International Journal of Medical and Pharmaceutical Research

Online ISSN-2958-3683 | Print ISSN-2958-3675
Frequency: Bi-Monthly
Available online on: https://ijmpr.in/

Original Article

From Guidelines to the Bedside: A Cross-Sectional Analysis of Infection Control Knowledge, Attitude and Practice among Healthcare Workers in Indian Hospitals

Dr Ravi Kumar Sharma[1], Dr Rishi Kant Aharwal[2], Dr Ravita Kumari[3], Dr Akash Shrikhande[4], Dr Ankit Tomar[5]

[1]Assistant Professor, Dept of Respiratory Medicine, GMC Haldwani, India
[2]Assistant Professor, Dept of Respiratory Medicine, Sukh Sagar Medical College, Jabalpur, India
[3]Assistant Professor, Dept of Biochemistry, GMC Haldwani, India
[4]Professor & Head, Dept of Respiratory Medicine, PCMS Bhopal, India
[5]Chest Specialist, JP District Hospital, Bhopal

Corresponding Author:

Dr Ravi Kumar Sharma
Assistant Professor, Dept of Respiratory Medicine, GMC Haldwani, India
Email; drravi133@gmail.com

Received: 06-03-2026
Accepted: 20-03-2026
Available online: 11-04-2026

ABSTRACT

Background: Infection control is a cornerstone of patient safety and healthcare quality. Despite established guidelines, compliance among healthcare workers (HCWs) varies widely.
Objective: To assess the knowledge, attitudes, and practices (KAP) related to infection control among HCWs in a tertiary care setting, nursing homes in Indian hospitals.
Methods: A cross-sectional, multicentric hospital survey of 74 HCWs was conducted using an online structured questionnaire. Data were analyzed descriptively to identify gaps and barriers.
Results: While 93% of participants were aware of infection control guidelines, only 55% consistently practiced hand hygiene before patient contact. Barriers included inadequate training (58%) and insufficient supplies (52%).
Conclusion: Prevention of Infection in hospital and its control remains the biggest challenges still today. The findings of this study reflect high awareness contrasts with inconsistent practices. Targeted training and institutional support are essential to bridge this gap and reduce healthcare-associated infections (HAIs)**.**

Keywords*: healthcare-associated infections (HAIs), HCWs, hand hygiene, WHO, Infection Control.*

INTRODUCTION

The Global burden of healthcare-associated infections (HAIs) remains a relentless and preventable threat, driving avoidable patient suffering, premature deaths, and escalating healthcare costs[1].World health organization (WHO) estimates, prevalence of HAIs is between 5.7 % to 19.1% globally in Hospital settings [2]. There is even more burden of HAIs in low resource countries as compared to high resource and developed countries [3], [4], [5]. Healthcare-associated infections (HAIs) are a major contributor to prolonged hospital stays, elevated mortality rates, and increased healthcare expenditures. Beyond the clinical impact, they impose a substantial economic burden on patients, families, communities, and national health systems[4], [5]. As such, the prevention and control of HAIs represent a pressing public health priority, demanding coordinated efforts across clinical, administrative, and policy domains.

Healthcare-associated infections (HAIs) are frequently linked to two primary sources: the contaminated hands of healthcare workers (HCWs) and improperly cleaned medical equipment [6], [7]. Transmission often occurs when HCWs fail to perform adequate hand hygiene between patient interactions, facilitating the spread of pathogens from one individual to another. The burden of HAIs is not uniform across clinical settings; certain departments are particularly vulnerable [7]. For instance, a study conducted in Norway identified the highest infection rates in intensive care units, followed by neonatal

and burn units—areas where patients are typically more immunocompromised and exposed to invasive procedures[8]. These findings underscore the critical need for rigorous infection control protocols tailored to high-risk environments.

According to the World Health Organization (WHO), several systemic and operational factors contribute significantly to the occurrence of healthcare-associated infections (HAIs). These include suboptimal environmental hygiene, improper waste disposal practices, inadequate infrastructure, shortages in equipment and staffing, overcrowded facilities, and insufficient knowledge or adherence to basic infection control protocols [9]. The absence of standardized national guidelines further exacerbates these risks. In response, the Centers for Disease Control and Prevention (CDC) introduced the concept of Standard Precautions—comprehensive, evidence-based procedures designed to minimize the transmission of infectious agents across all healthcare settings[10]. These precautions serve as the foundational framework for infection prevention, applicable to the care of all patients at all times.

The World Health Organization identifies deficiencies in knowledge, attitude, and practice (KAP) among healthcare workers as critical predictors of healthcare-associated infections (HAIs)[11]. When frontline staff lack adequate understanding, hold indifferent attitudes, or fail to consistently apply infection control measures, the risk of transmission within healthcare settings significantly increases. Strengthening KAP through targeted education and behavioral reinforcement is therefore essential to reducing the incidence of HAIs and improving patient safety.

The failure to rigorously implement basic infection control measures—such as hand hygiene, proper use of personal protective equipment (PPE), and safe waste disposal—is not merely an oversight but a systemic lapse that compromises patient safety and undermines clinical integrity [12]. However, adherence among HCWs is often suboptimal due to knowledge gaps, resource limitations, and behavioral factors[13]. This study aims to evaluate the current state of KAP regarding infection control among HCWs and identify actionable areas for improvement.

METHODS

Study Design and Setting

A descriptive cross-sectional study was conducted at different tertiary care hospitals and nursing homes in North India using standardized structured questionnaire[14] between April 2025 to July 2025. Participants consent was obtained for study.

Ethics Statement: Ethical approval was not sought for this study as it involved an anonymous, questionnaire-based survey with no intervention and no collection of personal or sensitive identifiers. Participation was entirely voluntary, and completion of the questionnaire was taken to indicate implied informed consent. The study posed minimal risk to participants and was conducted in accordance with established ethical principles governing observational public health research.

