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Influence of interventional program on hand hygiene among health care professionals

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Abstract
Introduction: Hand hygiene is the cornerstone measure of prevention of health care-associated infection and to ensure safe patient care. However, health care workers' compliance with good practice is low in most settings. Our main objective in this study was to increase hand hygiene compliance among health care workers after three months of interventional program.
Materials and methods: It was a pre-post intervention study in tertiary care teaching hospital. Knowledge was assessed using WHO's hand hygiene questionnaire before and after intervention.
Results: A total of 69 participants were included in the study. Out of 69, 15(21.74%) were specialty doctors, 29 (42.03%) were nurses and 25(36.23%) were interns. Positive improvement in the most percentages of knowledge items were observed among all the categories of participants.
Conclusion: The present study shows clearly that there is a need for the development of strategies to improve hand hygiene compliance among health care professionals.

Keywords: Hand hygiene, health care workers, hospital acquired infections

Introduction
The nosocomial infections has been on the ascent bringing about delayed hospital stay and financial weight to the healthcare services. Nosocomial infections are a noteworthy reason for expanded morbidity and mortality. Unsatisfactory hand cleanliness practices increment the danger of hospital acquired infections. Perhaps the best practice to avert health care associated infections is hand cleanliness procedure [1].
In 1846, Ignaz Semmelweis observed that women whose babies were delivered by students and physicians in the First Clinic at the General Hospital of Vienna consistently had a higher mortality rate than those whose babies were delivered by midwives in the Second Clinic [2].
He noted that physicians who went directly from the autopsy suite to the obstetrics ward had a disagreeable odor on their hands despite washing their hands with soap and water upon entering the obstetrics clinic. He postulated that the puerperal fever that affected so many parturient women was caused by "cadaverous particles" transmitted from the autopsy suite to the obstetrics ward via the hands of students and physicians. Contaminated hands of health care workers is the main reason for transmission of infections which causes around 7-10% of morbidity and mortality among hospital admissions [3].
Our main objective in this study was to increase Hand Hygiene compliance among health care workers after three months of a intervention program.

Materials and Methods
This was a pre and post intervention study conducted in the department of obstetrics and gynaecology of our hospital. Study participants were specialty doctors, interns and nurses of obstetrics and gynaecology.

Intervention program
The hand hygiene training workshops were conducted. Training in theoretical-practical workshops for the professionals of healthcare on HH techniques. The strategy was multi-faceted (many perspectives), multimodal (many procedures) and multidisciplinary.
The HH training workshop was focused on strategies for creating changes in behaviors, beliefs and habits concerning traditional hygiene. There was also an emphasis on morbidity, mortality, the costs related with nosocomial infections and on the epidemiological evidence of the effects

of a conclusive improvement in HH. There was a practical section to familiarize professionals with the ideal technique for achieving the maximum effectiveness in HH.

All participants were provided with self-report questionnaires to fill before training and data was collected. After three months of training programme again self-report questionnaires was distributed to fill. Questionnaire form - It was the questionnaire for hand hygiene knowledge assessment in HCWs. from 2009 Global patient safety strategy initiative WHO guidelines. It contained, main questions and sub-questions. The answers were multiple choices, Yes/No type or single choice type, true/false etc. Correct responses were calculated in the form of percentages.

Results

A total of 69 participants were included in the study. Out of 69, 15(21.74%) were specialty doctors, 29 (42.03%) were nurses and 25 (36.23%) were interns. Table showed the positive improvement in the most percentages of knowledge items especially those regarding main route of cross-transmission of potentially harmful germs between patients in a healthcare facility, frequent source of germs responsible for healthcare-associated infections and Hand rubbing is more rapid for hand cleansing than hand washing. Positive response was consistently 100%, transmission of infection immediately after a risk of body fluid exposure to the health care worker and need of hand wash after visible exposure to blood.

Table 1: Knowledge assessment on hand hygiene before and after intervention.

