

AWARENESS REGARDING HAND HYGIENE WITH OR WITHOUT ALCOHOL BASE IN MEDICAL AND SURGICAL SETTING IN A MEDICAL COLLEGE HOSPITAL IN RURAL INDIA : A QUESTIONNAIRE BASED CROSS-SECTIONAL STUDY

Clinical Microbiology

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ABSTRACT

Introduction: In India, the number of medical institutes in both the public and commercial sectors has suddenly increased over the past two decades, creating a special issue of Healthcare associated infections (HAI's). HAI's has raised the morbidity and mortality in the patients. HAI's are responsible for the transmission of the multidrug-resistant organisms (MDRO) in a hospitals as well as wards. Inadequate hand hygiene maybe responsible for the propagation of infections. **Materials and Methods:** This was a cross-sectional prospective study, based on a set of questionnaire. The format was well approved by the institutional ethical committee. A total of 200 people actively participated. Responses were examined on a percentage basis using Microsoft Excel software. **Results:** A total of 200 participants were included out of which approximately 15% (n=30) of participants had not received any formal training in hand hygiene. Only 63.5% of the participants (n=127) knew that most of the microbes which cause health-related diseases are microbes that already exist in or on the patient's body. Although 85% (n=170) of the participants stated that they use hand hygiene practices regularly. **Conclusion:** Our study focused on the issue of awareness regarding hand hygiene in medical professionals. Campaign regarding awareness of hand hygiene and to educate students, medical professionals, nursing staff, sanitary attendants, hospital attendants about the role of hand hygiene in reducing the risk of nosocomial infections in the hospital environment.

KEYWORDS

Hand hygiene, Nosocomial infections, Medical professionals, Antimicrobial efficacy, Patient care.

INTRODUCTION

The importance of healthcare worker's hands in the transmission of nosocomial infections has been all documented and can be minimized by appropriate hand hygiene. However, adherence to hand washing is often suboptimal. Concordance rates have been reported to range between 16% and 81%, with an overall average of 40%. This is due to a variety of reasons, including lack of suitable equipment available, high staff-to-patient ratios, allergies to hand washing products, insufficient staff knowledge of risks and procedures, too long recommended washing items and time required (1).

The bacterial flora on the hands of HCWs can be classified as resident flora and transient flora. Out of these, transient flora is mostly responsible for the transmission of nosocomial infections in healthcare facilities and can be easily removed by appropriate hand hygiene measures. Alcohol hand soaps have been claimed to be more effective than traditional hand washing with soap and water in removal transient bacterial flora on hands (2).

Nosocomial infections are a major health problem. They increase the threat of antimicrobial resistance among the microbial flora found in hospitals. The incidence of nosocomial infections ranges from 3.5% to 10% in general hospital practice and is often higher in intensive care units (15-40%)(3). Even though SSIs are among the most preventable HAIs, they remain a significant burden in terms of patient morbidity, mortality and additional costs to the health system (4)

It is stressed from different authors for the hand hygiene topic to be made as an educational priority (5).

MATERIALS AND METHODS

Type of Study: Prospective, cross-sectional, Questionnaire based study

Duration of the Study: For a period of two months (i.e. February, 2024 – March, 2024)

Place of Study: Al Falah School of Medical sciences & Research Centre, Dhauj, Faridabad (AFMSM&RC)

Methodology

The present study was conducted in a rural tertiary care teaching hospital in Haryana & institutional ethical committee approved this cross-sectional prospective study (Ref. no. AFSMS&RC/F-01/23/02), which was pre-validated questionnaire-based (6). It is a study based upon an ongoing experimental study, the questionnaire was randomly sent to a total of 340 participants which included medical students,

resident doctors, Interns, Nursing staff as well as Professors ,200 of them enrolled in the study.

Each participant was explained the objective of the study and a questionnaire containing 12 questions was given to them. The options for answering the questionnaire were of multiple choice questions category. There was complete anonymity as no names or numbers were mentioned. The data collected was then analyzed using the Microsoft excels software.

RESULTS

240 Google-form based questionnaires were sent, out of which 200 submitted the forms. Out of which the distribution is as follows-

- Medical students 75 (37.5%)
- Resident doctors 45 (22.5%)
- Nursing staff 45 (22.5%)
- Intern doctors 27 (13.5%)
- Faculty 8 (4%)

Q. Have you received any formal training of hand hygiene in the last three years?

- Approximately 15% (n=30) of people participating in the study did not have any training in hygiene. While 85% (n=170) have received formal training of hand hygiene.

Q. Do you routinely use hand hygiene practices?

- Approximately 15% (n=30) of people participating in the study do not use any hand hygiene practices routinely. While 85% (n=170) of people participating in the study use hand hygiene practices routinely.

Q. Which of the following is the most effective method for reducing the number of pathogenic bacteria, if the hands are not visibly dirty/contaminated with blood or other human fluids?

- 74% (n=148) participants believe that applying alcohol-based hand rub to the hands and rubbing hands together until they are dry is the most effective method for reducing bacterial load if the hands are not visibly soiled, while 37% (n=74) participants believe that hand washing with antibacterial soap and water is the most effective method for reducing bacterial load if the hands are not visibly soiled. Also, 24.5% (n=49) participants believe that hand washing with plain soap and water is the most effective method for reducing bacterial load if the hands are not visibly soiled.

Q. Which of the following statements about alcohol-based hand hygiene products is correct?

- 47.5% (n=95) participants believe that alcohol based hand

hygiene kills bacteria more slowly than other soaps with chlorhexidine gluconate and preservatives as well as dries the skin more than repeated hand washing with soap and water; 32% (n=64) participants believe that alcohol based hand hygiene causes more allergies and skin hypersensitivity than chlorhexidine gluconate products; while 25.5% (n=51) participants believe that alcohol based hand hygiene it is effective even if your hands are visibly soiled.