Participants

A total of 74 HCWs participated, including medical students, nurses, doctors, and technicians. Inclusion criteria were voluntary consent and active clinical engagement. Participants data anonymized and confidentiality maintained.

Data Collection

A structured, self-administered online questionnaire was employed, consisting of four distinct sections: demographic information, knowledge of infection control guidelines, attitudes toward infection control, and self-reported practices along with perceived barriers.

1. Demographics
2. Knowledge of infection control guidelines
3. Attitudes toward infection control
4. Self-reported practices and perceived barriers

Data Analysis

Responses were analyzed using descriptive statistics. Frequencies and percentages were calculated for categorical variables.

RESULTS

Demographics

As shown in Table 1, the study included a total of 74 healthcare workers from various hospitals across India, with a majority (56.8%) aged between 20 and 30 years, followed by 25.7% in the 31–40 age group, 12.2% between 41–50 years, and 6.8% aged 51–60 years. Gender distribution was relatively balanced, with 54.0% female participants, 44.6% male, and 1.4% preferring not to disclose their gender. Professionally, the cohort comprised nurses (33.8%), medical students (33.8%), doctors (25.7%), technicians (5.4%), and medical interns (2.7%), reflecting a diverse mix of clinical roles. In terms of

experience, over half (52.7%) had 0–5 years of clinical exposure, while 21.6% had 6–10 years, 12.2% had 11–15 years, 4.1% had 16–20 years, and 9.5% had more than two decades of experience. This demographic spread offers a representative snapshot of both early-career and seasoned healthcare professionals across multiple levels of care.

Table 1; The demographic profile of Participants

Demographic Variable	Category	Frequency(n)	Percentage
Age	20-30	42	56.8%
	31-40	19	25.7%
	41-50	9	12.2%
	51-60	5	6.8%
Gender	Male	33	44.6%
	Female	40	54.0%
	Prefer Not to say	1	1.4%
Professional Role	Doctor	19	25.7%
	Nurse	25	33.8%
	Technician	4	5.4%
	Medical Students	25	33.8%
	Medical Intern	2	2.7%
Experience	0-5 years	39	52.7%
	6-10 years	16	21.6%
	11-15 years	9	12.2%
	16-20 years	3	4.1%
	>20 years	7	9.5%

KNOWLEDGE

2.1 Awareness about Infection Control Guidelines

The survey results depicted in the bar chart reflect staff awareness of the hospital's infection control guidelines, based on responses from 74 individuals Fig 1, Table 2. A significant majority—56 respondents, or 75.7%—indicated that they are aware of the guidelines, suggesting that infection control protocols are generally well communicated within the institution. However, 8 respondents (10.8%) reported being unaware, and another 11 (14.9%) were unsure, highlighting a notable gap in knowledge that could compromise adherence to safety standards. This lack of clarity among nearly a quarter of the staff underscores the need for targeted educational interventions, such as refresher training sessions, visual reminders, or improved onboarding processes, to ensure consistent understanding and implementation of infection control measures across all departments. Strengthening awareness in this area is essential for minimizing hospital-acquired infections and maintaining a safe clinical environment.

Table 2; Awareness about Infection Control Guidelines

Response	Count(n)	Percentage
Yes	56	75.7%
No	8	10.8%
Not sure	11	14.9%

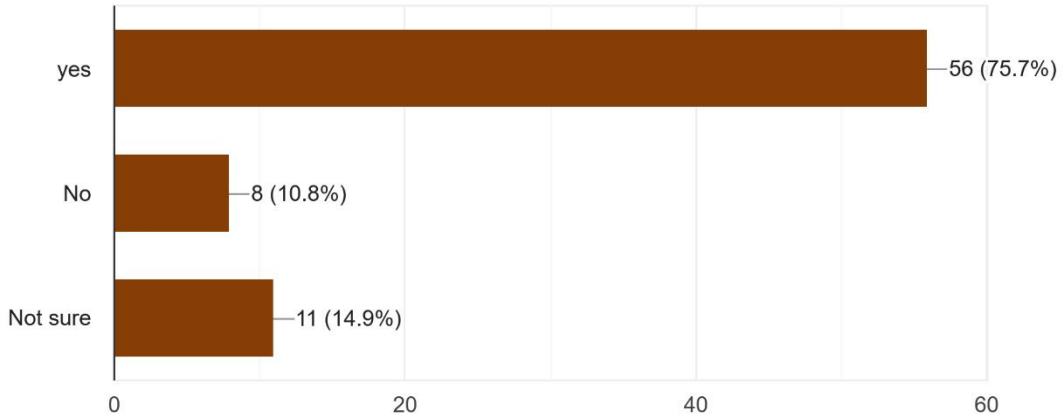

Fig 1; Bar Diagram Showing Awareness about Infection Control Guidelines

2.2 Awareness of Standard Infection Precautions

Regarding the awareness standard precautions to prevent infections, participants have multiple options. The results reveal a strong overall awareness of key infection prevention practices among respondents. The most commonly recognized precaution was hand hygiene, selected by 87.8% of participants, underscoring its foundational role in infection control. Other widely acknowledged measures included the use of personal protective equipment (PPE) (78.4%), respiratory hygiene and cough etiquette (71.6%), and both sterilization/disinfection of equipment and safe injection practices, each selected by 70.3% of respondents. (Table 3, Figure 2). These findings suggest that while core principles of infection prevention are well understood, there remains room to reinforce comprehensive adherence—particularly in areas where recognition falls below 80%. Targeted education and regular competency assessments may help ensure consistent application of these precautions across clinical settings.

