



ASSESSMENT OF KNOWLEDGE ATTITUDE AND PRACTICES OF HAND HYGIENE AMONG RESIDENTS AND NURSING STAFF IN INTENSIVE CRITICAL CARE UNITS OF A TERTIARY CARE HOSPITAL IN RURAL SETUP

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ABSTRACT

Objectives - Proper hand Hygiene is the recognized method of preventing the cross transmission of germs and decreasing the incidence of hospital acquired infections .The purpose of this study was to assess the knowledge attitude and practices amongst the nurses and the resident staff posted in intensive critical care units regarding hand hygiene practices. **Methods** - Data was collected by providing the study population with a questionnaire for assessing the knowledge, attitude and the practices were assessed by a direct observation phase which was conducted by observers during the morning visit hours. The data was then analyzed and the results were obtained. **Results** - Study included 100 respondents. The knowledge regarding the routes of transmission of germs and the indications where hand hygiene needed to be performed was good but the knowledge regarding the procedure to be followed was poor. The attitudes of the nursing staff were better than the resident doctors. It was also seen that the health care workers are reluctant to ask others to follow hand hygiene. **Conclusions** - The knowledge and the attitudes were good but the procedural knowledge was poor and the compliance was affected by the professional status and the results warrant promoting education to ameliorate local hand hygiene.

KEYWORDS: Hand Hygiene, HAI, Intensive care unit, Resident doctors, Nursing staff.

INTRODUCTION

Infections caused due to hospital acquired microbes are a growing problem worldwide. Health care associated infection is a serious problem in health care services, because they prolong the hospital stays of patients, can lead to high mortality, long term disability and also increase the health care costs causing a burden to the patients. Health care workers hand due to poor hand hygiene are the most usual type of vehicle for the transmission of health care associated infections.^[1] Hospital acquired infections complicate 7-10% of hospital admissions.^[2]

Hand hygiene is particularly of immense importance in managing the critically ill patients within intensive critical care units.

Semmelweis was the first who demonstrated the importance of hand hygiene over 150 years ago when he systematically observed that hand washing reduced the rate of puerperal streptococcal infection from 12.3% to 1.3% among postpartum women.^[3] Despite the relative simplicity of hand hygiene procedures, compliance with

hand hygiene is still poor.^[4,5] The World Health Organization (WHO) has issued guidelines for procedural hand washing in order to reduce the prevalence of hospital associated infections but lack of knowledge among health care workers is associated with poor compliance.^[6]

With this background the present study was undertaken to assess the level of knowledge, attitude and practices among nursing staff and residents posted in ICU's regarding hand hygiene and also to identify gaps in knowledge and poor attitude regarding hand hygiene practices, to enhance good practices and working ethics.

AIMS AND OBJECTIVES

The present study is aimed:

- To assess the level of knowledge, and attitude among residents and staff nurses of Medicine ICU, Neonatal ICU, Surgical ICU, regarding hand hygiene practices
- To determine the various risk factors for poor adherence to recommended hand-hygiene practices.

- 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.
- Promote implementation of the multimodal strategy proposed in the WHO Guidelines on Hand Hygiene in Health Care.
- Identify possible Targets for Hand-Hygiene Promotion.

MATERIAL AND METHODS

This cross sectional study was carried out after obtaining clearance from the institutional ethics committee.

Sample size - A total of 100 health care workers were included in this study (53 nurses and 47 resident doctors). Health care workers included in this study included post graduates resident doctors and nurses involved in patient care posted in ICUs.

Hospital setting - The study was carried out in a 19 bedded NICU , 15 bedded MICU , 25 bedded SICU of Lata Mangeshkar Hospital, digdoh hills, Hingna Nagpur. Each ICU was well equipped with hand hygiene facilities. The bottles of alcohol based liquid disinfectant soap were available. The purpose of the study was fully explained to the participants.

Data collection- Data collection took place in two phases.

