

## Research Article

# Adoption of hand hygiene practices among health care providers

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## ABSTRACT

**Background:** Hand hygiene is the most important measure to avoid the transmission of harmful germs and prevent health care-associated infections. Hand washing with plain soap removes loose transient flora even though it does not remove pathogens from the hands of healthcare workers. Proper hand hygiene is cheap, most effective, easiest and foremost method of reducing health care associated infections. This study was carried out to know the present status of hand hygiene practices and the barriers to adherence. The objective of the study was to assess the adoption of appropriate hand hygiene practices among health care providers and to find out the reasons for non-adoption.

**Methods:** A cross sectional study was done to assess the adoption of appropriate hand hygiene among health care providers (Doctors, nurses, lab technicians) in upgraded/ block PHCs of Thiruvallur district... The data was analysed by SPSS-16. Proportion & chi square test was used to assess the statistical significance at 5%  $\alpha$ .

**Results:** In PHC's there were 32 doctors, 61 nurses and 17 lab technicians which constitute to 110 health care providers. Hand hygiene practices were satisfactory among 40 (36%)  $Z = 9$  and the difference is statistically significant  $p < 0.05$ .

**Conclusions:** Hand hygiene protocols will reduce the nosocomial infections. Hand hygiene is the most important measure to avoid the transmission of harmful germs.

**Keywords:** Hand hygiene, Health care providers, Primary health centre

## INTRODUCTION

Thousands of people die every day around the world from infections acquired while receiving health care. Hand hygiene is therefore the most important measure to avoid the transmission of harmful germs and prevent health care-associated infections.<sup>1</sup> Proper hand hygiene is cheap, most effective, easiest and foremost method of reducing health care associated infections. Common contaminants in the healthcare setting are gram-negative bacilli, *Staphylococcus aureus*, *Enterococci*, and *Clostridium difficile*. Caregivers may contaminate their

hands or gloves merely by touching inanimate objects. Of course, patients themselves may be a source of infection. Caregivers can acquire the virus simply by touching the patient and then touching their own nose or mouth.

Hand washing with plain soap removes loose transient flora even though it does not remove pathogens from the hands of healthcare workers. Alcohol hand rubs has excellent action against gram positive, gram negative bacteria, mycobacteria, fungi, viruses. Also the speed of action is fast at the optimal concentration 60-95% (CDC 2002) Adherence to the hand hygiene protocols will

reduce the nosocomial infections to greater extend.<sup>2</sup> This study was carried out to know the present status of hand hygiene practices and the barriers to adherence.

The objective of the study was to assess the adoption of appropriate hand hygiene practices among health care providers and to find out the reasons for non-adoption.

## METHODS

A cross sectional study was done to assess the adoption of appropriate hand hygiene among health care providers (Doctors, nurses, lab technicians) in upgraded/ block PHCs of Thiruvallur district. The total subjects included in the study were 110. The study was approved by the institutional ethics committee of Sri Ramachandra University, Chennai. Permission was obtained from Deputy Director of health services Thiruvallur district and Director of Public Health & preventive medicine, Tamilnadu. The data was analysed by SPSS-16. Proportion & chi square test was used to assess the statistical significance at 5%  $\alpha$ .

**Table 1: Distribution of demographic profile of health care providers.**

Type of HCPs	n	%
Doctors	32	29.1
Nurses	61	55.5
Lab technicians	17	15.5
Sex		
Male	16	14.5
Female	94	85.5
Years of experience		
1-5	64	58.2
6-10	23	20.9
11-15	12	10.9
16-20	6	5.5
21-25	5	4.5
Hours of work		
30-40	29	26.4
41-50	80	72.7
51-60	1	0.9

**Table 2: Comparison of satisfactory level among the variables.**

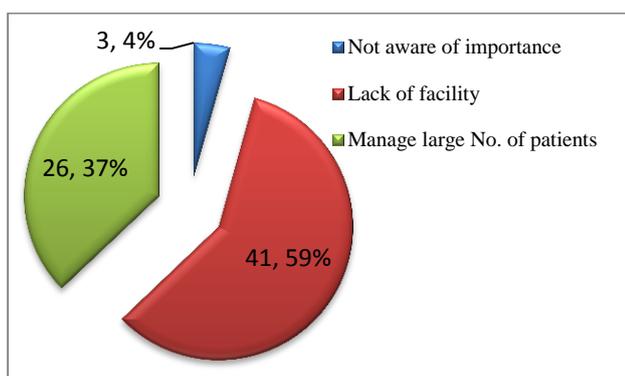
Type of HCPs	Satisfactory n (%)	Unsatisfactory n (%)	N	
Doctors	10(31.25)	22(68.75)	32	$\chi^2 = 7.205$ p = 0.027
Nurses	28(45.9)	33(54.09)	61	
Lab technicians	2(11.76)	15(88.23)	17	
Sex				
Male	3(18.75)	13(81.25)	16	$\chi^2 = 2.5$ p = 0.05
Female	37(39.36)	57(60.64)	94	
Years of experience				
1-5	25(39)	39(61)	64	$\chi^2 = 0.87$ p = 0.9
6-10	8(34.78)	15(65.22)	23	
11-15	4(33.33)	8(66.67)	12	
16-20	2(33.33)	4(66.67)	6	
21-25	1(20)	4(80)	5	
Hours of work				
30-40	18(62)	11(38)	29	$\chi^2 = 11.57$ p = 0.003
41-50	22(27.5)	58(72.5)	80	
51-60	0	1(100)	1	

