

Original Research Article

A Study on Knowledge of Hand Hygiene among Health Care Personnel in Selected Primary Health Care Centres in Lucknow

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ABSTRACT

Background: Hand hygiene is one of the cost-effective measures to prevent cross-transmission of pathological microorganisms. Despite of its relative simplicity, compliance with hand hygiene among health care providers is quite low.

Objective: The present study aimed to study the knowledge of hand hygiene among the health care personnel in selected Primary Health Care Centres in Lucknow.

Materials and methods: This was a Cross-Sectional study conducted among health care personnel working at the Primary Health Centres. A total of 89 health care personnel comprising of doctors, nurses, health workers, laboratory technicians, pharmacists and class IV workers were assessed for knowledge using WHO (World Health Organization) hand hygiene questionnaire.

Result: Study revealed variation in knowledge about hand hygiene practice among the different categories of primary healthcare personnel. Suboptimal knowledge was seen with respect to practice of hand hygiene immediately after risk of body fluid exposure (71.8%) and after exposure to immediate surroundings of patient (75.0%) among paramedical staff. Only 27.3% of class IV and 62.5% of paramedical staff were aware that hand washing is more effective against germs than hand rubbing. Only 43.7% of paramedical staff and 27.3% class IV workers were aware that hand rubbing is required before palpation of abdomen. Less than half of paramedical staff and class IV workers (46.8% and 22.7% respectively) were aware that hand rubbing was required before giving injection.

Conclusion: Though the primary healthcare personnel had general awareness about the hand hygiene but they lack specific information. Insufficient and inadequate knowledge of hand hygiene was evident especially among class IV workers.

Keywords: Knowledge, healthcare personnel, Hand hygiene.

INTRODUCTION

Health care associated infection has been identified as one of the major challenges of modern medicine and remains as a major health concern around the globe.

^[1] Health Care Workers hands become progressively colonized with commensal flora as well as with potential pathogens during patient care. Contaminated hand could be vehicles for the spread of viruses and bacteria. ^[2] According to WHO, the

prevalence of these nosocomial infections, is as high as 19%, in developing countries posing a challenge to health care providers. ^[3] In spite that hand hygiene has been recognized as the leading measure to prevent cross-transmission of microorganisms and thereby reducing the incidence of health care associated infections, ^[4] compliance with hand hygiene among health care providers is as low as 40%. ^[5] Although various studies have

demonstrated the role of hand hygiene in reduction of health care-associated infection rates, but adherence to hand hygiene guidelines remains uniformly low among especially among primary health care workers. The present study was undertaken to assess the knowledge of hand hygiene practices among the health care personnel in selected Primary Health Care Centres in Lucknow.

MATERIALS AND METHODS

Study Setting: The study was conducted at Primary health care centres of Lucknow.

Study Design: Hospital-based cross-sectional study.

Study population: Health care personnel (designated as medical officers, staff nurses, health workers, laboratory technicians, pharmacists and class IV workers)

Sampling

The present study was conducted in 13 randomly selected primary health centres in Lucknow from March 2014 to May 2014. A total 89 health care personnel working at primary health centres present during the visit of investigator to centre and willing to participate were included in the study.

Data management: Knowledge was assessed using WHO hand hygiene questionnaire for health care workers. This pro-forma of 25 questions includes multiple choice and “yes” or “no” questions. The information collected on the study schedule was transferred on the pre- designed classified tables and analysed according to the aims and objectives.

RESULTS

A total 89 health care personnel including 15 doctors (medical officers), 20 staff nurses, 32 paramedical staff (Lab Technician and Pharmacist) and 22 class IV workers (cleaners and maintenance personnel) were included in the study.

All the healthcare personnel (100%) correctly opined that unclean hand to be the main route of cross-transmission of potentially harmful germs between patient and healthcare facility. Although all the