1. Evaluation phase - For assessing the knowledge on hand hygiene practices the instrument used was the, hand hygiene knowledge questionnaire originally developed by the WHO (2009).^[7] The questionnaire was modified. It included 18 questions. The questionnaire contained questions with multiple choices and “yes “or “no” questions in the English language. The correspondents were requested to complete the survey without discussing with one another. For measuring the attitude the respondents were given a questionnaire containing 16 questions with 5 options on a 1-5 Likerts point scale ranging between strongly agree and strongly disagree. The instrument used was the questionnaire for perception survey for health care workers originally developed by the WHO (2009).^[7] While results were obtained ranging between agree neutral and disagree.

2. Observation phase – Hand hygiene practices were evaluated by trained observers using the direct observation technique described in the WHO Hand Hygiene Technical Reference Manual.^[7] The observations were conducted daily, for 30-minute period during the morning visit hours during a time span of one month. The observers were instructed to respect the patient’s privacy and not interfere with the health care activities being carried out during the session.

Each observation form was filled immediately after the observation session. The health care workers remained anonymous and unaware of the observer’s presence.

Data analysis was done using Microsoft Excel software.

RESULTS AND DISCUSSION

Knowledge on hand hygiene among nurses

On analyzing the result based on the scoring system, the knowledge on hand hygiene was good among the study population in nurses. More than 75% of the respondents had correct knowledge on actions to prevent transmission of germs to the health care worker and to the patient.

100% respondents recognized the importance of health care worker’s hands as a route of cross transmission of harmful germs.

All the participants said that hand hygiene before a clean aseptic procedure prevents transmission of germs to patients, and that hand hygiene before touching a patient was required to prevent cross transmission of germs to patients. They were also knowledgeable on the importance of hand hygiene after immediate risk of body fluid exposure.

Knowledge on the correct use of minimum time required for the hand hygiene was poor, as only 34% knew that hand rubbing for minimum 20 seconds was recommended to remove most germs from their hands.

The knowledge on the factors that contribute to hand colonization was good as more than 95% respondents said that wearing jewelry, damaged skin, and artificial fingernails should be avoided.

Attitude assessment among nurses

When the attitudes were assessed, 60% agreed that they adhered to correct hand hygiene practices at all times where as the other 40% were neutral regarding the adherence. 32% said that emergencies and other priorities made hand hygiene more difficult. 89% said that they felt guilty if they omitted hand hygiene. 15% disagreed when they were asked if they miss out hand hygiene as they forget it or because they have more important things to do. While a majority of 62% were neutral regarding it.41% agreed that they felt frustrated when others omit hand hygiene but 68% of respondents agreed that they were reluctant to ask others to engage in hand hygiene.83% disagreed when asked if the newly qualified staff was not properly instructed on hand hygiene methods. More than 95% agreed that infection prevention notice boards and infection prevention team has a positive influence on their hand hygiene.86% of the respondents agreed that adhering to hand hygiene practices is easy in the current setup.

Assessment of knowledge among resident doctors

More than 90% of the study population among the resident doctors had correct knowledge on actions to

prevent transmission of germs to the health care workers. All agreed that hand hygiene before touching a patient was required to prevent cross transmission of germs to patients, and were knowledgeable on the importance of hand after immediate risk of body fluid exposure.

Regarding knowledge about action to be performed, 53% correctly answered that hand rubbing was a more rapid for hand cleansing than hand washing, and 80% knew that hand washing was more effective against germs. Only 57% knew that minimum time recommended for hand rub to remove germs from their hands was 20 seconds.

More than 75% were knowledgeable on the factors that are associated with increased likelihood of colonization of hands with harmful germs.

