United International Journal for Research & Technology

Volume 06, Issue 05, 2025 | Open Access | ISSN: 2582-6832

Improving ICU Nurses' Compliance with IPC Protocols: Challenges and Practical Strategies

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***Abstract*—** This study aimed to assess ICU nurses' compliance with infection prevention and control (IPC) protocols, identify factors influencing compliance, examine challenges faced in adhering to IPC standards, and propose practical strategies to improve IPC practices in ICU settings. Conducted at a Level II private hospital in Albay, Philippines, the research employed qualitative methods, including interviews and observations, to gather data from ICU nurses. The study found that while nurses demonstrated a high level of awareness of IPC protocols, gaps in compliance were evident, particularly in hand hygiene, personal protective equipment (PPE) usage, and the management of invasive devices. Factors influencing compliance included risk perception, leadership support, and the availability of resources, while challenges such as heavy workloads, time pressure, and emergencies were identified as significant barriers to adherence. Based on these findings, a Workplace Application Plan (WAP) was proposed, which includes ongoing training, real-time observation, peer and supervisor involvement, and recognition to improve compliance and reduce healthcare-associated infections (HAIs). This study provides valuable insights for healthcare institutions aiming to enhance IPC practices and improve patient safety in critical care environments.

***Keywords*—** infection prevention, ICU nurses, compliance, healthcare-associated infections, workplace application plan.

I. INTRODUCTION

Healthcare-associated infections (HAIs) are a significant global challenge, contributing to high morbidity, mortality, and healthcare costs. In the United States alone, the Centers for Disease Control and Prevention (CDC) estimates that nearly two million patients acquire HAIs each year, resulting in approximately 100,000 deaths. Intensive care units (ICUs) are particularly vulnerable to these infections due to the high prevalence of invasive medical procedures, compromised immune systems, and critically ill patients who are at an increased risk. Common HAIs in ICU settings include ventilator-associated pneumonia (VAP), catheter-associated urinary tract infections (CAUTIs), and central line-associated bloodstream infections (CLABSIs), which have become major concerns in both developed and developing healthcare systems. Data from the CDC (2024) reveal infection rates in ICU settings can range from 15% to 40%, with infections being a leading cause of prolonged hospital stays, increased healthcare costs, and the development of antimicrobial resistance. The growing incidence of HAIs calls for a focused effort to improve infection control measures, particularly in high-risk environments like the ICU.

In the Philippines, the prevalence of healthcare-associated infections has been exacerbated by the COVID-19 pandemic, which has further strained the country's already limited healthcare resources. According to Garcia et al. (2023), the prevalence of HAIs in the Philippines increased from 7.1% in 2017 to 9.9% in 2021. This increase reflects the significant challenges hospitals face in controlling the spread of infections, particularly in critical care units. The burden of HAIs is not only a threat to patient health but also a financial strain on healthcare institutions. Extended hospital stays, the need for expensive antibiotics, and additional diagnostic tests all contribute to the economic burden of these infections. As a result, healthcare institutions in the Philippines are intensifying their focus on improving infection prevention and control (IPC) practices to reduce HAI rates and improve patient outcomes.

Despite the best efforts of healthcare systems, gaps in IPC compliance remain a significant barrier to controlling the spread of infections in hospitals. Nurses, who are the frontline healthcare providers in the ICU, play a critical role in preventing infections through adherence to IPC protocols. Their compliance with protocols such as hand hygiene, personal protective equipment (PPE) usage, and the management of invasive devices is essential to ensuring safe patient care and reducing the risk of HAIs. However, research has shown that while nurses may be aware of the importance of IPC measures, their ability to consistently apply these practices is often hindered by a variety of factors. Heavy workloads, time constraints, and the complexity of ICU care can significantly impact nurses' ability to follow protocols. Moreover, inadequate resources, lack of ongoing training, and insufficient institutional support may further reduce adherence to IPC practices. These challenges are not unique to the Philippines but are also prevalent in other healthcare systems globally, where healthcare workers often face competing demands in a high-pressure environment (Batran et al., 2025; George et al., 2023).