Table 3; Awareness of Standard Infection Precautions

Precaution	Responses	Percentage
Hand hygiene	65	87.8%
Use of personal protective equipment (PPE)	58	78.4%
Respiratory hygiene / cough etiquette	53	71.6%
Sterilization and disinfection of equipment	52	70.3%
Safe injection practices	52	70.3%

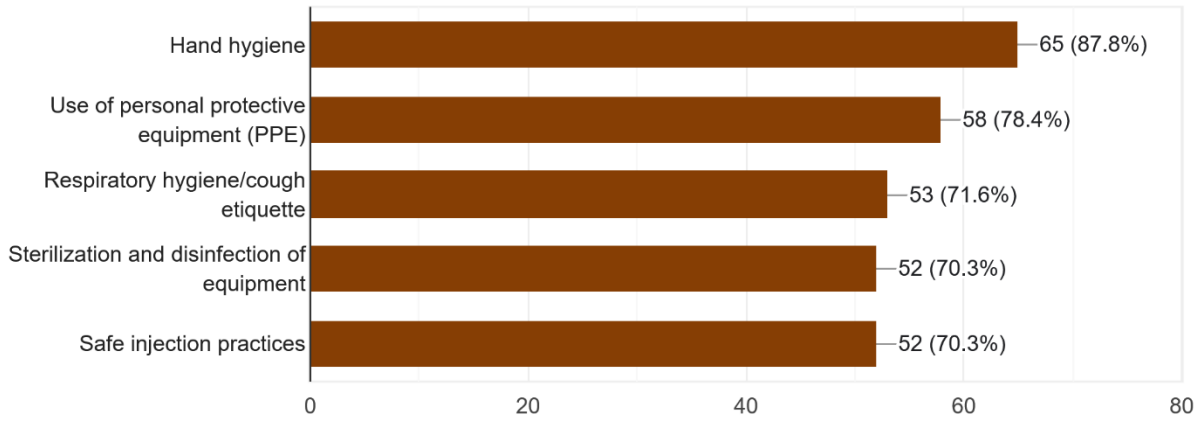

Fig 2; Standard Infection Precautions among HCWs

Hand Hygiene Knowledge and Perceptions Among Healthcare Staff

The two survey questions provide complementary insights into healthcare staff's understanding of hand hygiene effectiveness and technique. In the first question, "Which hand hygiene method is most effective in preventing infections?", the majority of respondents (52.7%) favored handwashing with soap and water, while 36.5% believed both alcohol-based hand rub and soap-and-water methods are equally effective. Only 12.2% selected alcohol-based hand rub as the most effective method. This suggests a strong preference for traditional handwashing, possibly reflecting either training emphasis or perceived thoroughness.

In the second question, "What is the minimum time required for effective handwashing?", responses were more varied. The most selected duration was 30 seconds (47.9%), followed by 1 minute (28.8%) and 20 seconds (24.7%). Only 2.7% chose 10 seconds, and 1.4% were unsure (Table 4). Notably, the WHO and CDC recommend at least 20 seconds for effective hand hygiene, indicating that while most respondents meet or exceed this threshold, nearly half may be overestimating the required time—potentially reflecting a desire for thoroughness but also suggesting a need for clarification in training materials.

Together, these results highlight a generally strong awareness of hand hygiene principles, but also reveal opportunities to align staff perceptions with evidence-based guidelines—especially regarding the comparative effectiveness of alcohol-based rubs and optimal handwashing duration.

Table 4; Hand Hygiene Practices among HCWs

Survey Question	Response Option	Count	Percentage
Most effective hand hygiene method	Handwashing with soap and water	39	52.7%
	Alcohol-based hand rub	9	12.2%
	Both are equally effective	27	36.5%

Minimum time required for effective handwashing	10 seconds	2	2.7%
	20 seconds	18	24.7%
	30 seconds	35	47.9%
	1 minute	21	28.8%
	Not sure	1	1.4%

Attitudes

The responses across these four questions reflect a strong foundational commitment to infection control among staff, and reflects attitudes. It also highlights areas for improvement in training and consistent guideline adherence.

3. 1. Perceived Importance of Infection Control

In response to "Do you believe that infection control practices are essential in your daily work?", all 73 respondents either strongly agreed (75.3%) or agreed (24.7%), with no neutral or negative responses as shown in Figure 3. This unanimous affirmation indicates a deeply ingrained recognition of infection control as a core professional responsibility.

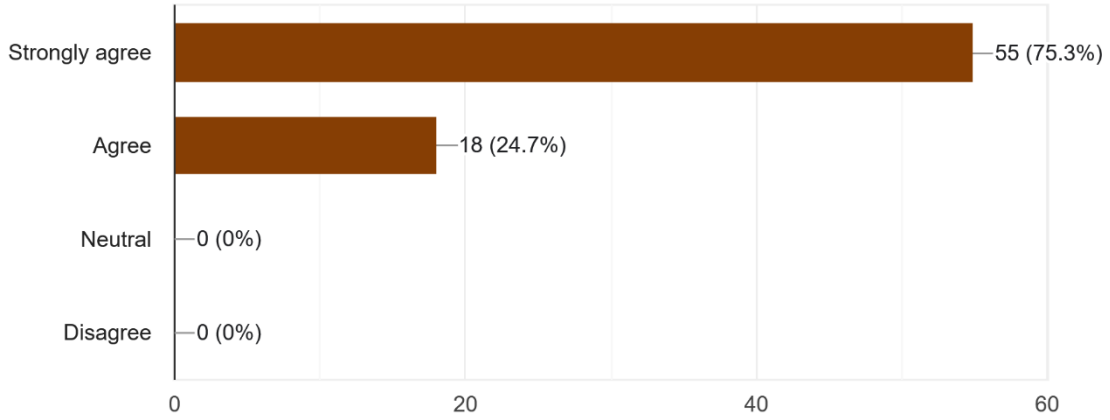

Fig 3; Importance of Infection Control among HCWs

3.2. Belief in Effectiveness Against HAIs

When asked "Do you believe that following infection control practices can reduce the spread of healthcare-associated infections (HAIs)?", 98.6% of respondents either strongly agreed (60.8%) or agreed (37.8%), reinforcing the perception that these practices are not only essential but also effective as shown in Figure 4. Only one respondent was neutral, and none disagreed.

