

Importance of Hand Hygiene in Preventing Healthcare-Associated Infections

Mukesh Kumar Sharma*

Nursing Tutor, RUHS College of Nursing Sciences, Pratap Nagar, Jaipur.

*Corresponding Author: issu7767@gmail.com

*Citation: Sharma, M. (2026). Importance of Hand Hygiene in Preventing Healthcare-Associated Infections. International Journal of Education, Modern Management, Applied Science & Social Science, 08(01(II)), 248–253.
[https://doi.org/10.62823/IJEMMASSS/8.1\(II\).8828](https://doi.org/10.62823/IJEMMASSS/8.1(II).8828)*

ABSTRACT

“Prevention is better than cure”

Clean hands are the most important factor in preventing the spread of pathogen in health care setting. Proper hand hygiene reduces the incidence of health care associated infections because the hands of healthcare workers can transmit pathogens that cause nosocomial infections. According to an estimate by the Centre for Disease Control (CDC), nosocomial infection is the fourth major cause of deaths in the US, with an infection rate of 10 per cent. Though no statistics are available, according to infection control experts, HAI could be between 10 and 30 per cent in India too. Hospital acquired infection is a problem in both developed and developing countries and are an important cause of death. They contribute to a significant burden both for patients and for public health. As per the survey conducted by W.H.O, average of 8.7% of hospital patients had nosocomial infection. At any time, over 1.4 million people worldwide suffer from infectious complications acquired in hospital. Highest incidence of HAI occurs in surgical units and intensive care units. HAI is an important cause of death and economic costs are considerable. This includes cost of additional stay in hospital, drugs, laboratory investigation, loss of work, bed occupancy, delayed discharge, delayed care of other needy patient and more work for health care worker. Health associated infection cannot be completely eradicated. But could be controlled by adherence to proper hand hygiene practices.

Keywords: Effectiveness, PTP, Practice, Hand Hygiene Practices, Staff Nurses.

Introduction

Nosocomial infections constitute a major challenge of modern medicine. On an average, infections complicate 7% to 10% of hospital admissions. Transmission of microorganisms from the hands of Health Care Workers (HCWs) is the main cause of nosocomial infections, and hand washing remains the most important preventive measure. Unfortunately, compliance with hand washing is low in most institutions. Average compliance is usually below 50%.

“Healthcare workers need to receive more effective training in nosocomial infection control.” To provide more effective nosocomial infection control training, healthcare workers should comply with recommended hand hygiene practices.

Hand washing is a fundamental principle and practice in the prevention, control, and reduction of healthcare-acquired infection. Advocated by Semmelweis from the 1800s to resolve an obstetric morbidity and mortality occurrence, the simple act of hand cleansing portrays the intuitive benefits to

basic hygiene, health continuum, and, most important, disease prevention. The term hand washing is replaced by the new term hand hygiene, which includes hand cleansing, hand disinfecting, and surgical hand scrub. In healthcare, the principle of "clean hands are healing hands" bears value and demands compliance in order to prevent and control infectious processes while protecting the person from acquiring infectious diseases.

Hand hygiene in the medical field is the primary measure to prevent healthcare-associated infections (HAIs), requiring a 20-second scrub with soap and water—or alcohol-based rubs—before and after patient contact, after touching contaminated surfaces, and after removing gloves. Proper technique involves washing hands, wrists, and under fingernails, especially when hands are visibly soiled.

Objectives of the study were:

- To identify hand hygiene practices among staff nurses.
- To develop and validate the planned teaching programme.
- To find effectiveness of planned teaching programme on hand hygiene practice among staff nurses.
- To determine association between hand hygiene Practice and selected variables (age, gender, exposure to mass media, years of clinical experience as a staff nurse).

When to Perform Hand Hygiene

- According to the CDC and WHO, healthcare workers must perform hand hygiene:
- **Before** touching a patient or performing invasive procedures.
- **Before** clean/aseptic procedures (e.g. - dressing wounds, inserting catheters).
- **After** body fluid exposure risk.
- **After** touching a patient or their immediate surroundings (e.g.- bed rails, equipment).
- **After** removing gloves.
- Nurses should Keep nails short and natural and should not wear artificial nails or polish.

Technique (Soap & Water - 20 seconds)

- **Wet:** Use warm running water and apply soap.
- **Lather & Scrub:** Rub hands vigorously, covering all surfaces—palm to palm, back of hands, between fingers, thumbs, and under fingernails.
- **Rinse:** Thoroughly rinse soap off, keeping hands down and elbows up (medical hand washing), keeping the hands up and elbow down (surgical hand washing).
- **Dry:** Use a disposable towel and use it to turn off the faucet.

Technique of Hand Hygiene



Indication of Use Soap and Water vs. Sanitizer

- **Soap and Water:** Required when hands are visibly soiled, before eating, after using the restroom, and when caring for patients with known/suspected *Clostridium difficile* or norovirus.
- **Alcohol-Based Rubs:** Preferred for routine decontamination in clinical situations, provided hands are not visibly soiled. Rub hands until dry (approx. 15-20 seconds).