The issue of IPC compliance is not limited to the theoretical knowledge of healthcare workers but extends to their day-to-day practices in the clinical setting. Nurses are tasked with multiple responsibilities, including the administration of medications, patient monitoring, and coordination of care. In this high-pressure environment, adherence to IPC protocols may be deprioritized in favor of more immediate patient care tasks. For instance, the urgency of responding to life-threatening events, such as a code blue or deteriorating patient, often leads to lapses in IPC practices, including neglecting hand hygiene and PPE use. Studies have shown that emergency situations can significantly impact IPC adherence, as healthcare workers prioritize saving lives over adhering to infection prevention guidelines (Monegro et al., 2023; Rezaee et al., 2025). This highlights the need for a balanced approach in ensuring that infection control measures are not compromised, even in the face of urgent patient care needs.

Another significant barrier to IPC compliance in ICU settings is the workload and time pressure faced by nurses. ICU nurses often manage a high number of critically ill patients, which can lead to fatigue and increased stress. The simultaneous performance of multiple procedures, the need to attend to overlapping doctor rounds, and the lack of sufficient staff can all contribute to lapses in IPC practices. One study highlighted that nurses often forget to perform essential tasks such as cleaning hands or closing isolation room doors because of the overwhelming demands of their roles (Participant 2). This finding is consistent with research that has identified workload and time constraints as major barriers to IPC compliance. In environments where patient care needs are urgent and staff are overstretched, ensuring consistent adherence to IPC protocols becomes even more challenging (Batran et al., 2025; Hussein et al., 2021).

Despite these challenges, the importance of IPC adherence in the ICU cannot be overstated. The consequences of failing to adhere to IPC protocols can be devastating, not only for individual patients but also for the healthcare system as a whole. Infections acquired in the hospital can significantly prolong a patient's stay, increase treatment costs, and ultimately lead to poorer health outcomes. This underscores the urgent need for effective strategies to improve IPC compliance among ICU nurses. One potential solution is to strengthen training and education programs, ensuring that nurses receive regular updates on IPC protocols and the latest evidence-based practices. This would provide nurses with the knowledge and skills necessary to adhere to infection prevention guidelines consistently. Regular refresher courses and ongoing training have been shown to improve the knowledge and application of IPC standards, leading to better patient outcomes (Batran et al., 2025).

In addition to training, institutional support plays a crucial role in enhancing IPC compliance. Providing nurses with the necessary resources, including adequate supplies of PPE, hand hygiene products, and cleaning materials, is essential in ensuring that IPC protocols can be followed consistently. One study found that nurses reported higher compliance rates

when they had easy access to the necessary resources (Participant 5). This highlights the importance of healthcare institutions in ensuring that essential supplies are readily available and accessible to healthcare workers. Furthermore, leadership support is critical in creating a culture of accountability and reinforcing the importance of infection control practices. Supervisors and IPC nurses can play a key role in reminding staff of the importance of adhering to IPC protocols and offering feedback on their performance. Regular feedback, reminders, and monitoring have been shown to increase compliance and reduce the risk of infection transmission (George et al., 2023).

To address these objectives, this study first assessed ICU nurses' compliance with infection prevention and control (IPC) protocols, providing an overview of how well these protocols were followed in the ICU setting. By identifying the factors that influenced compliance, such as personal perceptions, organizational support, and available resources, the study uncovered the key drivers behind nurses' adherence to IPC guidelines. Furthermore, the study examined the challenges faced by ICU nurses in adhering to IPC standards, including workload pressures, time constraints, and the impact of emergencies on infection control practices. Based on these findings, the study developed practical strategies to improve IPC compliance, incorporating the necessary training, leadership support, and resources to facilitate consistent adherence to protocols. Finally, the study proposed a Workplace Application Plan (WAP) to strengthen IPC practices in the ICU, ensuring that nurses were equipped with the tools and support needed to reduce healthcare-associated infections and improve patient safety.