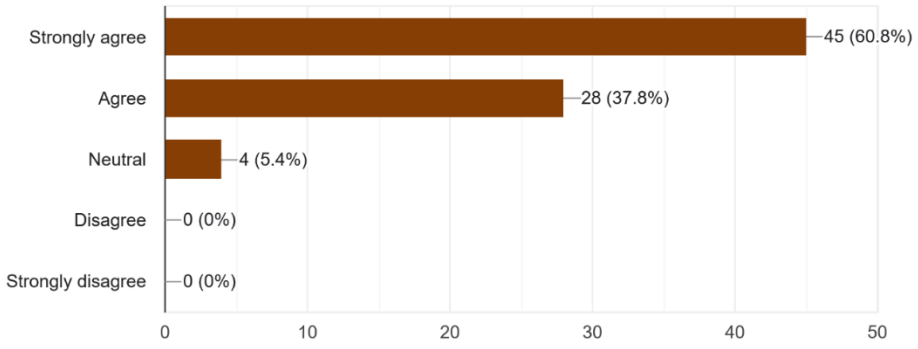

Fig 4; Belief in Effectiveness Against HAIs

3.3. Perceived Adherence in Practice

The question "How often do you think infection control guidelines are followed in your department?" revealed more variability. While 39.2% said guidelines are always followed and 32.4% said often, a notable 24.3% reported sometimes, and 4.1% said rarely as shown in Figure 5. This suggests that despite strong beliefs in the importance and effectiveness of infection control, actual adherence may be inconsistent—potentially due to workflow pressures, resource limitations, or unclear protocols.

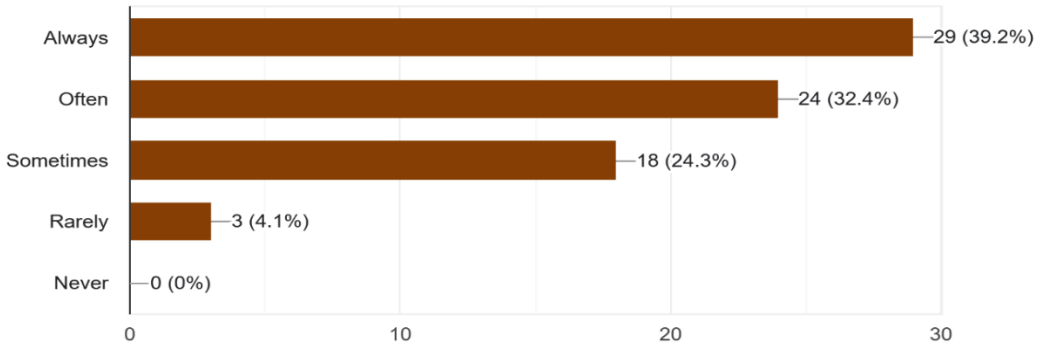

Fig 5; Perceived Adherence of Infection Control Practices Among HCWs

3.4. Training Adequacy in Infection Control

In response to "Do you feel adequately trained in infection control practices?", only 48.6% said yes, while 31.1% said no and 23% said somewhat as shown in Table 5, Figure 6. This indicates that nearly half of the respondents feel underprepared or only partially trained, which may contribute to the variability in guideline adherence noted above.

This gap in perceived preparedness is critical, especially given the high stakes of infection control in clinical environments. It may reflect variability in onboarding processes, inconsistent access to refresher courses, or a lack of hands-on training. Addressing this through structured, department-wide education programs, competency assessments, and regular updates aligned with current guidelines could significantly enhance both confidence and compliance.

Table 5: Perceived Training Adequacy

Response Option	Count	Percentage
Yes	36	48.6%
No	23	31.1%
Somewhat	17	23.0%

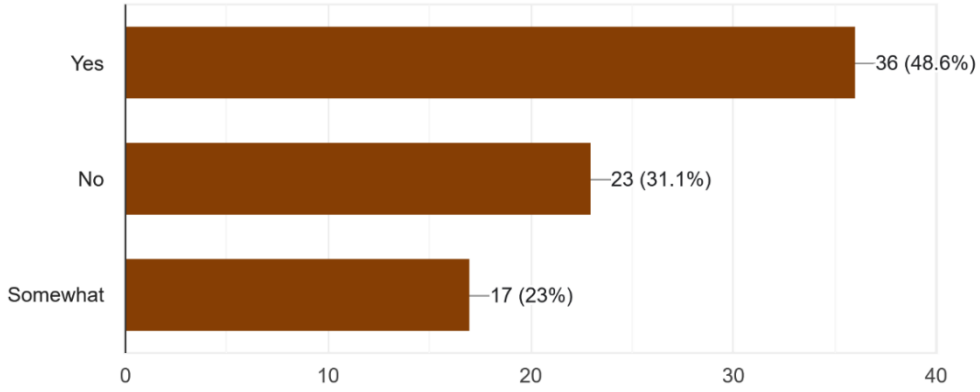

Fig 6; Perceived Training Adequacy among HCWs. This indicates that nearly half of the respondents feel underprepared or only partially trained

Practices

To evaluate current practices and identify areas for improvement, on key domains such as hand hygiene compliance, personal protective equipment (PPE) usage, and equipment disinfection routines, participants were assessed using this questionnaire. The following findings provide a snapshot of real-world behaviors and perceptions, offering actionable insights to strengthen infection prevention strategies across the department.

4.1. Hand Hygiene Before Patient Contact

A strong majority (68.5%) report always performing hand hygiene before patient contact, which is encouraging and aligns with WHO guidelines as shown in Table 6 Figure 7. However, nearly one-third of respondents fall into the "often" or "sometimes" categories, suggesting inconsistent compliance. Even a small percentage of "rarely" responses (1.4%) is concerning in high-risk environments. This highlights the need for reinforcing hand hygiene protocols through audits, reminders, and possibly workflow redesign to reduce barriers.

