

# A Study to Assess the Knowledge, Attitude and Availability of Resources among Health Care Professionals Regarding Hand Hygiene in a Tertiary Care Hospital

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**Abstract:** ***Background:** Health care associated infections (HAI) are the major cause of mortality and morbidity among the hospitalised patients. Most would agree that hand hygiene is of critical importance, but numerous studies have shown that adherence to hand hygiene recommendations remains low and that improvement efforts frequently lack sustainability. **Material and Methods:** The present cross sectional study was conducted in a 740 bedded tertiary care hospital from which a total of 420 health care professionals, which included 315 nurses and 105 doctors were enrolled in the study using purposive sampling. **Result:** The analysis of the data reveals that the HCPs are having very good knowledge regarding hand hygiene, as evidenced by 200 (47.6%) participants having excellent knowledge, 220 (52.3%) having average knowledge regarding hand hygiene and there were no participants with poor knowledge. 320 (76.2%) have agreed that they receive frequent training regarding hand hygiene, which means the hospital is taking efforts to promote hand hygiene. **Conclusion:** Our study highlights that though health care professionals have adequate knowledge regarding hand hygiene, constant support from the top management, training programmes, assessment of hand hygiene and updation of protocols are necessary to increase the overall compliance to hand hygiene.*

**Keywords:** Hand hygiene, Health care professionals, Knowledge, Resources

## 1. Introduction

Health care associated infections (HAI) are the major cause of mortality and morbidity among the hospitalized patients contributing 7-10% of the hospital admissions.<sup>1</sup> 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.<sup>2</sup> The high prevalence of these infections, as high as 19%, in developing countries poses a challenge to health care providers.<sup>3</sup>

Various studies have shown that effective hand hygiene can lower the prevalence of hospital acquired infections. But the compliance to it among health care providers, despite the relative simplicity of this procedure, is as low as 40%.<sup>4-6</sup>

## 2. Purpose

Nurses constitute the largest percentage of the health care workers (HCW) and they are the “nucleus of the health care system”. Because they spend more time with patients than any other HCWs, their compliance with hand washing guidelines seems to be more vital in preventing the disease transmission among patients.<sup>7</sup>

Most would agree that hand hygiene is of critical importance, but numerous studies have shown that adherence to hand hygiene recommendations remains low and that improvement efforts frequently lack sustainability.

This is may be due to several constraints such as heavy work load, high number of clinical procedures, and skin conditions of health care workers.<sup>8</sup>

Although hand hygiene is a very simple procedures ;a review on hand hygiene practices suggested that the compliance rates by healthcare workers with recommended hand hygiene procedures ranged from 5% to 89% with an average compliance to be below 50%.<sup>9</sup>

## 3. Objectives

The objectives of the study was to:

### Primary Objective:

To assess the knowledge and attitude of health care professionals regarding hand hygiene.

### Secondary Objective:

- 1) To compare the knowledge regarding hand washing of doctors with nurses.
- 2) To identify the availability of resources for maintaining effective hand hygiene protocols.

## 4. Materials and Methods

The present cross sectional study was conducted in a 740 bedded tertiary care hospital in the city of Nagpur, during the months of October 2017 to December 2017, after obtaining necessary permissions. A total of 420 health care professionals, which included 315 nurses and 105 doctors were enrolled in the study using purposive sampling. The

participants were briefed about the study and their consent was obtained.

A self structured validated questionnaire was given to all the participants of the study who were required to complete and return the questionnaire the same day. It consisted of demographic data, assessment of attitude, questions on system setup, trainings and knowledge regarding hand hygiene. The attitude was measured using 14 questions, of which 8 questions were of yes or no type, 5 questions where they have to give their opinion ranging from Always to Never and 1 question in which the health care professionals had to select between feel irritated, get angry, feel bad and ignore. There were 5 questions on system setup and 3 questions on training and education. Knowledge was assessed using 13 questions which included multiple choice and “yes” or “no” questions.

A grading system was used to calculate the knowledge scores using 13 questions, in which a score of 0-5 was considered poor, 6-9 was considered average and 10-13 was considered excellent.

