Original Article

Malpractices of Hand Hygiene in Nursing Staff: A Global Threat for Increasing Incidence of Infections

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ABSTRACT

Objective: This study assessed the knowledge, practice of standard hand hygiene in nursing staff to identify the causes of not adapting hand hygiene techniques during routine patient care.
Study Design: A cross sectional study.
Place and Duration of Study: This study was carried out in Karachi in various public sector hospitals i.e. Jinnah Postgraduate & Medical Centre, National Institute of Child Health, Civil Hospital Karachi, Sindh Institute of Urology Transplantation, National Institute of Cardiovascular Diseases. The study completed in six months from May to November 2010.
Materials and Methods: A sample of 335 nursing staff was selected, convenient sampling was used, consent was taken. They were asked about their practices of hand hygiene through structured questionnaire at five major public sector hospitals of Karachi. Pakistan.
Results: Out of 335 nursing personnel, 71.9% were unaware that washing hands under running water for 30sec to 1min remove most of the germs. 74.62% knows that hand washing is necessary. Regarding practices, 35.5% use sanitizers while 47.2% use antiseptic, normal soap for washing hands. 67.1% practice hand washing before & after coming in contact with patients. 43.7% took some treatment after needle prick while others (56.3%) didn't feel the necessity to take any treatment, regardless of the risk of Hepatitis, HIV. 36.1% adopted sterile techniques after hand washing. Surveillance was below average (46.6%)..
Conclusion: Hand hygiene knowledge, practices of nursing staff is part & parcel for minimizing infections. Adequate hand washing facilities, positive attitude towards hand hygiene, adherence to practice, strict surveillance system for hand hygiene is essential to combat increasing incidence of infections.
Key Words: Hand Hygiene, malpractice, infections.

INTRODUCTION

Hand hygiene is considered to be the most effective measure to prevent microbial pathogens cross-transmission, healthcare-associated infections and the spread of anti-microbial resistance. The skin on hands is first defense against infection from pathogenic organisms. Hands are the most likely way in which infections or microorganisms spread between people. So washing hands is simply the most effective method of preventing the transmission of infections.

The Centers for Disease Control and Prevention (CDC) and other healthcare-related organizations states that through cleaning hands before and after having contact with patients is one of the most important measures for preventing the spread of infections in healthcare settings.[1]

Hand hygiene is a major component of standard precautions and one of the most effective methods to prevent transmission of pathogens associated with health care. [2] It is considered to be the primary measure to reduce the transmission of nosocomial infections. [3-4] Noncompliance with hand hygiene, however, remains a major problem in public sector care hospitals in Pakistan.

According to World Health Organization (WHO), the five moments must be remembered to wash hands; i.e. before and after patient contact, before performing aseptic procedure, after exposure to body fluids and after contact with patient surroundings.

Health Education is one of the cornerstones for improvement with hand hygiene practices. Health Care Workers education must be promoted at all levels of experience.[7] This study high-lights the lack in practices of standard hand hygiene in nursing staff and their attitude to maintain proper hand hygiene with increasing experience.

MATERIALS AND METHODS

A cross sectional study was carried out in Karachi in various public sector hospitals i.e. Jinnah Post-graduate & Medical Centre (JPMC), National Institute of Child Health (NICH), Civil Hospital Karachi, Sindh Institute of Urology & Transplantation (SIUT) and National Institute of Cardiovascular Diseases (NICVD).

The study completed in six months from 15th May to 25th November 2010. The required permission was obtained from the administrators of various departments prior to study.

Nursing staff & Trainees working in the public sector Hospitals, departments of Medicine & Allied, Surgery & Allied, Gynecology & Obstetrics and Pediatrics were included.

A pilot study was carried out in Jinnah Post-graduate Medical Centre (JPMC) to test the applicability and consistency of the tools.

The sampling technique used is convenient sampling and a sample size of 335 has been taken by keeping a population result of 68.8% with 95% confidence interval (95% Cl) and 5% margin of error, p-value of 0.05 was considered as statistically significance.