Table 6; hand hygiene Practice before patient contact

Frequency	Count	Percentage
Always	50	68.5%
Often	15	20.5%
Sometimes	7	9.6%
Rarely	1	1.4%
Never	0	0%

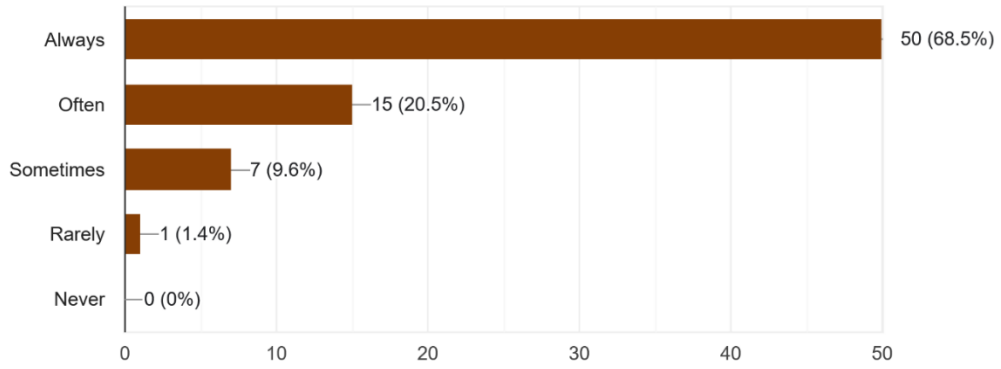

Fig 7; hand hygiene Practice before patient contact. nearly one-third of respondents fall into the "often" or "sometimes" categories, suggesting inconsistent compliance and need for education and training.

4. 2. Use of Personal Protective Equipment (PPE)

In this study Only 37.5% of respondents consistently use PPE as recommended, while 50% fall into the "often" or "sometimes" categories. Alarmingly, 12.5% report "rarely" or "never" using PPE appropriately as shown in Table 7, Figure 8. This suggests a significant compliance gap that could expose both patients and staff to preventable risks. Barriers may include discomfort, availability, or perceived necessity. Addressing this requires targeted education, improved access to PPE, and leadership modeling of best practices

Table 7; Use of personal protective equipment (PPE)

Frequency	Count	Percentage
Always	27	37.5%
Often	18	25.0%
Sometimes	18	25.0%
Rarely	5	6.9%
Never	4	5.6%

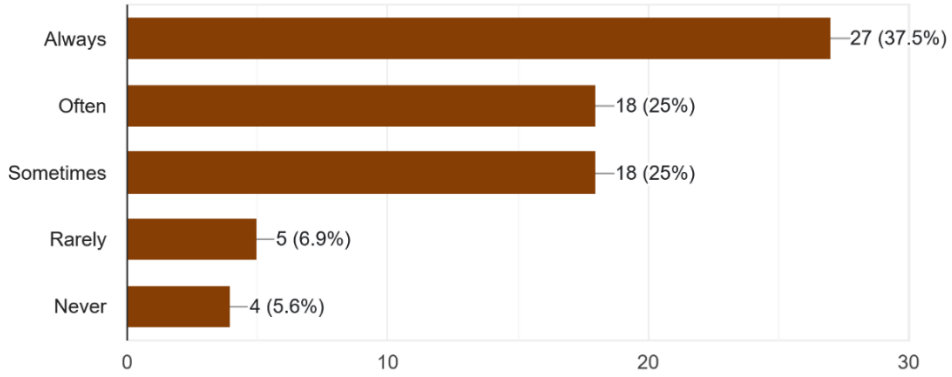

Fig 8; Use of personal protective equipment (PPE) among HCWs. A significant compliance Gap especially extremely important in high-risk clinical area.

4.3. Cleaning and Disinfection of Equipment

As shown in Table 8, Figure 9, 66.2% of respondents clean equipment after every use, which is ideal, nearly one-third clean less frequently. The 8.5% who clean rarely and 4.2% who never clean equipment present a serious risk for cross-

contamination and HAIs. These findings suggest a need for clearer protocols, accountability mechanisms, and possibly redesigning workflows to make disinfection more accessible and routine.

Table 8; cleaning and disinfection of equipment

Frequency	Count	Percentage
After every use	47	66.2%
Daily	14	19.7%
Weekly	3	4.2%
Rarely	6	8.5%
Never	3	4.2%

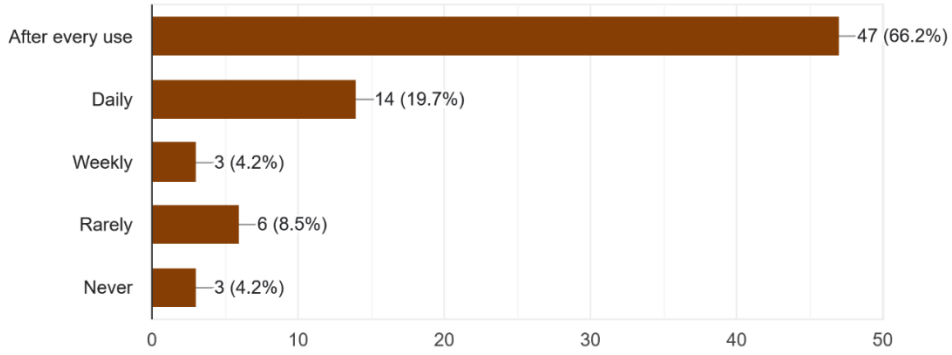

Fig 9; Cleaning and disinfection Practices of equipment among HCW.

4.4 Adherence to Waste Disposal Protocols

Proper waste disposal is a critical component of infection control, environmental safety, and regulatory compliance in healthcare settings. The survey results show (Table 9, Figure 10) that 72.2% of respondents report always following correct procedures, indicating a strong baseline of compliance. An additional 22.2% follow protocols often, suggesting generally good practice with occasional lapses. However, 4.2% report doing so only sometimes, and 1.4% rarely, which—though small—represents potential risk areas for contamination, occupational exposure, or regulatory breaches.