- Q. Which of the following infections could potentially be transmitted from patients to healthcare workers if hand hygiene is not used properly?
- 70% (n=140) participants believe that infections which could be practiced from patients to healthworkers if hand hygiene is not used properly are Infection with herpes simplex virus, Colonization or infection with methicillin-resistant *Staphylococcus aureus*, Respiratory syncytial virus infection, Infection by hepatitis B virus.
- Q. In which of the following situations one should practice hand hygiene?
- 81.5% (n=163) participants believe that hand hygiene should be practiced during patient care, when moving from an infected body part to a clean body part; 79% (n=158) participants believe that hand hygiene should be practiced after direct contact with a patient or after contact with an object near the patient; while 38% (n=76) participants believe that hand hygiene should be practiced after removing the gloves.
- Q. What is the most common source of microbes responsible for health care associated infections?

200 responses

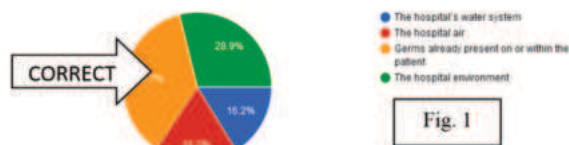


Fig. 1

- [fig.1]
- Q. Which of the following hand hygiene actions prevents transmission of microbes to the patient? (table.1) (Table.1)

Options	Correct answers	No. of correct ans.	No. of incorrect ans.
Before touching the patient	Yes	121(60.5%)	79(39.5%)
Immediately after risk of body fluid exposure	Yes	136(68%)	64(32%)
After exposure to the immediate surroundings of patient	No	66(33%)	134(67%)
Immediately after clean/aseptic procedure	yes	138(69%)	62(31%)

- Q. Which of the following hand hygiene actions prevents transmission of microbes to the health-care worker? (table.2) (Table.2)

Options	Correct answers	No. of correct ans.	No. of incorrect ans.
After touching the patient	Yes	142(71%)	58(29%)
Immediately after risk of body fluid exposure	Yes	153(76.5%)	47(23.5%)
Immediately after clean/aseptic procedure	No	69(34.5%)	131(65.5%)
After exposure to the immediate surroundings of patient	yes	146(73%)	54(27%)

- Q. Which type of hand hygiene method is required before palpation of the abdomen?
- Approximately, 50% (n=100) of people participating in the study answered correctly (marked with an arrow in fig.4). While 9.5% (n=19) participants do not feel the need for the use of any type of hand hygiene methods is required before palpation of the abdomen.
- Q11. Which type of hand hygiene method is required before giving an injection?
- Approximately, 48% (n=96) of people participating in the study answered correctly (marked with an arrow in fig.5). While 7.5% (n=15) participants do not feel the need for the use of any type of hand hygiene methods is required before giving an injection.

- Q12. Which type of hand hygiene method is required after removing examination gloves?

- Approximately, 51.5% (n=103) of people participating in the study answered correctly (marked with an arrow in fig.6). While 12.5% (n=25) participants do not feel the need for the use of any type of hand hygiene methods

DISCUSSION

The presented study sheds light on the crucial aspect of hand hygiene in healthcare settings, particularly in the context of healthcare-associated infections (HAIs). With the rising concerns surrounding HAIs and the transmission of multidrug-resistant organisms (MDRO), effective hand hygiene practices are paramount in mitigating these risks.

The study's findings indicate both strengths and areas for improvement in hand hygiene practices among healthcare workers (HCWs) at Al Falah School of Medical Sciences & Research Centre. Notably, a significant portion of participants reported receiving formal training in hand hygiene, reflecting a proactive approach towards education and awareness in infection control. However, the study also highlights concerning gaps in adherence to hand hygiene protocols, with a notable percentage of participants not routinely practicing hand hygiene.

One notable finding is the discrepancy in perceptions regarding the most effective method for reducing bacterial load on hands when not visibly soiled. While the majority of participants favored alcohol-based hand rubs, a significant minority expressed belief in traditional hand washing with antibacterial soap and water. This variance in understanding underscores the importance of consistent education and clarification of best practices among HCWs.

In terms of methodology, the study's use of a prospective, cross-sectional questionnaire-based approach provides valuable insights into the current state of hand hygiene practices among different healthcare personnel categories. However, future research could benefit from incorporating direct observations or audits to complement self-reported data and provide a more comprehensive assessment of hand hygiene compliance.

Overall, the findings of this study underscore the importance of ongoing education, training, and reinforcement of hand hygiene practices in healthcare settings. By addressing gaps in knowledge, dispelling misconceptions, and fostering a culture of infection prevention, healthcare facilities can significantly reduce the burden of HAIs and improve patient outcomes.

CONCLUSION

This study underscores a critical need to enhance hand hygiene awareness and practices among healthcare professionals and the general public. Despite the importance of proper hand hygiene in preventing healthcare-associated infections (HAIs), there is a significant gap in knowledge and training. 15% lacked any training or regular practice of hand hygiene practices. This highlight significant gaps in knowledge and adherence to hand hygiene protocols, posing risks to patients and healthcare workers and addressing these gaps requires comprehensive educational campaigns and ongoing training to reinforce the importance of hand hygiene in preventing HAIs and the transmission of multidrug-resistant organisms. By prioritizing hand hygiene education and providing accessible resources, we can improve patient safety and overall health outcomes in healthcare settings

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