The study protocol was approved by Research Supervisor, Community Medicine Department, Sindh Medical College (DUHS), and an informed consent was taken from the subjects who were personally interviewed through a structured questionnaire.

Nursing personnel working in these hospitals were assessed according to the World Health Organization (WHO) protocol based on basic concepts of hand hygiene & its parameters.

Data Analysis*:* The significance of the data was determined by using Statistical Package of Social Sciences software Version 16.0. The results are expressed as frequencies, percentages, cross tabulations, pie charts and bar charts.

RESULTS

Out of 335 individuals, 219 (65.37%) were females and 116 (34.62%) are males including 183 (54.6%) staff nurses & 152 (45.6%) trainees having ages between16 years to 50 years.250 (74.62%) has sufficient knowledge about the benefits of hand washing while the facilities were available only to 115 (34.3%). Regarding knowledge, 240 (71.6%) didn't even know that running water for 30 seconds to 1 minute can wash out most of the micro-organisms from their hands leaving only 95 (28.4%) with this piece of knowledge.

83.3% staff was daily getting exposed to body fluids (blood/urine/CSF/peritoneal fluid). 66% of the staff claimed that it was common practice if they didn't wash hand in heavy rush hours of patients.

Regarding practice, 279 (83.3%) staff was daily getting exposed to body fluids (blood/urine/CSF/peritoneal fluid etc). 221 (66%) of the staff claimed that it was common if they didn't practice hand washing in heavy rush hours of patients

Only 114 (34%) said that they properly practice hand washing in heavy rush of patients. 189 (56.4%) remembered that they had needle prick during their nursing practice at least once & 146 (43.6%) couldn't recall or didn't have needle prick.

Table No. 1: Frequencies of positive & negative results asked to the nursing staff.

S. No.	Questions	Yes%	No %
1	Staff having formal training regarding hand hygiene	71.9%	28.1%
2	Staff practicing hand washing before & after coming in contact with patients	67.1%	32.9%
3	staff using antiseptic or normal soap	47.2%	12.83%
4	Staff using sanitizers for hand washing	35.5%	64.5%
5	Staff practicing sterile techniques after hand washing	36.1%	63.9%
6	Staff using gloves while performing aseptic techniques	92.8%	7.2%
7	Staff practicing hand washing in heavy rush of patients	34%	66%
8	Staff having surveillance	46.6%	53.4%

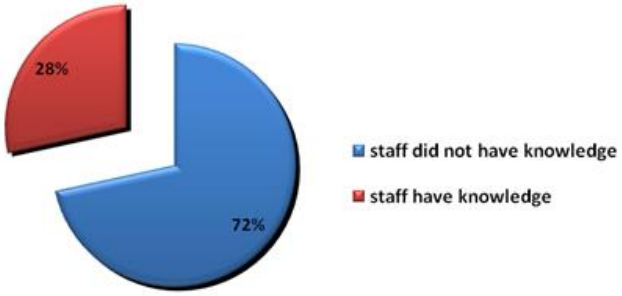

Figure 1.1: Percentage of staff having knowledge of keeping hands under running water for 30 seconds to one minute.

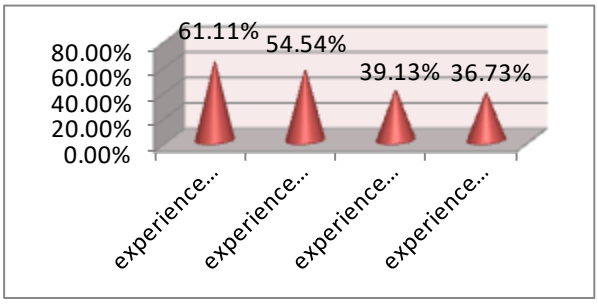

Figure 1.2: Comparison of needle prick treatment among nursing staff with increasing experience.

