52.5% respondents answered correctly.¹

The fact that hand rubbing is not more effective than hand washing was correctly known to 60.7% of the study participants in the present study where as 56.7% knew the correct response in the study conducted by Tabassum et al. 11

About 34% of study participants knew that hand washing and hand rubbing are not required to be carried out in sequence. Similar results were observed in study conducted by Tabassum et al.¹¹

A higher proportion (82.5%) of respondents in the present study opined that washing is required after visible exposure to blood. Similar findings have been reported by the studies conducted by Maheswari et al, Nair et al, Ariyaratne et al, Shinde et al. 1.6,10,12

Majority (80.3%) correctly thought that touching damaged skin should be avoided, as associated with increased likelihood of colonisation of hands with harmful germs. Similar findings have been reported by the other studies. ^{1,6,10,12}

Limitation

This is a questionnaire based study and one major limitation is that we have not calculated the actual hand hygiene compliance rate.

CONCLUSION

Present study highlights the importance of improving the current training programs targeting hand hygiene practices among health care workers. Hand hygiene training sessions may need to be conducted more frequently with continuous monitoring and performance feedback to encourage them to follow correct hand hygiene practices.

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