



KNOWLEDGE AND PRACTICE OF HAND HYGIENE AMONG INTERNS IN A TERTIARY CARE CENTRE, TAMILNADU, SOUTH INDIA- A CROSS SECTIONAL STUDY

Community Medicine

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ABSTRACT

Background: Hand hygiene is the most important measure to prevent transmission of germs and infections. The major sites associated with hand flora to harbor high number of micro organisms are finger nails and subungual area, contributing to continued spreading of infection. Hand hygiene is one of the important elements of infection control practices among health care providers while providing health care. Improper or poor hand washing practices can lead to cross infection and spread of Multi Drug Resistant pathogens and Hospital Acquired Infections (HAIs).

Aims & Objectives: To assess the knowledge and practice of hand hygiene among Interns in a tertiary care centre.

Materials & Methods: Cross-sectional study conducted among Interns posted in SreeMookambika Institute of Medical sciences, Kulasekharam, Kanyakumari district, Tamilnadu during a period of three Months from January to March 2020. Data were collected using a pre tested, semi structured questionnaire. Data were entered in Microsoft Excel and analysis was done using SPSS trial version 20.0.

Results: Among the 75 study participants, 56 % (42) were male interns, 44 % (33) were female interns. Among the study participants, 60 % (45) told that the most frequent source of germs responsible for Hospital Acquired Infection is the organism already present on the patient. Majority of the participants (80%) correctly told that minimum time required for alcohol based hand rub to kill germs is 20 seconds. Majority of the interns (88%) had received formal training in hand washing. Among the participants 60 (80%) routinely followed hand hygiene practices.

Conclusion: Even though majority of the interns have moderate knowledge regarding hand hygiene, only more than 50% of them correctly practice hand hygiene. Repeated awareness generation on hand hygiene practices among health care professionals is needed to prevent hospital acquired infections.

KEYWORDS

Hand hygiene, Interns, Tertiary care centre.

INTRODUCTION

In the world, thousands of people die every day from infections acquired while receiving health care. The pathogenic organisms may easily be transmitted through unhygienic hands during health care activities.

Hand hygiene is the most important measure to prevent transmission of germs and infections in the health care settings. Alcohol based formulations are used for hand rubbing routinely if hands are not soiled visibly. Use of soap and water for hand wash is preferred if exposed to blood or body fluids, after using toilet and before and after having food. Proper hand washing can prevent the spread of germs, including those that are resistant to antibiotics, difficult to treat. Essential requirements for providing basic health services are adequate water, sanitation and hygiene^{1,2,3}.

The major sites associated with hand flora to harbor high number of micro organisms are finger nails and subungual area, contributing to continued shedding of infection⁴.

The human skin harbors about 10^{12} microbes. The microbes include both normal commensal as well as pathogenic organisms. Cultures from skin have demonstrated bacteria such as Diptheroids, Staphylococcus, Streptococcus faecalis and Streptococcus viridians, Corynebacteria, Gram positive aerobic spore-bearing bacilli, Gram negative bacilli (Escherichia coli, Proteus spp) and fungi like Candida albicans⁵.

Hand hygiene is one of the important elements of infection control practices while providing health care. Improper or poor hand washing practices can lead to cross infection and spread of Multi Drug Resistant pathogens and Hospital Acquired Infections (HAIs). Hospital acquired infections (HAIs) are also known as Health Care- Associated Infections (HCAIs). HAIs are the infections acquired by the patient while in a hospital or other health care facility that was not present at the time of admission. Proper hand hygiene is the simplest, least expensive, and single most important method of reducing prevalence of Hospital Acquired Infections^{6,7,8}.

Health care associated infections (HCAIs) constitute major threat to the patients as well as health care professionals. Major burden of such infections are found in low and middle income countries. The

consequences of HCAIs include prolonged hospital stay of the patients, higher rates of morbidity and mortality, higher financial burden on health system and family members and increased antibiotic resistance^{9,10,11}.

Hand washing with soap and water is the single most simple, but effective and inexpensive way to prevent diarrhea and Acute Respiratory Infections (ARI), as a learnt behavior performed in homes, schools, and communities. WHO recommended frequent hand washing with soap and water or use of sanitizer to prevent the spread of novel Corona virus (COVID19) infection from man to man¹². This research work has been conducted among interns handling large number of patients in a tertiary care centre in South India.

AIMS & OBJECTIVES

To assess the knowledge and practice of hand hygiene among interns in a tertiary care centre

MATERIALS AND METHODS

Study design: Cross Sectional study.

Study setting: SreeMookambika Institute of Medical Sciences (SMIMS), Kulasekharam, Kanyakumari district, TamilNadu.

Period of study: Three Months from January to March 2020

Sample size:

Sample size was calculated by using the formula, based on study done by Kamble et al¹³ with $P=61.8$, $q=100-p$, $d=18$ of p.

$$n = \frac{Z^2 P q}{d^2}$$

Sample size, $n = 73.3$, rounded off to 75.

Study population:

Interns of SreeMookambika Institute of medical Sciences posted during January to March 2020

Inclusion criteria:

All interns, who were willing to participate in the study.

Exclusion criteria:

Interns who were not giving consent and who were absent on the day of data collection were excluded from the study

Data collection tool: A Pre tested, semi structured questionnaire based

on WHO Hand hygiene knowledge Questionnaire¹⁴ including Demographic details, Knowledge and Practices of the study participants on Hand hygiene

Knowledge score: Scoring system were used for assessing knowledge. A score of more than 75% was considered as good knowledge, 50-74% as moderate knowledge, and less than 50% as poor knowledge.