## 5. Results

### Demographic Data

**Table 1:** Percentage wise distribution of participants according to their demographic variables

Percentage wise distribution of participants according to their demographic variables.			
		Frequency	Percent
Gender	Female	351	83.6
	Male	69	16.4
	Total	420	100.0
Age(yr)	Age Group	Frequency	Percent
	21-30	272	64.8
	31-40	72	17.1
	41-50	73	17.4
	51-60	3	.7
Total	420	100.0	
Staff Member		Frequency	Percent
	Doctor	105	25.0
	Nurse	315	75.0
Total	420	100.0	
Experience (yr)		Frequency	Percent
	<1	72	17.1
	1—5	168	40.0
	5—10	76	18.1
	>10	104	24.8
Total	420	100.0	
Awareness about WHO guidelines of hand washing practices		Frequency	Percent
	Yes	416	99.1
	No	04	0.9
Total	420	100.0	

Table 1 shows that out of the total 420 health care professionals, majority 83.6 % of the participants were females and 16.4 % were males. Maximum of the participants, 64.8% belonged to the age group of 21-30

years, 17.4% belonged to 41-50 years, 17.1% belonged to 31-40 years age group and there were only 7% participants belonging to 51-60 years age group. Most of the participants were nurses, 75% and 25% were doctors. 17.1 % had working experience of less than 1 years, 40.0% had experience of 1-5 years, 18.1 % had 5-10 years experience and 24.8% of the participants had experience of more than 10 years.

Out of the total 420 health care professionals, 416 (99.1% ) reported that they are aware about WHO guidelines of hand washing practices.

### Attitude to hand hygiene

**Table 2:** Attitude of health care professionals to hand hygiene

Attitude of Health care professionals regarding hand hygiene.		
	N	%
Q1. Correct handwashing requires formal training (yes)	420	100
Q2. Hand hygiene prevents spread of infection to patients.(yes)	420	100
Q3. Soap and water is is the most superior method of handwashing for prevention of infection. (yes)	341	81.2
Q4. Alcohol hand-rubs are more effective than soap and water handwashing. (No)	232	55.2
Q5. Handwashing is not very important in patient care. (No)	367	87.3
Q6. I think there is no any association between hand hygiene and infection control. (No)	262	62.3
Q7. I get irritated when i see anyone assisting an aseptic procedure without removing nailpolish. (yes)	320	76.2
Q8. Washing hands with soap and water is inconvenient. (no)	110	26.1
Q9. How many times you prefer to wash hands when seeing patients? (Always)		
Before touching patient	349	83.1
Before clean/ aseptic procedure	405	96.4
After body fluid exposure	381	90.7
After touching patient / patient surroundings	358	85.2
Before wearing and after removing gloves.	309	73.6
Q10.What is your reaction when you see anyone omiting hand hygiene? (Feel Irritated)	203	48.3

The response of the participants to attitude based questions revealed that the health care professionals have positive attitude towards hand hygiene. The response of the participants to attitude based questions is given in table 2.

### Knowledge regarding hand hygiene

**Table 3:** Knowledge of health care professionals regarding hand hygiene

Knowledge Score regarding Hand hygiene						
	Grade					
	Excellent	%	Average	%	Poor	%
Doctor	53	26.5%	52	23.6%	0	0
Nurse	147	73.5%	168	76.4%	0	0
Total	200	47.6%	220	52.3%	0	0

Out of the 420 participants, 200 (47.6%) had excellent knowledge and 220 (52.3%) had average knowledge

regarding hand hygiene. There were no participants with poor knowledge.

### Comparison of Knowledge between Doctors and Nurses

Analysis of the data also revealed that there is no significant difference in the knowledge score between doctors and nurses. (Chi Sq=0.458 p=0.498)

### System setup

**Table 4:** Responses of the health care providers regarding the system setup to enable proper hand hygiene

System Set up				
	N(YES)	%	N(NO)	%
Q1. A separate handwashing sink is available in my ward.	320	76.2	100	23.8
Q2. There is no continuous supply of water in my ward.	247	59.6	173	41.1
Q3. Handwash/ soap is available near the sink.	418	99.5	2	0.4
Q4. Hand washing posters are displayed at each sink.	266	62.9	154	36.6
Q5. Hand hygiene assessment is done every year in each ward.	193	46.0	227	54

The analysis of the data revealed that the hospital is providing the resources necessary for handwashing but 247(59.6%) responded that there is no continuous supply of water in their wards. Only 193(46.0%) participants agreed that hand washing assessment is done every year.