This study addresses the critical issue of healthcare-associated infections in ICU settings, particularly in the context of the Philippines. By assessing ICU nurses' compliance with IPC protocols and identifying the factors that influence their adherence, this study provides valuable insights into the barriers and facilitators of infection control in critical care environments. The proposed Workplace Application Plan offers practical strategies for improving IPC compliance, ultimately leading to better patient outcomes and reduced healthcare-associated infections. The findings of this study will contribute to the ongoing efforts to enhance infection prevention and control in ICU settings, both in the Philippines and globally.

II. METHODOLOGY

The study employed a qualitative descriptive phenomenological design to explore ICU nurses' compliance with infection prevention and control (IPC) protocols. This design is ideal for understanding participants' lived experiences, perceptions, and attitudes toward infection control practices in the ICU setting. The research aimed to gather in-depth insights into the factors influencing compliance, the challenges nurses face, and the development of a practical Workplace Application Plan (WAP) to improve IPC adherence. Phenomenology allows for an in-depth exploration of personal experiences, which is critical in healthcare research where behaviors and actions are shaped by complex individual and environmental factors.

Participants were recruited through purposive sampling, selecting ICU nurses with at least three months of work experience to ensure that they were familiar with IPC protocols and had consistent exposure to relevant practices. A total of six ICU nurses from a Level II private hospital in Albay, Philippines, participated in the study. Additionally, key informants, such as the head nurse and ICU supervisor, were included to provide a broader perspective on institutional support and the operational aspects of IPC compliance. The selection of experienced nurses ensured that the findings would reflect routine compliance behaviors, providing reliable insights into the effectiveness of the existing IPC protocols.

Data collection involved semi-structured interviews and non-participant observations. The semi-structured interviews allowed participants to share their experiences and provide detailed responses about their compliance with IPC protocols, as well as the factors influencing their practices. The interviews were supplemented by observational data, which helped to verify the self-reported practices and identify

discrepancies between what nurses reported and what was observed in the ICU. An observation checklist was used to systematically track adherence to IPC protocols, providing a complementary data set to the qualitative interview responses. Data were analyzed using thematic analysis, which allowed the identification of key themes related to compliance, challenges, and opportunities for improvement in IPC practices.

III. RESULTS & DISCUSSION

ICU Nurses' Compliance with IPC Protocols

Table 1 highlights the discrepancies between ICU nurses' self-reported compliance with Infection Prevention and Control (IPC) protocols and the observed compliance in practice. The table shows that while nurses report high levels of adherence to certain protocols, the observed behavior often reveals gaps, underscoring the complexity of ensuring consistent compliance in real-world clinical settings.

The Hand Hygiene (Five Moments) protocol showed high self-reported compliance, with nurses consistently acknowledging the importance of hand hygiene and their adherence to the recommended five moments. However, observed compliance revealed gaps, particularly before patient contact and before aseptic procedures. These lapses in practice, even if minor, represent critical moments where infections can be transmitted, highlighting the need for continuous reminders and training to reinforce the importance of hand hygiene at all key moments.

The Use of Personal Protective Equipment (PPE) was reported as being followed at a good level, but observations revealed that PPE usage was often incomplete, especially during brief tasks or less-invasive procedures.

Nurses may skip PPE use during short interactions or when they feel the risk of contamination is low, but such omissions can increase the risk of healthcare-associated infections (HAIs).

This discrepancy indicates that while nurses understand the protocols, they may occasionally overlook or under-prioritize PPE usage due to task urgency, workload, or fatigue.

For Protocols related to Invasive Devices, such as central lines and urinary catheters, nurses reported very good compliance, yet minor lapses were observed, such as failing to discard suction catheters after each use.

While adherence to protocols for invasive procedures was generally strong, these small lapses highlight the need for continued vigilance, especially regarding practices that involve high-risk procedures like catheter care and suctioning.

