

Assessment of Infection Control Practices Among Healthcare Workers Using an Online Survey Method

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Abstract

Introduction: Practices for infection prevention and control (IPC) are essential to providing healthcare. Because they are frequently exposed to patients, biological fluids, and contaminated settings, healthcare workers (HCWs) are more likely to contract and spread healthcare-associated illnesses (HAIs). Reducing the spread of infections requires adherence to infection control measures such as hand cleanliness, PPE, safe injection techniques, and biomedical waste management. This study used an online survey tool to evaluate healthcare professionals' infection control practices.

Methodology: A cross-sectional survey with a quantitative descriptive methodology was used. 150 healthcare professionals, including nurses, doctors, and allied health specialists employed at particular Indian healthcare facilities, participated in the study. Convenience sampling was used to find participants through an online survey platform. A standardized questionnaire with questions about infection control procedures and demographic data was used to gather data. The analysis employed both descriptive and inferential statistics.

Results: The findings revealed that 68% of healthcare workers demonstrated good infection control practices, 24% demonstrated moderate practices, and 8% demonstrated poor practices. The mean infection control practice score was 78.42 ± 10.56 . Significant associations were observed between infection control practices and professional experience, previous infection control training, and educational qualification ($p < 0.05$).

Conclusion: The majority of healthcare workers demonstrated good infection control practices. However, gaps remain in certain areas such as consistent PPE use and biomedical waste segregation. Regular training and monitoring are recommended to strengthen infection prevention and control practices.

Keywords: Infection Control, Healthcare Workers, Hand Hygiene, Personal Protective Equipment, Healthcare-Associated Infections, Online Survey.

INTRODUCTION

Infections linked to healthcare continue to be a and high-quality healthcare delivery, effective serious global public health concern.¹ Patient morbidity, mortality, extended hospital stays, and higher healthcare expenses are all greatly impacted by these illnesses. Thus, to guarantee patient safety

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infection prevention and control measures are crucial.

In order to stop the spread of infections in healthcare environments, healthcare personnel are essential.² Direct patient contact, handling biological materials, and exposure to potentially infectious settings are all part of their regular duties. Therefore, following infection control protocols is essential to safeguarding patients and healthcare professionals.

A variety of evidence-based strategies are used in infection prevention and control to lessen the transmission of infectious agents.³ Hand hygiene, wearing personal protective equipment, cleaning the surroundings, safe injection techniques, sterilizing processes, respiratory hygiene, and biomedical waste management are some of these activities. The frequency of infections linked to healthcare is greatly decreased when these precautions are properly implemented.

Hand hygiene is thought to be the most cost-effective and efficient way to stop the spread of infections.⁴ The World Health Organization stresses the significance of hand cleanliness during crucial patient care situations. Healthcare professionals' compliance rates differ significantly amongst healthcare settings despite explicit requirements.

An essential defence against exposure to infectious agents is personal protective equipment.⁵ Pathogen transmission can be stopped with the use of gloves, masks, gowns, face shields, and protective eyewear. Standard precautions must include the appropriate choice and application of PPE.

The COVID-19 pandemic brought attention to how crucial infection control procedures are on a global scale.⁶ When providing care for infected individuals, healthcare professionals encountered hitherto unheard-of difficulties. The pandemic highlighted the importance of ongoing education and readiness and raised awareness of infection prevention strategies.

Another crucial component of infection control is the handling of biomedical waste.⁷ Healthcare waste that is improperly disposed of can contaminate the environment and spread disease. Healthcare personnel need to know how to separate, collect, transport, and dispose of biomedical waste.

Variations in infection control techniques among healthcare personnel have been shown in numerous research.⁸ Adherence to infection prevention strategies is influenced by a number of factors,

including knowledge, attitude, workload, institutional regulations, training opportunities, and resource availability. To increase compliance, ongoing observation and educational initiatives are required.

Due to its affordability, accessibility, and ease of use, online survey methods have grown in popularity for healthcare research.⁹ While reducing logistical difficulties, online data collecting enables researchers to connect with a variety of healthcare experts in various geographical regions.¹⁰

Healthcare professionals' infection control practices must be evaluated in order to pinpoint their strengths and areas for development.¹¹ The results of these investigations can be used to guide initiatives for quality improvement, policy creation, and instructional programs. Thus, the current study was conducted utilizing an online survey method to evaluate healthcare professionals' infection control methods.¹²

OBJECTIVES

1. To assess infection control practices among healthcare workers.
2. To determine the level of adherence to standard infection prevention measures.
3. To identify areas requiring improvement in infection control practices.
4. To determine the association between infection control practices and selected demographic variables.

HYPOTHESES

H₁: There will be a significant association between infection control practices and selected demographic variables.

H₂: Healthcare workers with previous infection control training will demonstrate significantly higher infection control practice scores than those without training.

METHODOLOGY

Research Approach:

Quantitative research approach.

Research Design:

Descriptive cross-sectional survey design.

Setting:

Online survey conducted among healthcare workers from selected healthcare facilities across India.

Population:

Healthcare workers including nurses, physicians, and allied healthcare professionals.

Sample Size:

150 healthcare workers.

Sampling Technique:

Non- probability convenience sampling.

Inclusion Criteria:

- Healthcare workers currently employed in healthcare facilities.
- Individuals willing to participate.
- Participants able to access the online survey.

Exclusion Criteria:

- Students and interns not actively practicing.
- Incomplete survey responses.