These findings suggest that while most staff are committed to proper waste handling, there may be variability in understanding, access to disposal resources, or enforcement of protocols. Targeted reinforcement through visual reminders, periodic audits, and training refreshers could help close this gap and ensure consistent adherence across all roles and shifts. Table 10 summarize key takeaway from these important observations

Table 9; Waste Disposal Practices

Frequency	Count	Percentage
Always	52	72.2%
Often	16	22.2%
Sometimes	3	4.2%
Rarely	1	1.4%
Never	0	0%

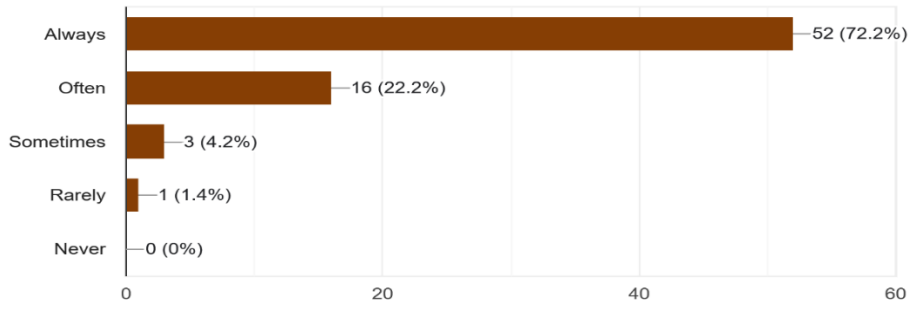

Fig.10; Waste Disposal Practices, there is lapse in compliance.

Table 10; Key Summary and Takeaways Across All Three Domains;

Practice Area	High Compliance	Moderate Compliance	Low Compliance
Hand hygiene	68.5% (Always)	30.1% (Often/Sometimes)	1.4% (Rarely)
PPE usage	37.5% (Always)	50% (Often/Sometimes)	12.5% (Rarely/Never)
Equipment disinfection	66.2% (After every use)	19.7% (Daily)	16.9% (Weekly/Rarely/Never)
Waste disposal procedures	72.2% (Always)	22.2% (Often)	5.6% (Sometimes/Rarely)

BARRIERS

The study identified several key barriers that hinder effective infection control practices among healthcare workers. Inadequate training was the most frequently reported challenge, cited by 58% of participants, indicating a pressing need for more comprehensive and practical education. Insufficient supplies, including personal protective equipment and disinfectants, were noted by 54% of respondents, reflecting logistical constraints that compromise adherence. Time constraints were acknowledged by 32% of participants, suggesting that workload pressures may limit opportunities for proper hygiene and safety measures. Additionally, 42% reported a lack of management support, highlighting the importance of institutional leadership in fostering a culture of infection prevention. (Table 11, Figure 11) These findings underscore the multifactorial nature of compliance gaps and the need for systemic interventions.

Table 11; The biggest challenge in following infection control practices

Challenge	Count	Percentage
Inadequate training	42	58.3%
Insufficient supplies	39	54.2%
Lack of support from management	30	41.7%
Lack of time	23	31.9%

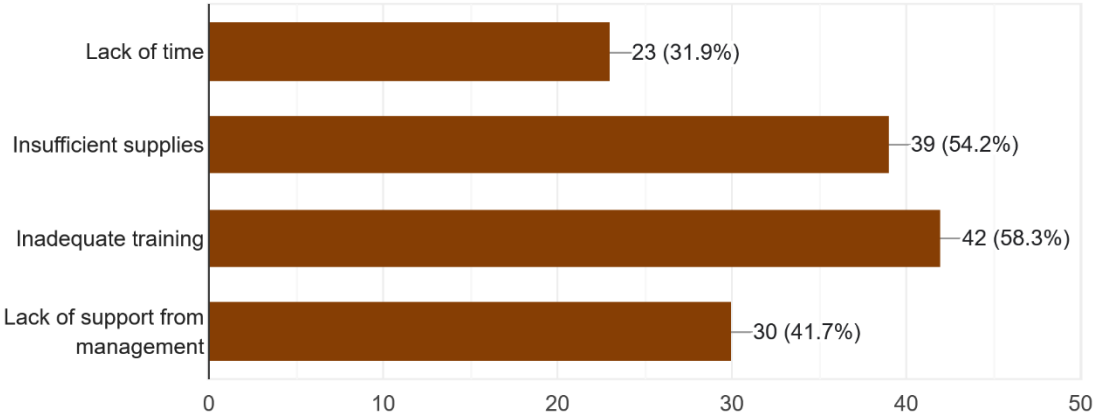

Fig 11; Challenges faced by HCWs in following infection control practices. These challenges can be addressed to improve practices of infection control guidelines.

Interest in Additional Infection Control Training

A strong majority (67.1%) expressed a clear desire for further training, with another 20.5% indicating tentative interest. Only 12.3% declined (Table 12 Figure 12). This aligns with the earlier finding that inadequate training is a top barrier and suggests high receptivity to educational interventions. The data supports implementing structured, accessible, and role-specific training programs to enhance confidence and compliance.