Attitude assessment among resident doctors- Only 68% of the respondents agreed that they adhered to

correct hand hygiene practices at all times and only 17.34% agreed that they had sufficient knowledge about hand hygiene. 29.77% agreed that sometimes they had more important things to do than hand hygiene. 65.95% said that emergencies and other priorities make hand hygiene more difficult at times. 17.02% of the study population said that they did not feel frustrated when others omit hand hygiene but 36.16% respondents said that they were reluctant to ask others to engage in hand hygiene while the other 38.29% did not ask others to engage for hand hygiene practices. Though 61.70% said that adhering to hand hygiene practices is easy in the current setup but 38.29% agreed that sometimes they miss out hand hygiene simply because they forget it. Only 6% of the population did not recognize hand hygiene as a part of their role. 35% agreed that the frequency of hand hygiene makes it difficult to carry it out as often necessary and most of them said that infection prevention team has a positive influence on hand hygiene.

Table 1: Assessment of knowledge.

Sr. No.	Questions	Nurses n=53		Doctors n = 47	
		Yes	No	Yes	No
1	Which of the following hand hygiene action prevents the transmission if germs to the patient?				
1.a	Before touching the patient	53(100%)*	-	53(100%)*	-
1.b	Immediately after risk of body fluid exposure	53(100%)*	-	53(100%)*	-
1.c	After exposure to immediate surroundings of the patient	53(100%)	-*	53(100%)	-*
1.d	Immediately before a clean / aseptic procedure.	53(100%)*	-	53(100%)*	-
2	Which of the following hand hygiene action prevents transmission of germs to health care worker?				
2.a	After touching a patient	53(100%)*	-	53(100%)*	-
2.b	Immediately after risk of body fluid exposure	53(100%)*	-	53(100%)*	-
2.c	Immediately before a clean / aseptic procedure	53 (100%)	-*	53 (100%)	-*
2.d	After exposure to immediate surroundings of patient	53(100%)*	-	53(100%)*	-
3	Which of the following statements on alcohol based hand rub and hand washing with soap and water is true?				
3.a	Hand rubbing is more rapid for hand cleansing than hand washing	51 (96%)	02 (4%)	25 (53%)	22(46%)
3.b	Hand rubbing causes skin dryness more than hand washing	53 (100%)	-*	18 (38%)	29(62%)*
3.c	Hand rubbing is more effective against germs than hand washing	06 (12%)	47(88%)*	9 (20%)	38(80%)*
3.d	Hand washing and hand rubbing are recommended to be performed in sequence	45 (84%)	08(16%)*	22 (46%)	25(53%)*
4	What is the minimal time needed for alcohol based hand rub to kill most germs on your hands?				
4.a	20 seconds*	18 (34%)		20 (57%)	
4.b	10seconds	30 (57%)		15 (32%)	
4.c	1minute	05 (9%)		05 (11%)	
5	Which of the following should be avoided, as associated with increases likelihood of colonization of hands with harmful germs?				
5.a	Wearing jewelry	53(100%)*	-	38(80%)*	9 (20%)
5.b	Damaged skin	52 (98%)*	01(2%)	38 (80%)*	9 (20%)
5.c	Artificial fingernails	53(100%)*	-	30 (63%)*	17(37%)
5.d	Regular use of hand cream	31 (58%)	22(42%)*	29(62%)	18(38%)*

Direct observation phase

Resident doctors: During the period of observation the resident staffs were assessed for total 88 hand hygiene opportunities grouped under 5 different indications. Only 56.25% of the study population complied to hand hygiene practices before touching the patient. A good proportion (75%) had positive hand hygiene action before an aseptic procedure. 85.7% resident doctors complied with the required hand hygiene action after body fluid exposure risks and 83.33% after touching a patient. Only 56.5% complied to hand hygiene after touching the patient's surroundings. Nurses: The nurses were assessed on the basis of 174 hand hygiene opportunities during the phase of observation. The

opportunities were grouped under 5 different indications. 78.78% nurses had good compliance before touching a patient. 83.33% nurses had positive hand hygiene action before an aseptic procedure. 87.5% nurses complied to hand hygiene after body fluid exposure risk. 88.23% nurses complied to hand hygiene after touching a patient. Only 67.44% performed hand hygiene after touching patient's surroundings.