Data collection: The Pre tested, semi structured questionnaire was administered after obtaining informed consent for data collection. Data were entered into Microsoft excel and analyzed using SPSS trial version 20.0

Mean and standard deviation were calculated for quantitative variables. For qualitative variables frequency and percentage were found out. Chi-square test was applied for finding association

RESULTS

Among the 75 study participants, 56 % (42) were male interns, 44 % (33) were female interns.

KNOWLEDGE (Table:1-3)

Among the study participants, 60 % (45) correctly told that the most frequent source of germs responsible for Hospital Acquired Infection as the organism already present on the patient. Majority [76% (57)] of the participants correctly opined that the main route of transmission of germs between patients is from unclean hands of the healthcare personnel. Majority [80%(60)] of the participants were of the opinion that hand hygiene is essential to prevent infections.

Among the participants 56%(42) knew that infections transmit to the patients through hands of health workers. 44% (33) of the participants knew that most frequent source of germs responsible for infection is hospital atmosphere. Among the participants, 56% (42) thought hand hygiene practices before touching the patient prevent transmission of infection. Nearly half (52%) of them told that the first line defense against Hospital Acquired Infection is hand hygiene practice. Majority (80%) of the participants correctly told that minimum time required for alcohol-based hand rub to kill germs is 20 seconds.

Table 1: Knowledge on hand hygiene, about actions that prevent the transmission of germs to the patient (n=75)

Hand hygiene practices for preventing transmission of germs to the patient	YES Number (%)	NO Number (%)
Before touching a patient	43(57.3)	32(42.7)
Immediately after a risk of body fluid exposure	56 (74.6)	19(25.3)
After exposure to the immediate surroundings of the Patient	12 (16)	63 (84)
Immediately before a clean/aseptic procedure	60 (80)	15 (20)

Table 2: Knowledge on Hand hygiene practices preventing transmission of germs to the health-care provider

Hand hygiene practices preventing transmission of germs among health care workers	YES Number (%)	NO Number (%)
Before touching a patient	58 (77.3)	17 (22.7)
Immediately after a risk of body fluid exposure	67 (89.3)	8 (10.7)
After exposure to the immediate surroundings of the Patient	18 (24)	57 (76)
Immediately before a clean/aseptic procedure	63 (84)	12 (16)

Table 3: Knowledge on Actions that should be avoided

Actions to be avoided, as associated with increased likelihood of colonization of hands with harmful germs	YES % (Number)	NO % (Number)
Wearing jewels	43 (57.3)	32 (42.7)
Damaged skin	68 (90.7)	7 (9.3)
Artificial fingernails	60 (80)	15 (20)
Regular use of a hand cream	10 (13.3)	65 (86.7)

PRACTICE

Majority (88%) of the interns had received formal training in hand washing. Majority (80%) of the participants routinely followed hand hygiene practices. Among the participants 61.3% told that infection prevention reminded by notice boards helped hand hygiene practices. Nearly half of them 49.3% (37) used alcohol-based hand rub frequently. 52% (39) practiced using hand rub before palpation of abdomen. 73.3% (55) of the participants used hand rub before giving an injection. 57.3% (43) of participants practiced hand hygiene after removal of examination-gloves. Majority (92%) practiced hand washing after exposure to blood products. More than half of them (53.3%) used a minimum period of 20 seconds for hand washing (Fig:1).

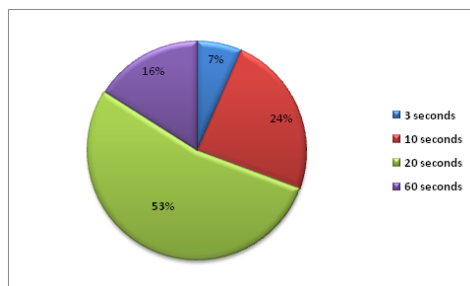


Figure1: Minimum time practiced for hand washing

DISCUSSION

This research study was done to find out knowledge and practices of hand hygiene among interns from tertiary care centre in Tamilnadu, India. Majority of the participants had moderate knowledge about hand hygiene. Majority of the participants were doing hand hygiene practices routinely.

The study done by Ravichandran B et al showed that majority of the participants had moderate knowledge regarding hand hygiene¹⁰. Another study done by Thakker VS et al reported that majority of the students had moderate knowledge. Nair SS et al found that majority of the participants had moderate knowledge^{15,16}. Kamble VS et al showed that majority of the participants had moderate knowledge regarding hand hygiene. The findings were comparable to the present study.

In the present study, 40% correctly told that minimum time required for hand washing is 20 seconds. Study done by Nair SS et al (52.9%) & Ravichandran B et al (60.1%) found that, infection prevention notice boards remind them to do hand hygiene. In our study 60% of the interns told infection prevention notice boards helped to do hand hygiene¹⁰.

LIMITATIONS: Sample size was small. It was based only one institution.

CONCLUSION

Our study concludes that majority of the interns have moderate knowledge regarding hand hygiene and more than 50% of them correctly practice hand hygiene. As interns are the group of health care providers who are in close contact with the patients, they must have adequate knowledge regarding hand hygiene practices. This study highlights the need of repeated awareness generation on hand hygiene practices among health care professionals to prevent hospital acquired infections.

RECOMMENDATIONS

Training on Hand hygiene practice should be given to all the medical students as means of primary prevention of infections including communicable diseases. Health education regarding hand hygiene should be communicated to the general public also through mass media like television to prevent spread of infectious diseases.

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