medical officer had knowledge of germs already present on or within the patient to be the most frequent source of germs responsible for healthcare associated infection but knowledge same was comparatively low among staff nurses, paramedical staff and class IV workers (75.0%, 68.7% and 59.1% respectively). Out of four questions regarding hand hygiene actions which prevent transmission of germs to healthy patient, medical officers had complete awareness among all domains; comparatively lower awareness was seen with respect to practice of hand hygiene immediately after risk of body fluid exposure (71.8%) and after exposure to immediate surroundings of patient (75.0%) among paramedical staff. Out of five questions regarding hand hygiene action which prevents transmission of germs to the healthcare worker; majority (more than 90%) of all healthcare personnel were aware of all four domains. All the medical officers (100%) had adequate knowledge about alcohol based hand rub as well as hand washing with soap and water practices. But in contrast to that only 75.0% of staff nurses, 78.1% of paramedical staff and only 45.4% of class IV workers were aware that hand rubbing is more rapid for hand cleaning than hand washing. Only 27.3% of class IV and 62.5% of paramedical staff were aware that hand washing is more effective against germs than hand rubbing. About 60.0% of staff nurses, 40.6% of paramedical staff and 63.7% of class IV workers were aware that hand washing and hand rubbing are not recommended to be performed in sequence. Although majority (80.0%) of medical officer said that time needed for alcohol based hand rub to kill germs to be twenty seconds; but in contrast the knowledge about same was comparatively less among other healthcare personnel (75.0%, 37.5% and 22.7% for staff nurses, paramedical staff and class IV worker respectively). About 73.3% of the medical officers, 65.0% of staff nurses, 43.7% of paramedical staff and only 27.3% class IV workers were aware that hand

rubbing is required before palpation of abdomen. Less than half of paramedical staff and class IV workers (46.8% and 22.7% respectively) were aware that hand rubbing was required before giving injection. Majority (90.0%) of class workers although were aware that hand washing to be done after emptying the bed pan. More than half of all healthcare personnel were aware that hand washing to be done after visible exposure to blood. Almost all the

medical officers (93.3%) and staff nurses (95.0%) were aware that wearing jewellery increased the likelihood of colonization of hand with harmful germs; while knowledge about same was lowest among class IV worker. Majority (more than 80%) of all healthcare personnel correctly opined that touching of damaged skin to be avoided, as associated with increased likelihood of colonisation of hands with harmful germs.

Table 1: Comparison of knowledge among health care personnel about hand hygiene (N=89)

Knowledge about hand hygiene	Medical officers (n=15)	Staff nurses (n=20)	Paramedical staff (n=32)	Class IV worker (n=22)
1. Which of the following is the main route of transmission of potentially harmful germs between patients? (health care workers hands when not clean)	15(100.0)	20(100.0)	32(100.0)	22(100.0)
2. What is the most frequent source of germs responsible for health care associated infections? (germs already present on or within the patient)	15(100.0)	15(75.0)	22(68.7)	13(59.1)
3. Which of the following hand hygiene actions prevents transmission of germs to the patient?				
3A. Before touching a patient (yes)	15(100.0)	20(100.0)	32(100.0)	20(90.1)
3B. Immediately after risk of body fluid exposure (yes)	15(100.0)	20(100.0)	23(71.8)	20(90.1)
3C. After exposure to immediate surroundings of a patient (no)	15(100.0)	18(90.0)	24(75.0)	21(95.4)
3D. Immediately before a clean/aseptic procedure (yes)	15(100.0)	20(100.0)	32(100.0)	22(100.0)
4. Which of the following hand hygiene actions prevents transmission of germs to the health care worker?				
4A. After touching a patient (yes)	15(100.0)	20(100.0)	32(100.0)	21(95.4)
4B. Immediately after a risk of body fluid exposure (yes)	15(100.0)	20(100.0)	32(100.0)	21(95.4)
4C. Immediately before a clean/aseptic procedure (no)	15(100.0)	20(100.0)	32(100.0)	20(90.1)
4D. After exposure to the immediate surroundings of a patient (yes)	15(100.0)	20(100.0)	32(100.0)	20(90.1)
5. Which of the following statements on alcohol-based hand rub and hand washing with soap and water is true				
5A. Hand rubbing is more rapid for hand cleansing than hand washing (true)	15(100.0)	15(75.0)	25(78.1)	10(45.4)
5B. Hand rubbing causes skin dryness more than hand washing (false)	15(100.0)	16(80.0)	22(68.7)	7(31.8)
5C. Hand rubbing is more effective against germs than hand washing (false)	15(100.0)	18(90.0)	20(62.5)	6(27.3)
5D. Hand washing and hand rubbing are recommended to be performed in sequence (false)	15(100.0)	12(60.0)	13(40.6)	14(63.7)
6. What is the minimal time needed for alcohol-based hand rub to kill most germs on your hands? (20 seconds)	12(80.0)	15(75.0)	12(37.5)	5(22.7)
7. Which type of hand hygiene method is required in the following situations?				
7A. Before palpation of the abdomen (rubbing)	11(73.3)	13(65.0)	14(43.7)	6(27.3)
7B. Before giving an injection (rubbing)	13(86.6)	14(70.0)	15(46.8)	5(22.7)
7C. After emptying a bed pan (washing)	12(80.0)	20(100.0)	30(93.7)	20(90.1)
7D. After removing examination gloves (rubbing/washing)	14(93.3)	18(90.0)	23(71.8)	19(86.4)
7E. After making a patient's bed (rubbing)	13(86.6)	15(75.0)	18(56.2)	16(72.7)
7F. After visible exposure to blood (washing).	15(100.0)	18(90.0)	28(87.5)	15(68.2)
8. Which of the following should be avoided, as associated with increased likelihood of colonization of hands with harmful germs?				
8A. Wearing jewellery (yes)	14(93.3)	19(95.0)	22(68.7)	15(68.2)
8B. Damaged skin (yes)	15(100.0)	20(100.0)	30(93.7)	19(86.4)
8C. Artificial fingernails (yes)	13(86.6)	18(90.0)	21(65.6)	10(45.4)
8D. Regular use of a hand cream (no)	13(86.6)	19(95.0)	30(93.7)	18(81.8)