### Training & Education

**Table 5:** Responses of the health care providers regarding training and education regarding hand hygiene

Training and education		
	N	%
Q1. Do you receive frequent training regarding hand washing? (YES)	320	76.2
Q2. Do you have a system to ensure that all health care worker complete the training? (YES)	247	58.8
Q3. Do you think there is any need to update your knowledge regarding steps of handwashing? (YES)	373	88.8

Majority of the health care professionals, 76.2% agreed that they receive frequent training regarding hand hygiene and 88.8% of the participants feel that there is a need to update their knowledge regarding the steps of handwashing. Only 58.8% reported that they have a system to ensure that all health care providers complete the training.

## 6. Discussion

Hand hygiene is the most important tool in preventing the transmission of nosocomial infections as the hands of health care professionals are the most common mode of transmission of pathogens to patients. Factors that contribute to poor adherence to hand hygiene include poor access to hand-washing facilities (sinks), the time required to perform standard hand washing, irritant contact dermatitis associated with frequent exposure to soap and water, high workloads, knowledge deficits among HCWs, and the failure of administrative leaders to make hand hygiene an institutional priority.<sup>10</sup>

In this study, the analysis of the data reveals that the health care professionals are having very good knowledge regarding hand hygiene, as evidenced by 200 (47.6%) participants having excellent knowledge, 220 (52.3%) having average knowledge regarding hand hygiene and there were no participants with poor knowledge. This is a positive finding.

A study done by Arthi E et al<sup>10</sup> shows that the attitude of the participants towards hand hygiene was overall poor. Nearly 85% of the medical students agreed that they don't adhere to correct hand hygiene practice all the time, in spite of the knowledge of this group on hand hygiene being good. But this research has shown that the health care professionals have positive attitude towards hand hygiene.

The success of any project will have a direct influence on the encouragement and support received from the top leadership. A study conducted by Maheshwari, Veena et al<sup>11</sup> suggested that the best way to improve handwashing compliance based on the finding of their study was motivation, training and education of health care workers followed by availability of alcohol based hand rubs.

This study shows that though there is availability of a sink and supply of soap, there is no continuous supply of water as reported by 247 (59.6%) participants which will drastically effect the overall compliance to hand hygiene. It is also seen that 227 (54%) participants reported hand hygiene assessment is not done every year. It is also a positive finding to note that 320 (76.2%) have agreed that they receive frequent training regarding hand hygiene, which means the hospital is taking efforts to promote hand hygiene.

As suggested by Chaudhary RS et al,<sup>12</sup> it is important to encourage the infection control team to play a more active role in hand hygiene awareness and training in the hospitals. They should be encouraged to interact with the staff members and thereby exert a positive influence on their attitudes and practices regarding hand hygiene.

## 7. Limitations

As our study has assessed only the knowledge and attitudes, further research may be required to ascertain the actual compliance during practice. A convenience sampling methodology also weakens the conclusions, so a randomized selection of participants would remove sampling bias.

## 8. Conclusion and Recommendations

Our study highlights that though health care professionals have adequate knowledge regarding hand hygiene, constant support from the top management, training programmes, assessment of hand hygiene and updation of protocols are necessary to increase the overall compliance to hand hygiene.

The following recommendations are suggested:

- Every hospital should have a strict hand hygiene policy.

- Hospital Administration to ensure continuous supply of water.
- Hand hygiene training sessions needs to be conducted for all health care professionals.
- There should be continuous monitoring and performance feedback to encourage them to follow correct hand hygiene practices.
- Infection control team should be pro active in conducting audits to ensure compliance to hand hygiene protocols
- Rewards to be given to staff who follow excellent hand hygiene protocols.

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