Questions	Before training	After training
Which of the following is the main route of cross-transmission of potentially harmful germs between patients in a healthcare facility? (Healthcare workers' hands when not clean)	39(56.52)	69(100)
What if the most frequent source of germs responsible for healthcare-associated infections? (Germs already present on or within the patient)	27(39.13)	65(94.20)
Which of the following hand hygiene actions prevents transmission of germs to the patient?		
Before touching a patient (Yes)	28(40.58)	69(100)
Immediately after a risk of body fluid exposure(Yes)	19(27.54)	57(82.61)
After exposure to the immediate surroundings of a patient (Yes)	38(55.07)	51(73.91)
Which of the following hand hygiene actions prevents transmission of germs to the healthcare worker?		
Before touching a patient (Yes)	33 (47.83)	49(71.01)
Immediately after a risk of body fluid exposure (Yes)	69(100)	69(100)
After exposure to the immediate surroundings of a patient(Yes)	54(78.26)	69(100)
Immediately before a clean/aseptic technique(Yes)	45(65.22)	56(81.16)
Which of the following statements on alcohol-based hand rub and hand washing with soap and water are true?		
Hand rubbing is more rapid for hand cleansing than hand washing(True)	53(76.81)	69(100)
Hand rubbing causes skin dryness more than hand washing(False)	37(53.62)	48(69.57)
Hand rubbing is more effective against germs than hand washing (False)	29(42.03)	55(79.71)
Hand washing and hand rubbing are recommended to be performed in sequence (False)	21(30.43)	47(68.11)
What is the minimal time needed for alcohol-based hand rub to kill most germs on your hands? (20 seconds)	20(28.99)	57(82.61)
Which type of hand hygiene methods is required in the following situations?		
Before palpation of the abdomen(rubbing)	23(33.33)	44(63.77)
Before giving an injection (rubbing)	35(50.72)	57(82.61)
After emptying a bedpan (washing)	55(79.71)	69(100)
After removing examination gloves (rubbing/washing)	51(73.91)	69(100)
After making a patient's bed (rubbing)	33(44.83)	54(78.26)
After visible exposure to blood (washing)	69(100)	69(100)
Which of the following should be avoided, as associated with increased likelihood of colonization of hands with harmful germs?		
Wearing jewelry (yes)	53(76.81)	69(100)
Damaged skin (yes)	57(82.61)	69(100)
Artificial fingernails (yes)	38(55.07)	65(94.20)
Regular use of a hand cream (no)	31(44.92)	58(84.06)

Discussion

The present study aimed at determining the knowledge on hand hygiene before and after interventional program. In all three categories of participants it was observed that statistically significant difference in results of pre and post data. Effective hand hygiene compliance in hospitals plays a key role in improving patient and provider safety, and in preventing the spread of HAI. The WHO “my five moments for hand hygiene” represents a standardized approach for training, implementation, monitoring and reporting of HH compliance [41].

Many studies have consistently shown that improved hand hygiene practices have reduced nosocomial infections and cross transmission of multidrug resistant infections in hospitals [5, 6]. Despite this, present day data suggest that hand hygiene compliance among health care personnel in most hospitals is at best, less than 50% [6].

Working in busy wards, doctors (as compared to nursing personnel), understaffing, overcrowding, high-intensity patient care, insufficient time, lack of institutional priority, etc. were some of the risk factors found to be associated with poor hand hygiene compliance. Many attempts have been made in the past to improve hand hygiene compliance, such as educational interventions, motivational programs, etc. However, most of these met with little or temporary success. Hence, several multifaceted interventions, which include behavioral, environmental and social changes, have been suggested and tried to sustain improvements in hand hygiene compliance [7].

Previous reports of a successful hospital-wide hand hygiene promotion campaign, with emphasis on hand disinfection, which resulted in sustained improvement in compliance associated with a significant reduction in hospital infections and methicilllin-resistant Staphylococcus aureus cross-transmission rates over a 4-year period [8]. The beneficial effects of hand hygiene promotion on the risk of cross-transmission have also been

reported in surveys conducted in schools, day-care centers [9, 10]. The study has few limitations, duration of the study period is relatively short. Participants were less in numbers and all categories of our study participants were belong to single department. Further limitation is the education portion of the study was a verbal presentation with the help of power point only without any posters left for visual cues.

Conclusion

The present study shows clearly that there is a need for the development of strategies to improve hand hygiene compliance among health care professionals. All study participants accepted that advancement program executed in this venture spurred them to practice better hand hygiene. This study demonstrated that different methodologies and determined consolation are key elements prompting a supported elevated level of fitting hand hygiene among health care professionals.

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