Requisite for proper hand hygiene technique are

- **Duration:** The scrubbing portion should last at least 15–20 seconds.
- **Jewelry:** Remove rings and watches before hand washing to prevent germ harboring.
- **Skin Care:** Use lotion to prevent dry, cracked skin, which can harbor pathogens.
- **Compliance:** Despite its importance, compliance in medical settings can be low, making it a major focus of infection control.

Need for the Study

“Physicians and nurses have been documented repeatedly not wash their hands properly”

- Dr. Joseph lister

Nursing as a profession is now responsible to account for the competence and performance. This has seen the birth of the language of "outcomes". Outcome is a mechanism to evaluate quality, improve effectiveness and link practices to professional accountability.

Nosocomial infection remains a major global concern. It is the most common adverse event experienced by hospitalized patient. More recent data suggest that 10% of patients develop nosocomial infection during admission to an acute care hospital. Many microbes cause nosocomial infection in both patient and Health Care Workers. These include various commensals, pathogenic bacteria, viruses, parasites and fungi.

Among these HIV, Hepatitis B and Hepatitis C are of major significance to Health Care Workers. Nosocomial infections increases morbidity, extend hospital stays and increase hospital charges. They are also associated with substantial increase in hospital mortality.

Many factors have contributed to poor hand hygiene compliance among Staff nurses, including lack of knowledge among personnel about the importance of hand hygiene in reducing the spread of infection and how hands become contaminated, lack of understanding of correct hand hygiene technique, understaffing and overcrowding, poor access to hand washing facilities, irritant contact dermatitis associated with frequent exposure to soap and water.

Staff nurses' hand can become contaminated by touching the body secretions, excretions, nonintact skin and wounds of patients. Accordingly, competent hand washing requires that a sufficient volume of soap is applied to cover all surfaces of the hands and fingers and at least 15 seconds of scrubbing with friction is performed before rinsing. Care should be taken to avoid contamination of hands after hand washing.

Recognizing a worldwide need to improve hand hygiene in health care facilities, the World Health Organization (WHO) launched its Guidelines on Hand Hygiene in Health Care (Advanced Draft) in October 2005. These global consensus guidelines reinforce the need for multidimensional strategies as the most effective approach to promote hand hygiene.

Hand hygiene remains the most crucial element to reduce the risk of transmission of microorganisms in health care set-up from both recognized and unrecognized sources. The ultimate aim of hand hygiene is to reduce the risk of disease transmission in health care setting.

Cleaning your hands reduces the potential spread of deadly germs to patients, the spread of germs, including those resistant to antibiotics, the risk of healthcare personnel colonization or infection caused by germs received from the patient.

Effective hand hygiene prevents the spread of Methicillin-resistant *Staphylococcus aureus* (MRSA), Vancomycin-resistant Enterococcus (VRE), and various drug-resistant bacteria.

Staff nurses contribute a lot towards patient care. The researcher, through his clinical experience and observation, noted that the hand hygiene technique performed by the staff nurses were unsatisfactory whenever necessary in clinical set up. The researcher felt that it is important to educate the staff nurses regarding hand hygiene technique, because hand hygiene remains a crucial element in preventing morbidity and mortality related to health care associated infections.

Methods

Evaluative approach with quasi-experimental design was used for 40 staff nurses(20 staff nurses for medical hand washing and 20 staff nurses for surgical hand washing) through purposive sampling technique. The conceptual framework for the study was developed from the Ludwig Von Bertalanffy's General systems theory. The content validity of tool was established by 10 experts. The reliability of the tool was established by inter rater reliability & found to be 0.79. The pilot study was conducted on five samples selected purposively. The observational checklist was administered to find out the pretest level of practice and the PTP was given on the same day. The posttest was conducted after seven days.

Results

The collected data were analyzed by using descriptive and inferential statistics. All the staff nurses 40 (100%) had poor practice on hand hygiene practices. The mean post-test practice scores of the staff nurses on hand hygiene practice in all areas significantly increased after PTP. Among the four areas of hand hygiene practice the mean percentage score of the subjects in the area of assessment (area1) was 79.166%, in the area of planning (area2) was 49.37%, in the area of implementation (area3)

was 23.14% and in the area of evaluation (area4) was 37.5%. The obtained mean pretest practice score was 24.20 (31.42%), which increased to 54.32 (70.55%) mean posttest practice score, after the administration of PTP.

Interpretation and Conclusion

Findings of the study showed that all the staff nurses 40 (100%) had poor practice on hand hygiene. The PTP facilitated them to update their practice related to hand hygiene. Hence the PTP was an effective teaching strategy to improve the knowledge & practice of staff nurses regarding hand hygiene.

Nursing Implications

The findings of this study have implications for nursing service, nursing education, nursing administration and nursing research.

Nursing Service

As members of the health care team, the nurses play an active role in promotion of health, prevention of diseases, curation of illness and rehabilitation of deformities.