Research Tool**Section A: Demographic Variables**

- Age
- Gender
- Profession
- Educational qualification
- Years of experience
- Previous infection control training

Section B: Infection Control Practice Questionnaire
40 structured items covering:

- Hand hygiene

- PPE utilization
- Safe injection practices
- Biomedical waste management
- Respiratory hygiene
- Environmental cleaning practices

Scoring Criteria

Poor Practice: 0–40%

Moderate Practice: 41–70%

Good Practice: 71–100%

Validity:

Content validity established by seven experts in infection control, nursing, public health, and epidemiology.

Reliability:

Cronbach's Alpha coefficient = 0.91.

Pilot Study:

Conducted among 15 healthcare workers excluded from the main study.

Data Collection Procedure

An online survey questionnaire was developed using Google Forms. The survey link was distributed through professional networks, healthcare groups, and institutional communication channels. Participation was voluntary and anonymous. Responses were collected over four weeks.

Ethical Considerations

- Institutional ethical approval obtained.
- Electronic informed consent obtained.
- Confidentiality maintained.
- Anonymous participation ensured.

RESULTS

Table 1: Distribution of Healthcare Workers According to Infection Control Practice Levels (N = 150)

Practice Level	Frequency (f)	Percentage (%)
Poor	12	8.0
Moderate	36	24.0
Good	102	68.0
Total	150	100.0

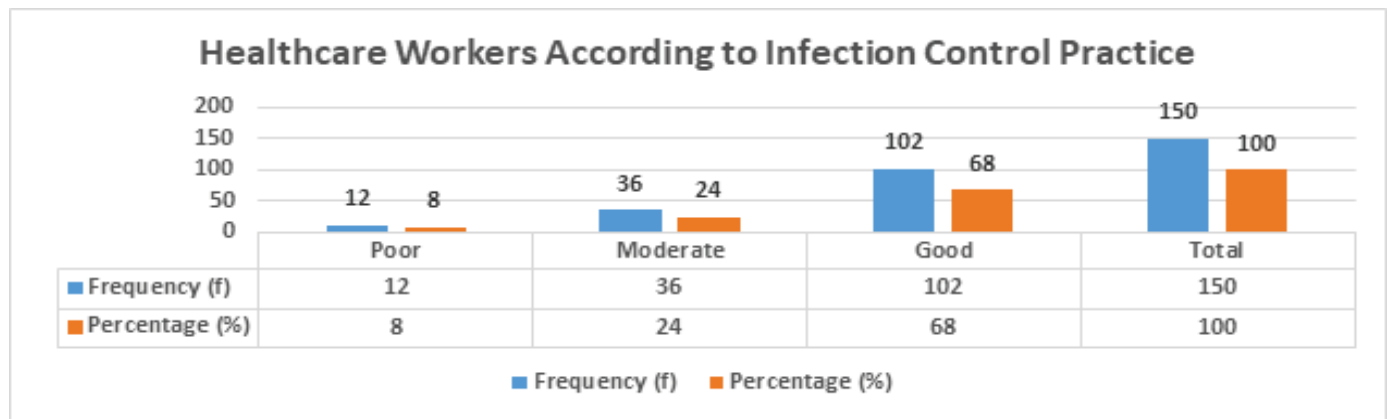


Figure 01

Table 2: Distribution of Healthcare Workers According to Professional Category (N = 150)

Professional Category	Frequency (f)	Percentage (%)
Nurses	85	56.7
Physicians	32	21.3
Allied Healthcare Professionals	33	22.0
Total	150	100.0

Table 3: Mean Infection Control Practice Score Among Healthcare Workers (N = 150)

Variable	Mean	Standard Deviation (SD)
Practice Score	78.42	10.56

Table 4: Association Between Infection Control Practice Scores and Training Status (N = 150)

Training Status	Mean Practice Score
Received Training	82.65
No Training	70.84
Statistical Test	Value
Chi-square (χ^2)	8.72
p-value	< 0.05

MAJOR FINDINGS

- 68% demonstrated good infection control practices.
- 24% demonstrated moderate practices.
- 8% demonstrated poor practices.
- Healthcare workers with prior infection control training scored significantly higher.
- Positive compliance was observed in hand hygiene and PPE use.
- Moderate gaps were identified in biomedical waste segregation practices.

DISCUSSION

The results showed that most healthcare professionals used effective infection control procedures. Similar results have been documented in earlier research showing heightened awareness after the COVID-19 pandemic's increased focus on infection prevention.

Healthcare professionals with infection control training outperformed those without training in terms of practice scores. This result confirms earlier studies showing how educational initiatives can increase adherence to infection prevention recommendations.

While overall compliance was satisfactory, several practices, like the segregation of biomedical waste and the documenting of infection control protocols, showed weaknesses. These weaknesses might be filled through ongoing monitoring and education.

In order to sustain high levels of infection prevention and control, the study emphasizes the significance of ongoing training programs and institutional support.

Conclusion

The majority of healthcare professionals showed strong infection control measures, according to the study's findings. But there are still some shortcomings, especially in areas where rigorous procedural compliance is necessary. To ensure patient safety and lower healthcare-associated infections, regular training, monitoring, and reinforcement of infection prevention recommendations are crucial.

RECOMMENDATIONS

1. Regular infection control training programmes should be conducted.
2. Periodic audits of infection prevention practices should be implemented.
3. Similar studies may be conducted with larger sample sizes.
4. Comparative studies between public and private healthcare facilities are recommended.
5. Educational interventions should focus on identified areas of deficiency.
6. Online training modules may be developed to improve accessibility.

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Nil

CONFLICT OF INTEREST: None

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