Table 12; Willingness survey about Training in Infection Control

Response	Count	Percentage
Yes	49	67.1%
Maybe	15	20.5%
No	9	12.3%

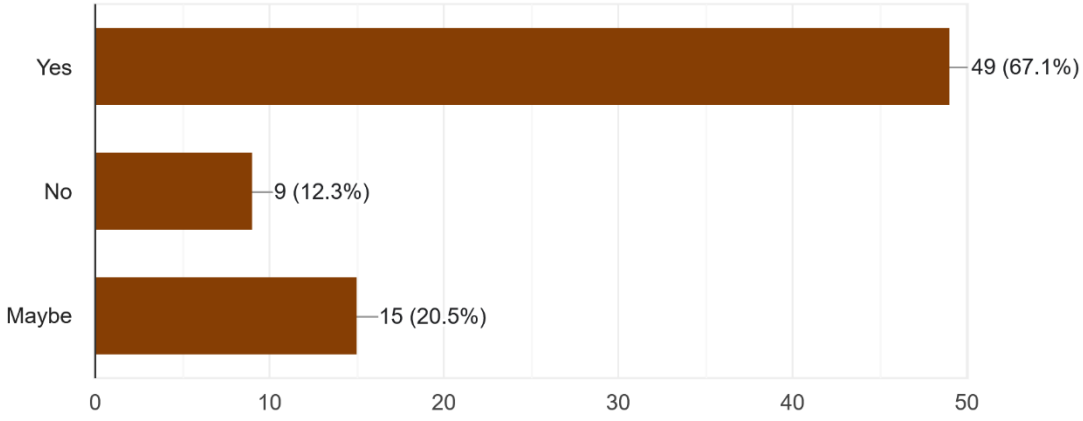

Fig 12; Interest in Additional Infection Control Training. It's surprising that 12 % are not interested on training. This is very crucial to identify such HCWs who needs behavior changes to understand such high priority area.

DISCUSSION

The findings from this survey reflect a generally positive attitude among healthcare staff toward infection control, with near-universal agreement on its importance and effectiveness in reducing healthcare-associated infections (HAIs). However, the data also reveal significant gaps in practice and preparedness—particularly in areas such as PPE usage, equipment disinfection, and perceived adequacy of training. These results align with broader trends reported in the literature.

A systematic review by Alhumaid et al. found that while healthcare workers (HCWs) often possess adequate knowledge of infection prevention and control (IPC) measures, compliance is frequently hindered by factors such as insufficient training, resource limitations, and lack of institutional support[15]. This mirrors the current survey, where 58.3% of respondents cited inadequate training and 54.2% reported insufficient supplies as major barriers. Moreover, 67.1% expressed interest in receiving additional training, reinforcing the need for structured educational interventions.

Alshehari and Saeed's meta-analysis of ICU-based studies further supports the effectiveness of multimodal strategies—combining education, feedback, and simulation—in improving IPC compliance by over 23% [16]. The variability in PPE adherence observed in this survey (only 37.5% reported always using PPE correctly) suggests that single-mode interventions may be insufficient, and that a more comprehensive approach is warranted.

Behavioral and organizational factors also play a critical role. Brooks et al. highlighted that compliance is influenced not only by knowledge and resources but also by leadership modeling, peer behavior, and clarity of guidelines[17]. In this survey, 41.7% of respondents identified lack of management support as a barrier, underscoring the importance of visible leadership and a culture of accountability.

The study evaluated healthcare professionals' (HCPs) awareness, attitudes, and practices regarding infection prevention and control (IPC). Findings revealed that the majority of demonstrated high levels of awareness, positive attitudes, and consistent practices toward IPC. These results are in line with international evidence, echoing similar outcomes reported in studies from Palestine [18],Lebanon[19], and Nepal[20].

Healthcare professionals' (HCPs) education is also linked to their awareness and attitudes toward infection prevention and control (IPC). Those with higher education levels had better awareness and more positive attitudes. This is consistent with earlier studies, which found that postgraduates provide better care[21], show stronger clinical judgment, and are more capable of meeting diverse patient needs while ensuring quality care [22].These studies reflects towards importance of ongoing training and sensitization programs regarding infection prevention and control (IPC) practices.

However, in this study, training emerged as a critical barrier, with 65% of participants reporting either partial or inadequate preparation. This aligns with global literature suggesting that knowledge alone is insufficient—behavioral reinforcement and institutional support are equally vital[17].

Risk assessment training within the past year, along with in-hospital training as the main source of IPC information, improved healthcare professionals' (HCPs) awareness and practices. Rosen et al. [23]noted that such training helps HCPs understand better, define their roles and responsibilities, and manage tasks more effectively.

Taken together, these findings suggest that improving infection control compliance requires more than just information—it demands a coordinated strategy that addresses training, resource availability, workflow integration, and organizational culture. Future efforts should prioritize tailored, role-specific education, regular audits with feedback, and leadership engagement to sustain high standards of infection prevention.

In this survey, while HCWs demonstrate high awareness and positive attitudes toward infection control, consistent practice remains suboptimal. The most striking gap was in hand hygiene compliance, with only 55% reporting consistent adherence despite universal recognition of its importance.

Resource limitations, particularly PPE and disinfectant availability, were cited by over half the respondents. These findings underscore the need for systemic interventions, including:

- Regular, hands-on training sessions
- Adequate supply chain management
- Leadership-driven audits and feedback mechanisms
- Despite high levels of awareness and favorable attitudes, infection control practices among HCWs are inconsistently applied. Addressing training gaps, resource constraints, and institutional culture is essential to improve compliance and reduce HAIs.

RECOMMENDATIONS

- Implement periodic infection control workshops
- Ensure uninterrupted supply of hygiene essentials
- Introduce ward-level infection control champions
- Conduct regular audits and feedback sessions

The study's relatively small sample size and multicenter design may limit generalizability, but the insights remain valuable for guiding local policy and educational efforts.

LIMITATIONS

The study relied on self-reported practices, which may be subject to bias. Direct observation could provide a more accurate assessment.

CONCLUSION

This survey highlights both the strengths and gaps in current infection control practices across the department. Staff demonstrate strong awareness and positive attitudes toward infection control, with widespread recognition of its role in preventing healthcare-associated infections. However, variability in actual compliance—particularly in PPE use, equipment disinfection, and consistent hand hygiene—suggests that knowledge does not always translate into practice. Training emerges as a pivotal factor, with many respondents feeling underprepared yet eager for further education. Systemic barriers such as supply shortages, time constraints, and limited managerial support further complicate adherence.