## RESULTS

In PHC's there were 32 doctors, 61 nurses and 17 lab technicians which constitute to 110 health care providers. The hand hygiene includes 3 components namely when to wash hands, how to wash hands and how to dry the hands. Hand hygiene is considered as satisfactory if all the 3 components were followed. Hand hygiene practices were satisfactory among 40 (36%) Z = 9 the difference is statistically significant  $p < 0.05$ . The table 1 describes that among health care providers doctors are 32 (29.1%), Nurses 61 (55.5%) and Lab technicians 17 (15.5%). There are 94 (85.5%) Females and 16 (14.5%). Males are

participated in the study. The median group of years of experience lies in 1 yr. to 5 years 64 (58.2%), 6-10 yrs. 23 (20.9%). The median hours of work are lies in 41-50: 80 (72.7%). The comparison are classified as satisfied or unsatisfied and compared and interpreted by chi square test at 5% level of significance. Table 2 describes that, There is significant difference among type of health care providers with chi sq value = 7.2,  $p = 0.02$ . This shows that nurses (45.9%) are more satisfactory than doctors (31.25). There is no significant difference in sex (chi sq = 2.5,  $p = 0.05$ ) and years of experience (chi sq = 0.87,  $p = 0.9$ ) but the hours of work shows significant difference in satisfactory when hours of work is more they chance of washing hands are less. The study describes that when

they work for 30 – 40 the cleaning is more (62%) but 40-50 it is just 22%. The chi sq =11.57, p =0.003. Health care providers should wash their hands before touching patients, after exposure to body fluids, before an aseptic procedure and after touching patient surroundings. 79.1% of the HCPs are washing their hands appropriately. (Table 3 and 4) it is statistically significant (p<0.01) Antiseptic soap users and Use of antiseptic lotions with rubbing their hands for >15 sec were considered appropriate.



**Figure 1: Reason of non-adoption.**

Appropriate method washing of hands was done by 81.8% and the difference is found to be statistically significant (p<0.01) (Table 4). Disposable towel, use of reusable towel which is changed daily and dries by itself for antiseptic solution users are considered as appropriate for drying of hands.<sup>3</sup> Appropriate method drying of hands was done by 47% and the difference is found to be statistically significant (p<0.05) (Table 4) Among the 71 HCPs who got training, only 46.5% were following appropriate hand hygiene practices. The difference is found to be statistically significant (p=0.001) (Table 5). The reasons for non-adoption are they claim that they have to manage large number of patients singly handedly. Also in government PHCS they don't have air dryer, disposable towels, antiseptic lotions etc (Figure 1).

**Table 3: Appropriate hand hygiene – “when to wash hands”.**

When to wash	N	%
Before touching patient	87	79.1
After exposure to body fluids	108	98.2
Before aseptic procedure	110	100.0
After touching patient surroundings	87	79.1

**DISCUSSION**

In the present study, hand washing after handling body fluids was found to be 98.2% in PHCs which was higher than the values compared to the study done at Geneva which concluded hand washing compliance after contact with body fluids was 63%. The appropriate hand washing

practices with reference to “how to wash hands” were found among 90 (81.8%) of HCPs in PHCs. This was mainly attributed to unavailability of antiseptics. In PHCs, 45.9% nurses and 31.25% doctors practiced appropriate hand hygiene. A study done to assess the knowledge about the infection control amongst the doctors and nurses in UK teaching hospital concluded that washing hands after patient contact was done always among 64.3% nurses and 26.7 % doctors.<sup>4</sup> In the present study, nurses had good hand hygiene practices than doctors which are comparable with the study which also shows nurses had better hand hygiene practices than doctors. An observational study at the intensive care unit (ICU) of St. Luke’s Medical Centre over a 24-hour period also shows higher compliance for hand washing among nurses (43%) and lower compliance among physicians (19%) which is similar to the results found in this study.<sup>5</sup>

**Table 4: Components of hand hygiene.**

	Satisfactory	%	
When to wash	87	79.1	Z= 19.75, p<0.01
How to wash	90	81.8	Z = 20.05, p<0.01
How to dry	52	47%	Z = 9.04, p<0.05

**Table 5: Components of hand hygiene.**

	Satisfactory	Un-satisfactory	Total	
Trained	33 (46.5%)	38 (53.5%)	71	χ <sup>2</sup> = 8.8 p = 0.0014
Untrained	7 (17.9%)	32 (82.1%)	39	

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**REFERENCES**

1. [http://www.who.int/gpsc/5may/Hand\\_Hygiene\\_Why\\_How\\_and\\_When\\_Brochure.pdf](http://www.who.int/gpsc/5may/Hand_Hygiene_Why_How_and_When_Brochure.pdf).
2. [http://www.nursingceu.com/courses/467/index\\_nceu.html](http://www.nursingceu.com/courses/467/index_nceu.html).
3. WHO. Epidemic and pandemic alert response: standard precautions in health care WHO, 2006.
4. Pittet D, Mourouga P, Perneger TV. The Members of the Infection Control Program Compliance with Handwashing in a Teaching Hospital. Ann Intern Med. 1999;131:310.
5. Rumbaua RO, Yu CT, Pena AC. A Point-in-Time Observational Study of Hand Washing Practices of Healthcare Workers in the Intensive Care Unit of St. Luke’s Medical Center.

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