DISCUSSION

Limited comparable studies are available from India in context to hand hygiene practices focussing on primary healthcare personnel. In our study, all the categories of healthcare personnel had quite optimal overall knowledge on hand hygiene.

Although knowledge of medical officers on various aspects of hand washing was better than staff nurses, paramedical staff and class IV workers. Similar findings were reported by study conducted by Harsha et al in Mangalore city. ^[6] In present study all the healthcare personnel (100%) correctly had knowledge that unclean hand to be the main

route of cross-transmission of potentially harmful germs between patient and healthcare facility which is much higher the studies that were conducted among healthcare personnel and medical as well as paramedical students.^[6-9] Even more than half of all categories of health care personnel answered correctly that frequent source of health care associated infection is germs on/within the patient; which is much higher than reported in earlier studies.^[7,10] This difference might be attributed to the fact that these healthcare personnel are continuously in touch with the various IEC (information, education and communication) activities and training programmes regarding hand hygiene at primary health care centres. Knowledge about hand hygiene immediately after risk of body fluid exposure and after exposure to immediate surroundings of patient among paramedical staff was comparatively low than other categories of health care personnel (71.8% and 75.0% respectively) which is quite a matter of concern as these paramedical staff includes lab technician who continuously most often used to be in touch with patients in hospital settings for investigation purposes. Although overall knowledge about the hand hygiene actions among all categories of health care personnel, which prevent transmission of germs to the health care worker like after touching a patient and immediately after a risk of body fluid exposure respectively are much better as compared to other studies conducted among medical students.^[7,9] As compared to medical officers and staff nurses the knowledge about alcohol based hand rub and hand washing with soap and water as well as knowledge about minimal time needed for alcohol-based hand rub to kill most germs on hands was much lower among paramedical staff and class IV worker. This variation might be due to difference in their basic educational status and type of their work at health care facility. However the knowledge of same among all health care personnel was much higher as compared to other studies conducted among

the healthcare workers as well as medical students.^[6-9] One of the major issues of concern was that only 73.3% of medical officer, 65.0 % of staff nurses, 43.7% of paramedical staff and 27.3% of class IV workers had knowledge that rubbing as the best method of hand hygiene required in situation like palpation of abdomen. Such suboptimal knowledge may put both the patient as well as healthcare providers for cross-infection of pathological microorganism.^[11] A finding in favour was that majority of class IV workers were aware about hand washing after emptying bed pan and rubbing after making patients bed; as class IV workers are more or less designated for these duties in hospital settings. Almost all the medical officers and staff nurses who are more or less in regular contact with patient while their visit to health centres were aware that wearing jewellery, damaged skin and artificial fingernails should be avoided as they are associated with increased likelihood of colonization of hand with harmful germs; a finding in favour for preventing the transmission of pathological microorganism.

However the findings of the study cannot be generalized due to the small size of sample and limited area as it was conducted only at thirteen randomly selected primary healthcare centres. Apart from that only those health care workers who were present at respective centre during the time of visit of the investigator were included in study. Also apart knowledge, attitude and practices couldn't be assessed due to limitation of time.

CONCLUSIONS

Although from over all observation it can be concluded that though primary healthcare personnel had general awareness about hand hygiene but they lack specific information especially about the type of hand hygiene method required in different situation. Variability in findings clearly also showed gaps in knowledge of hand hygiene among different categories of healthcare personnel with comparatively poorer

knowledge among class IV workers. Therefore there is a need to reorient and sensitize the all healthcare personnel through not only when they begin to work in health facilities but also periodic basis about hand hygiene practices, thereby leading to good hand hygiene practices.

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