To address these challenges, a multifaceted approach is essential. Structured, role-specific training programs, improved access to resources, leadership engagement, and workflow-integrated reminders can collectively enhance compliance and confidence. Regular audits and feedback mechanisms will help sustain improvements and ensure that infection control remains a visible, supported priority in daily clinical care.

Conflict of interest: None
Financial support: None

REFERENCES;

1. D. Moralejo, R. El Dib, R. A. Prata, P. Barretti, and I. Corrêa, "Improving adherence to Standard Precautions for the control of health care-associated infections," Cochrane Database of Systematic Reviews, vol. 2018, no. 2, Feb. 2018, doi: 10.1002/14651858.CD010768.pub2.
2. WHO Team, Report on the Burden of Endemic Health Care-Associated Infection Worldwide. 2011.
3. F. Daxboeck, T. Budic, O. Assadian, M. Reich, and W. Koller, "Economic burden associated with multi-resistant Gram-negative organisms compared with that for methicillin-resistant Staphylococcus aureus in a university teaching hospital," Journal of Hospital Infection, vol. 62, no. 2, pp. 214–218, Feb. 2006, doi: 10.1016/j.jhin.2005.07.009.
4. S. Lahsaeizadeh, H. Jafari, and M. Askarian, "Healthcare-associated infection in Shiraz, Iran 2004–2005," Journal of Hospital Infection, vol. 69, no. 3, pp. 283–287, Jul. 2008, doi: 10.1016/j.jhin.2008.05.006.
5. S. Habibi et al., "Epidemiology of nosocomial infections in medicine intensive care unit at a tertiary care hospital in northern India," Trop Doct, vol. 38, no. 4, pp. 233–235, Oct. 2008, doi: 10.1258/td.2008.070395.

6. A. E. Andersson, I. Bergh, J. Karlsson, and K. Nilsson, “Patients’ experiences of acquiring a deep surgical site infection: An interview study,” Am J Infect Control, vol. 38, no. 9, pp. 711–717, Nov. 2010, doi: 10.1016/j.ajic.2010.03.017.
7. S. Lahsaeizadeh, H. Jafari, and M. Askarian, “Healthcare-associated infection in Shiraz, Iran 2004–2005,” Journal of Hospital Infection, vol. 69, no. 3, pp. 283–287, Jul. 2008, doi: 10.1016/j.jhin.2008.05.006.
8. A. M. Koch, R. M. Nilsen, H. M. Eriksen, R. J. Cox, and S. Harthug, “Mortality related to hospital-associated infections in a tertiary hospital; repeated cross-sectional studies between 2004-2011,” Antimicrob Resist Infect Control, vol. 4, no. 1, p. 57, Dec. 2015, doi: 10.1186/s13756-015-0097-9.
9. Guidelines on core components of infection prevention and control programmes at the national and acute health care facility level. World Health Organization, 2016.
10. J. D. Siegel, E. Rhinehart, M. Jackson, and L. Chiarello, “2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Health Care Settings,” Am J Infect Control, vol. 35, no. 10, pp. S65–S164, Dec. 2007, doi: 10.1016/j.ajic.2007.10.007.
11. WHO, Guidelines on core components of infection prevention and control programmes at the national and acute health care facility level. World Health Organization, 2016.
12. D. Kubde, A. K. Badge, S. Ugemuge, and S. Shahu, “Importance of Hospital Infection Control.,” Cureus, vol. 15, no. 12, p. e50931, Dec. 2023, doi: 10.7759/cureus.50931.
13. J. Silva et al., “‘I Know What I Have to Do, but I Don’t Do It’: The Relationship Between Knowledge and Adherence to Hand Hygiene in Healthcare Settings.,” Healthcare (Basel), vol. 13, no. 5, Feb. 2025, doi: 10.3390/healthcare13050530.
14. “CDC’s Core Infection Prevention and Control Practices for Safe Healthcare Delivery in All Settings.”
15. S. Alhumaid et al., “Knowledge of infection prevention and control among healthcare workers and factors influencing compliance: a systematic review,” Antimicrob Resist Infect Control, vol. 10, no. 1, p. 86, Jun. 2021, doi: 10.1186/s13756-021-00957-0.
16. A. Alshehari and A. Saeed, “Strategies for Improving Healthcare Workers’ Compliance with Infection Control Measures in Intensive Care Units: A Systematic Review and Meta-Analysis,” Intensive Care Research, vol. 4, no. 4, pp. 201–209, Feb. 2025, doi: 10.1007/s44231-025-00077-y.
17. S. K. Brooks, N. Greenberg, S. Wessely, and G. J. Rubin, “Factors affecting healthcare workers’ compliance with social and behavioural infection control measures during emerging infectious disease outbreaks: rapid evidence reviews,” BMJ Open, vol. 11, p. 49857, 2021, doi: 10.1136/bmjopen-2021-049857.
18. A. Ayed, “Knowledge and practice of nursing staff towards infection control measures in the Palestinian hospitals,” 2015.
19. S. Hammoud, B. Ghazi, M. Nassredine, and M. A. Haidar, “Nurses’ awareness of infection control measures, and the role and effect in patient and family education,” Eur Sci J, vol. 13, no. 27, pp. 59–76, 2017.
20. G. D. N. Shrestha and B. Thapa, “Knowledge and practice on infection prevention among nurses of Bir Hospital, Kathmandu,” 2018.
21. L. Ng, A. Tuckett, S. Fox-Young, and V. Kain, “Exploring registered nurses’ attitudes towards postgraduate education in Australia: An overview of the literature,” J Nurs Educ Pract, vol. 4, no. 2, pp. 162–170, 2014.
22. M. A. Fawaz, A. M. Hamdan-Mansour, and A. Tassi, “Challenges facing nursing education in the advanced healthcare environment,” Int J Afr Nurs Sci, vol. 9, pp. 105–110, 2018.
23. M. A. Rosen et al., “Teamwork in healthcare: Key discoveries enabling safer, high-quality care.,” American Psychologist, vol. 73, no. 4, p. 433, 2018.