

A Study on Knowledge and Practices Regarding Hand Hygiene and Factors Affecting its Adherence among Healthcare Providers of a Tertiary Care Hospital of South Gujarat

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Abstract:

Introduction: About 1.4 million people around the world become seriously ill from Health Care Associated Infections at any given time. The risk of infection in developing countries is 2 to 20 times higher than in developed countries and its incidence in India ranges from 5-30%. **Aims and objectives:** To study knowledge and practices regarding hand hygiene among Health Care Providers and to study the factors affecting the hand hygiene adherence. **Method:** Cross sectional study conducted in tertiary care of hospital of Valsad. Prior oral informed consent was taken from the participants before the start of the study. An anonymous questionnaire formed as per WHO guidelines on hand hygiene was used as data collection tool. **Results:** 64% medical and 72% paramedical staff has taken training in hand hygiene in last three years. 19.37% medical and 26.02% paramedical staff reported less time and more work load as barriers in implementing routine hand hygiene practices respectively. 20.93% medical and 6.97% paramedical staff reported training as an important factor for improved hand hygiene practices in the hospital. 66% staff of both groups correctly knows about required time needed for hand washing practice as per WHO guidelines whereas 26% medical and 44% paramedical staff doesn't have correct knowledge of hand hygiene practices when hands are visibly soiled. **Conclusion:** Lack of correct knowledge regarding hand hygiene practices among health care providers.

Keywords: Adherence, Hand Hygiene, Hand washing, Health Care Providers

Introduction:

More than 1.4 million people around the world become seriously ill from Hospital Acquired Infection (HAI) at any given time.^[1]

The burden of HAI in India is poorly documented. The Hospital Infection Society of India estimates that the incidence of HAI in India ranges from 5-30%.^[2] It has been shown that most infections are transmitted by the hands of Health Care Workers (HCW).^[3]

Hand washing causes a significant reduction in the carriage of potential pathogens on the hands of HCWs and risk of cross transmission of infection in health care facilities.^[4] Hand hygiene is now regarded as one of the most important element of infection control activities. In the wake of the growing burden

of health care associated infections (HCAIs), the increasing severity of illness and complexity of treatment, superimposed by Multi-Drug Resistant (MDR) pathogen infections, Health Care Practitioners (HCPs) are reversing back to the basics of infection preventions by simple measures like hand hygiene. This is because enough scientific evidence supports the observation that if properly implemented; hand hygiene alone can significantly help prevent transmission of infections.^[5-9]

There is now undisputed evidence that strict adherence to hand hygiene reduces the risk of cross-transmission of infections. With "Clean Care is Safer Care" as a prime agenda of the global initiative of WHO on patient safety programmes, it is time for developing countries to formulate the much-needed

policies for implementation of basic infection prevention practices in health care setups. This study focuses on one of the simplest, low cost but least accepted from infection prevention that is hand hygiene. So the study was conducted with the objectives to study the knowledge and practices regarding hand hygiene among health care providers and to study the factors affecting the adherence and to study any differences in practices among different categories of health care providers.

Method: Study was started after the written permission from the institutional ethics committee of the institution.

The study was undertaken at two stages:

Stage 1: To assess the knowledge and practices of Health care providers regarding the hand hygiene practices.

A cross sectional study was conducted in a Tertiary Care Hospital of South Gujarat from period 16 July 2017- 15 August 2017. Stratified random sampling method is used and participants are divided into two strata's; Medical and Paramedical staff and as per the convenience sampling method we had randomly selected 50 medical and 50 paramedical from various study units of hospital (Outpatient departments (OPD), Inpatient departments (IPD), Intensive Care

Unit (ICU) ,Labour Room (LR). An anonymous pretested and preformed questionnaire formed as per the WHO guidelines on hand hygiene ^[6] was administered to the participants as a tool for data collection to know their knowledge and practices. Prior to data collection a verbal informed consent was taken from each participant and those who had not given consent are excluded from the study.

Stage 2: Infrastructure survey

An infrastructure survey of the hospital (wards, OPDs ICUs Operation Theatre, Labour room) was undertaken to determine whether it is appropriate and adequate for the effective implementation of hand hygiene practices.

Data was collected and analyzed in Microsoft Office excel.

Results:

Present study was conducted with the objective to study the knowledge and practices regarding hand hygiene among the health care providers (medical and paramedical staff). The study revealed that overall there is lack of correct knowledge among the health care providers. The difference in knowledge and practices among the groups was also found highly significant ($p < 0.005$) in the study. **(Table 1)**

Table 1: Correct knowledge regarding hand hygiene and its practices.