Consumer protection in the hospital is achieved mostly through quality patient care, in which nurses are accountable for their services. Nurses can achieve this only if they have an adequate knowledge, as knowledge serves as a strong base for nursing service. It is therefore necessary to develop the ability to employ appropriate hand hygiene practices. Identifying the need to change is sometimes difficult when practice has gone unchallenged for so long. Nurses can start by recognizing existing practice and being more critical of their own work. Any process implemented should be examined for its effectiveness by the nurse practitioner involved. Through critical interpretation, the most appropriate approach can then be selected to attain the desired outcome.

The findings of the study could be utilized as a basis for in-service education of nurses so that constant awareness and clear understanding may be created regarding hand hygiene practice. It serves as a guideline for nurse administrators to plan continuing education programme, additional instruction or training in the hospital.

As hand hygiene is included in the nursing curriculum, the institutional head should make it compulsory for the undergraduates to develop competency in hand hygiene practices. Because hand hygiene is the single most effective way to prevent the spread of infection.

Nursing Administration

Like people in other professions, nurses operate in an "age of accountability" where quality and cost issues drive the direction of health care. Nurse as an administrator has a crucial role in planning the policies for imparting health information to the patients. Nursing administration must see that a separate budget should be allocated for in-service education in the nursing department.

Continuing education programs in the hospitals are required to teach staff nurses to update their knowledge and skill regarding hand hygiene practice. Nursing administrators may use the study findings to improve the quality of patient care. It highlights the need for nurse administrators to use performance appraisal, nursing audit, develop protocol or guidelines of performance of 'proper hand hygiene practice'.

Nursing Research

Research is the major force in nursing, and the knowledge generated from research is changing practice, education and health policy. Hospital acquired infection is an important cause of death and economic costs are considerable. This includes cost of additional stay in hospital, drugs, laboratory investigation, loss of work, bed occupancy, delayed discharge, delayed care of other needy patient and more work for Regular performance appraisals, nursing audits should be carried out as a part of quality control.

Nursing Education

In hand hygiene promotion programmes for nurses should be focused on specifically on frequently using hand washing when indicated with proper technique and duration and not solely on the type of hand hygiene products. Educate nurses about the type of patient-care activities that can result in hand contamination and about the advantages and disadvantages of various methods used to clean their hands. Monitor HCWs' adherence to recommended hand hygiene practices and provide them with

performance feedback. Encourage partnerships between patients, their families, and HCWs to promote hand hygiene in health care settings.

Limitations

The limitations of the present study were:

- The study was confined to small number of subjects.
- No standard tools were available; therefore the investigator prepared a tool for the purpose of the study.
- The present study lacked control group that did not receive PTP to allow the researcher to test the increase in staff nurses knowledge without PTP.

Recommendations

On the basis of the finding of the study it is recommended that:

- A similar study on a large sample may help to draw more definite conclusions and make generalization.
- A similar study can be conducted on a sample with different demographic characteristics.
- A similar study can be conducted with a view to develop a protocol or procedure manual on hand hygiene practices based on the institution's policy.
- An experimental study may be conducted with randomization on newer hand hygiene products.
- A similar study can be done using videotapes, simulators and other teaching aids.
- A comparative study can be carried out on knowledge of hand hygiene practices among student staff nurses.
- A comparative study can be carried out on knowledge of hand hygiene practices between physician and staff nurses.
- Hand hygiene guideline need to be developed and strictly followed as a part of infection control practice.
- A comparative study can be carried out the effectiveness between to Use Soap and Water vs. Sanitizer.

References

1. Pittet D, Mourouga P, Perneger TV. Compliance with handwashing in teaching hospital. **Ann intern med.** 1999; 130:126-130
2. AJIC: American journal of infection control.34 (2): 100-107, April 2006.
3. Critical Care Nursing Quarterly.27 (3): 295-307, 2004jul-sept.
4. Journal of Hospital Infection.56 (2): 137-41,2004 Feb.
5. Sridhar MR,BoopathiS,Lodha R, Kabra SK.Standard precaution and post exposure prophylaxis for preventing infections. *Indian J Pediatr* 2004; 71:617-626.
6. [http://www.ijppediatricsindia.org/article](https://www.google.com/search?q=http://www.ijppediatricsindia.org/article).
7. Crouch D .A role model for hand hygiene. **Nursing Times** 2003 July; 99(29): 23-5.
8. Pittet D,BoyceJM.Hand hygiene and patient care; Pursuing the Semmelweis legacy.*Lancet Infect Dis.* 2001;1:9-20.
9. Culler T. High-Tech advances in Wound care Yield New Promise. *Defensive Wound Management.*1998 Jan; 28 (10), Available from URL.
10. Pittet D, HugonnetS,etal.Effectiveness of a Hospital-Wide Programme to Improve Compliance with Hand Hygiene.**Lancet.**2000; 356: 397-131.
11. <https://www.cdc.gov/clean-hands/about/hand-hygiene-for-healthcare.html>
12. <https://my.clevelandclinic.org/health/articles/17474-hand-washing>.