A- Before touching a patient.

B- Before an aseptic precaution.

C- After body fluid exposure risk.

D- After touching a patient.

E- After touching patient's surroundings.

Table 2: Direct observation.

Indications	Resident doctors			Nurses		
	chances	Positive action	Compliance	Chances	Positive action	Compliance
A	16	9	56.25	33	26	78.78
B	24	18	75.00	48	40	83.33
C	7	6	85.7	16	14	87.5
D	18	15	83.33	34	30	88.23
E	23	13	56.5	43	29	67.44

Table 3: Analysis of attitude regarding hand hygiene among nurses and residents.

SN	Question	Nurses(n=53)			Resident Doctors(n=47)		
		Agree (%)	Neutral (%)	Disagree (%)	Agree (%)	Neutral (%)	Disagree (%)
1.	I adhere to correct hand hygiene practices at all times.	100	—	—	68.08	19.14	12.76
2.	I have sufficient knowledge about hand hygiene.	90.56	7.5	1.8	17.34	17.02	65.64
3.	Sometimes I have more important things to do than hand hygiene.	77.35	11.32	11.32	29.78	19.14	42.55
4.	Emergencies and other priorities make hygiene more difficult at times.	32.07	56.60	11.32	65.95	12.76	21.27
5.	Wearing gloves reduces the need for hand hygiene.	11.32	81.13	7.5	36.17	14.89	48.93
6.	I feel frustrated when others omit hand hygiene.	41.5	58.49	—	65.95	17.02	17.02
7.	I am reluctant to ask others to engage in hand hygiene.	67.92	13.20	18.86	36.16	23.40	38.29
8.	Newly qualified staff has not been properly instructed about hand hygiene in their training.	11.32	1.8	86.79	51.06	23.40	21.27
9.	I feel guilty if I omit hand hygiene.	88.67	11.32	—	70.21	19.14	10.63
10.	Adhering to correct hand hygiene practices is easy in the current setup.	86.79	13.20	—	61.70	21.27	17.02
11.	Sometimes i miss out hand hygiene simply because I forget it.	22.64	62.26	15.09	38.29	21.27	40.42
12.	Hand hygiene is an essential part of my role.	100	—	—	80.85	12.76	6.38
13.	The frequency of hand hygiene makes it difficult to carry it out as often as necessary.	88.01	9.43	7.5	55.31	10.63	29.78
14.	Infection prevention team has a positive influence on my hand hygiene.	98.11	1.8	—	61.70	21.27	14.89
15.	Infection prevention notice boards remind me to do hand hygiene.	100	—	—	57.44	19.14	8.51
16.	It is difficult for me to attend hand hygiene courses due to time pressure.	3.77	94.33	1.8	42.55	25.53	27.65

CONCLUSIONS

After assessing the nursing staff and the resident doctors it was found that a majority of the study population

identified the importance of hand hygiene practices in intensive critical care units and also had knowledge about the routes of transmission of germs. But they

lacked the knowledge about the details regarding the correct procedure to be followed. When assessed for attitude, it was found that emergencies and other priorities made hand hygiene difficult to be followed in proper way.

A majority of the population was unclear that whether wearing gloves reduces the need for hand hygiene or not. It was also seen that though the health care workers felt frustrated when others missed out hand hygiene practices but were reluctant to ask them to engage in understanding the importance of hand hygiene.

Though the population considered the importance and influence of infection prevention control team on hand hygiene but it appears that health care workers supervising each other on daily basis would prevent the chances of missing out hand hygiene whenever required. Infection prevention notice boards have a great influence and keep them reminding of the necessity of hand hygiene and such notice boards should be encouraged.

It was found that the attitude and adherence was more in the nursing staff than the residents .when assessed for practices it was observed that little importance was given in understanding the unhealthy surroundings of the patient as the cause of transmission of germs.

The health care workers should be well informed about the hand hygiene procedure as advised by the World Health Organization.

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