Sr. No	Question	Medical N=50 (%)	Paramedical N=50 (%)	P value
a.	Formal training in hand hygiene in the last three years	32 (64%)	36 (72%)	$p > 0.05$
b.	Did you routinely using alcohol base handrub?	46 (92%)	45 (90%)	$p > 0.05$
c.	Did you aware of standard operating procedure regarding hand hygiene?	38 (76%)	42 (84%)	$p > 0.05$
d.	Which is the main route of cross-transmission of potentially harmful germs between patients in a health-care facility	29 (58%)	27 (54%)	$p > 0.05$
e.	Most frequent source of germs responsible for health care-associated infections	25 (50%)	10 (20%)	$P < 0.05$

Sr. No	Question	Medical N=50 (%)	Paramedical N=50 (%)	P value
f.	What is the minimal time needed for alcohol-based hand rub to kill most germs on your hands?	29 (58%)	16(32%)	P<0.05
g.	Pathogens that readily survive in the environment of the patient for days to weeks.	30 (38.96%)	28 (32.55%)	p>0.05
h.	Time needed for hand washing practice.	33 (66%)	25 (50%)	p>0.05
i.	which hand hygiene actions that prevents transmission of germs to the patient			
1	Before touching a patient	47(94%)	45(90%)	p>0.05
2	Immediately after a risk of body fluid exposure	15 (30%)	12(24%)	p>0.05
3	After exposure to the immediate surroundings of a patient	35(70%)	34(68%)	p>0.05
4	Immediately before a clean/aseptic procedure	33(66%)	32(64%)	p>0.05
j.	which Hand hygiene actions that prevents transmission of germs to the health-care worker			
1	After touching a patient	47(94%)	43(86%)	p>0.05
2	Immediately after a risk of body fluid exposure	41(82%)	38(76%)	p>0.05
3	Immediately before a clean/aseptic procedure	16(32%)	10(20%)	p>0.05
4	After exposure to the immediate surroundings of a patient	37(76%)	31(62%)	p>0.05
k.	identify the Statements on alcohol-based handrub and handwashing with soap and water are true			
1	Handrubbing is more rapid for hand cleansing than handwashing	39(78%)	40(80%)	p>0.05
2	Handrubbing causes skin dryness than handwashing	29(58%)	31(62%)	p>0.05
3	Handrubbing is more effective against germs than handwashing	27(54%)	26(52%)	p>0.05
4	Handwashing and handrubbing are recommended to be performed in sequence	26(52%)	20(40%)	p>0.05
5	It is sufficient to wash hands only once before attending to many patients in the ward.	34(68%)	38(76%)	p>0.05
6	Visibly soiled hands can be cleansed using an alcohol based hand rub	37(74%)	18(36%)	P<0.0005
7	Soap and alcohol based hand rub can be used concomitantly	20(40%)	18(36%)	p>0.05
8	Gloves should be changed or removed if moving from a contaminated body site to either another body site within the same patient or the environment.	40(80%)	41(82%)	p>0.05

l.	what is the required hand hygiene method in following situations?			
1	Before palpation of the abdomen	46(92%)	44(88%)	p>0.05
2	Before giving an injection	45(90%)	24(48%)	p<0.00005
3	After emptying a bedpan	45(90%)	45(90%)	p>0.05
4	After removing examination gloves	40(80%)	33(66%)	p>0.05
5	After making a patient's bed	33(66%)	21(66%)	p<0.05
6	After visible exposure to blood	45(90%)	41(82%)	p>0.05
m.	Things that should be avoided, as associated with increased likelihood of colonization of hands with harmful germs?			
1	Wearing jewellery	34(68%)	31(62%)	p>0.05
2	Damaged skin	44(88%)	43(86%)	p>0.05
3	Artificial fingernails	44(88%)	39(78%)	p>0.05
4	Regular use of a hand cream	37(76%)	32(64%)	p>0.05

Table 2: Attitude of health care workers towards the effectiveness of actions to improve the compliance of hand hygiene practice

Opinion regarding the effectiveness of actions	Medical n=50 (%)			Paramedical n=50 (%)		
	Effective	Very Effective	Not Effective	Effective	Very Effective	Not Effective
The health care facility makes alcohol based hand rub available at the point of care	30 (60%)	20 (40%)	0	36 (72%)	13 (26%)	1 (2%)
Hand hygiene posters are displayed at point of care	28 (56%)	20 (40%)	2 (4%)	23 (46%)	24 (48%)	3 (6%)
Each health care workers should be trained in hand hygiene	19 (38%)	31 (62%)	0	20 (40%)	29 (58%)	1 (2%)
Clear and simple instructions for hand hygiene are made visible for every health care worker	34 (68%)	16 (32%)	0	26 (52%)	22 (44%)	2 (4%)
Administration of the hospital should support and promote hand hygiene practices	22 (44%)	27 (54%)	1 (2%)	28 (56%)	21 (42%)	1 (2%)
How do you consider the effort required by you to perform good hand hygiene when caring for patients	25 (50%)	24 (48%)	1 (2%)	33 (66%)	17 (34%)	0 (0%)