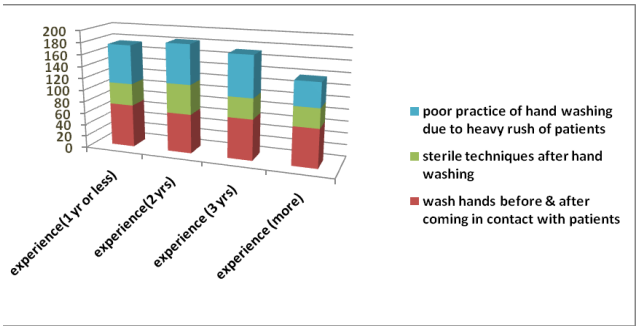

Figure 1.3: Practices of hand washing in heavy rush of patients with increasing experience.

DISCUSSION

Poor hand hygiene is the main source of infections amongst nursing staff as well as in patients. World Health Organization has given reviewed results of different studies done worldwide about hand hygiene which showed that the adherence of health care workers to recommended hand hygiene procedure was unacceptably poor with the overall average of about 40 %.[8] The study showed that 74.62% nursing staff knew about the significance of hand washing but the basic knowledge was lacking. For instance, 71.6% of nursing staff was not aware of the fact that keeping hands under running water for 30 seconds can decontaminate hands to quite an extent. Regarding practice, 67.1 % washed their hands before and after attending the patient. But many of them didn't use sterile technique s after washing hands. Reason behind malpractice were found to be heavy rush of patients in public sector hospital resulting in low staff to patient ratio and also lack of proper surveillance system. Another contributing factor was experience of the nursing staff as it was assessed that as the experience increases, the mal-practices to work properly increases.

Most of the nursing staff had experienced needle prick out of which less than half had taken some treatment. Previously, many studies have been carried-out worldwide regarding hand hygiene amongst nursing staff. In our study it was found that 74.62% nursing staff had sufficient knowledge but only 66% were practicing it. It also showed that 34.3% had facilities available for hand washing. A very similar observational study was done locally at a major public sector hospital in Karachi, and it showed that 68.8% had sufficient knowledge about hand washing but 59% were practicing it, while 16.8% were provided with hand washing facilities.[9]The study also assessed that the positive attitude was significantly higher among younger individuals who were working as trainee and about 67.1% decontaminate their hands before and after coming in contact with patients while compliance for invasive procedures was 92.8%. Another study done in Italy showed that hand hygiene practice was significantly higher among the older personnel and in those with the high level of knowledge and 72.5% decontaminate hands before and after patient contact. High compliance is reported for invasive maneuvers (96.5%). [10] Regarding needle prick, our study revealed that only 43.7% took some treatment after needle prick. While a study done in the US showed that a large proportion of respondents did not take any treatment after needle prick. [11]In this study, 71.6% of the staff did not even know that washing hands under running water for 30 seconds can wash out most of the micro-organisms but a study in Peru showed that mean duration for hand washing following patient contact is 14.5 seconds.[12]According to the study, the surveillance system was found to be 46.6% while a study in Switzerland showed that compliance improved progressively from 48% in 1994 to 66% in 1997 after implementing proper surveillance program, because of same frequency of hand disinfection substantially increased during the study period and overall nosocomial infections decreased from 16.9% in 1994 to 9.9% in 1997. [13] Study revealed 35.5% of staff used sanitizer for hand washing, it was revealed that hand washing increased significantly by the introduction of waterless hand sanitizers from 73% to 83% before and 80% to 90% after patient contact.[14]

CONCLUSION

The study highlights the lack in practice of hand hygiene by nursing staff. The striking reasons found for poor practices were either lack of knowledge, facilities or intense patient flow. The study assessed as the experience increased, the adherence towards hand hygiene decreased, making a strong indication for transmission of microorganisms among the patients, health care personnel. Adequate hand washing facilities, adherence to practice, strict surveillance system for hand hygiene is essential, should be installed in different wards to ensure the compliance of hand hygiene techniques. Nursing staff should be highly aware of the consequences of needle prick; Upgrading knowledge regarding hand hygiene of nursing staff should be a part of routine work.

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