More than 50% of health Care Providers are of the opinion that training in hand hygiene can prove effective in increasing hand hygiene practices in the hospital (Table 2)

Table 3: Barriers in implementing routine hand hygiene practice

Barriers	Medical	Paramedical
More work load	7(5.42%)	38(26.02%)
Less time	25(19.37%)	24(16.43%)
Water not available/out of reach	20(15.50%)	13(8.90%)
Sink not available/ out of reach	11(8.52%)	8(5.47%)
Laziness	13(10.07%)	7(4.79%)
No administrative motivation	14(10.85%)	9(6.16%)
Allergy to soap and alcohol based hand rub	4(3.10%)	9(6.16%)
No time in emergency situations	22(17.05%)	21(14.38%)
Lack of knowledge of hand hygiene practices	13(10.07%)	17(11.64%)

More work load (26%) and less time (19.37%) are the barriers reported by the Health care providers in implementing routine hand hygiene practices (Table 3)

Table 4: Suggestions to improve hand hygiene practices

Suggestions	Medical	Paramedical
Training at frequent intervals	9(20.93%)	3(6.97%)
Awareness and Educational programmes	7(14%)	6(12%)
Motivation from hospital administration	4(9.30%)	15(2.32%)
Availability of soap and water	4(8%)	1(2.32%)
Others	5(11.62%)	3(6.97%)

Majority of staff suggested frequent training and motivation from hospital administrations for improving the hand hygiene practices (Table 4).

Discussion:

Training and education is the corner stone before to make implementation on any practices. Our study was conducted to know the knowledge and practices regarding hand hygiene among health care providers. In the present study more than 30% of health care providers had not taken formal training in hand hygiene in the last three years which is an important factor for the sensitization of the staff for correct implementation of hand hygiene practices in routine patient care, on the contrary in a study by Lt V. Anargh et al it was reported that majority of health staff (91%) had received the formal training on hand

hygiene at the time of employment in the hospital^[10] Majority of the staff in the present study knows the correct routine use of alcohol based handrub as it is a routine practice of using alcohol based hand rub by the doctors and the paramedical staff during patient care and also similar findings observed in other studies.^[11] Difference in the knowledge and practices of hand hygiene among the medical and paramedical staff is noted in the study and the difference was found statistically highly significant ($p < 0.005$), this may be due to lack of proper trainings and sensitization on routine hand hygiene practices. Similar findings were also reported in a study by

Table 5: Availability of required infrastructure for implementation of hand hygiene practices

infrastructure required for hand hygiene	OPD (n=10)	IPDs (n=7)	ICU (n=2)	LR (n=1)	NICU (n=1)
Availability of sink	9	7	2	1	1
Accessibility of sinks	9	7	2	1	1
Physical condition of sink	9	7	2	1	1
Availability of water	8	7	2	1	1
Type of tap (ELBOW OPERATED)	8	5	1	1	1
Working status of tap	9	7	2	1	1
Availability of soap stand	7	6	2	1	1
Availability of cleansing agent	9	7	2	1	1
Is Alcohol based hand rub available?	10	7	2	1	1
Availability of towel stand	4	3	2	1	0
Availability of towel	10	7	2	1	0
Physical condition of towel	9	6	2	1	0
Condition of sink drain	9	7	2	1	1

Majority of staff suggested frequent training and motivation from hospital administrations for improving the hand hygiene practices (Table 4).

different studies on health care providers.^[12, 13] Majority of the health care providers in current study reported more work load and less time are the factors for hindering their hand hygiene practices. The infrastructure required to perform effective hand hygiene practices was found adequate in infrastructure survey and it was not the factor responsible for non-adherence to hand hygiene. The contrast findings was observed by in a study by Raman Sharma et that the reasons for non-adherence are unavailability of soap at the washing area (82.4%) and work load pressure (94.2%).^[14] in our study majority of the Health Care providers were of the opinion that frequent trainings and workshops help their compliance in handhygiene practices and similar recommendations were also made in similar studies that Multifaceted interventions like education, regular feedback, reinforcement training needs to be undertaken to improve the compliance of care providers to hand hygiene practices.^[15]

Limitations of the study: Not feasible to measure the hand hygiene practices by observation method.

Conclusion & Recommendations:

The study reveals that there is lack of knowledge regarding hand hygiene and its practices between different Health care Providers and more work load and less staff are the factors affecting their adherence to effective implementation of hand hygiene practices. The following are the recommendations:

1. Training and education of health care workers is necessary at frequent intervals to improve their hand hygiene knowledge and practices.
2. Motivation and support from the hospital administration.
3. Supervision of adherence to hand hygiene practices at frequent intervals.
4. Barriers to hand hand hygiene adherence should taken into consideration by the higher authorities and should to seek as early as possible.

5. Pre-employment sensitization training should be a key component for newer staff.

Declaration:

Funding: Nil

Conflict of Interest: Nil

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