Table 1. *ICU Nurses' Compliance with IPC Protocols*

Protocol	Self-Reported Compliance	Observed Compliance	Discrepancies
Hand Hygiene (Five Moments)	High	Gaps before patient contact & aseptic procedures	Inconsistencies observed
Use of Personal Protective Equipment (PPE)	Good	Missed usage, particularly during brief tasks	Incomplete PPE usage
Protocols for Invasive Devices (e.g., central lines, urinary catheters)	Very Good	Generally followed, but minor lapses (e.g., not discarding suction catheters after each use)	Minor lapses noted in some practices
Waste Segregation and Disinfection	Very Good	Consistently observed	N/A

Finally, for Waste Segregation and Disinfection, the nurses reported very good compliance, and this was confirmed by observations. This consistency suggests that protocols around waste management and environmental cleaning are well integrated into the daily practices in the ICU, possibly due to institutional

reinforcement and the availability of necessary resources.

In conclusion, the discrepancies observed between self-reported and actual practices in Table 1 point to a gap that requires targeted interventions. The findings of this study align with existing research on the factors influencing compliance with IPC protocols. Abalkhail and Elbehiry (2025) found that healthcare workers often report high compliance, yet real-world practice frequently shows discrepancies due to barriers such as time pressure and inadequate resources. Similarly, studies like Batran et al. (2025) emphasize the role of organizational factors and personal motivation in influencing IPC adherence, supporting the need for structured training and leadership involvement to ensure more consistent application of infection control measures.

Factors Influencing Compliance with IPC Protocols

Table 2 outlines the various factors influencing ICU nurses' compliance with Infection Prevention and Control (IPC) protocols. These factors, including personal perceptions, available resources, and organizational support, play a significant role in shaping adherence to IPC practices within the ICU.

The Risk Perception (Perceived Susceptibility) factor showed that nurses' awareness of the potential for infection significantly influenced their compliance. Nurses reported strong motivation to adhere to IPC protocols due to their understanding of the risks of healthcare-associated infections (HAIs). For instance, one participant mentioned, "Health is wealth... it becomes very costly" (Participant 2), emphasizing the potential personal and financial consequences of infection. This highlights that when nurses perceive a direct personal risk, they are more likely to follow infection control practices meticulously.

Perceived Seriousness (Severity) also influenced compliance, as nurses recognized the severe consequences of failing to follow IPC protocols, not just for patients but for themselves as well. One participant noted, "IPC is the most important life-saving practice... if we religiously follow protocols, everyone is protected" (Participant 1). This belief in the life-saving impact of IPC practices underlined nurses' commitment to following protocols, which is consistent with the findings of Aljohani and Almutairi (2023), who found that understanding the severity of HAIs increased compliance among healthcare workers.

Perceived Advantages (Benefits) were another motivator, with nurses acknowledging the benefits of adhering to IPC protocols both for patient safety and their professional responsibility. For example, one participant stated, "Treat the patient as you would want your family treated" (Participant 3), illustrating the personal and professional ethics that drive nurses to maintain high standards of care. This aligns with Batran et al. (2025), which found that nurses' personal values and professional responsibility often motivate compliance with IPC measures.

Perceived Facilitators such as readily available resources, including PPE and hand hygiene products, also supported better compliance.

Nurses indicated that having the necessary supplies at hand made it easier to follow protocols, as shown by Participant 5: "Having adequate supplies makes us stay compliant." This finding supports the work of George et al. (2023), who highlighted the critical role of organizational support, including access to resources, in ensuring high compliance with infection prevention protocols.

Table 2. *Factors Influencing Compliance with IPC Protocols*

Factor	Influence on Compliance	Example/Quote
Risk Perception (Perceived Susceptibility)	Strong motivation to comply due to awareness of infection risk	"Health is wealth... it becomes very costly" (Participant 2)

Perceived Seriousness (Severity)	Increased compliance due to understanding the consequences	"IPC is the most important life-saving practice... if we religiously follow protocols, everyone is protected" (Participant 1)
Perceived Advantages (Benefits)	Personal and professional commitment to IPC	"Treat the patient as you would want your family treated" (Participant 3)
Perceived Facilitators	Readily available resources (PPE, hand hygiene products)	"Having adequate supplies makes us stay compliant" (Participant 5)
Behavioral Triggers	Support from supervisors and reminders	"The IPC nurse reminds us of the importance" (Participant 1)
Perceived Barriers	Limited formal refresher training	"Formal refresher training is limited" (Participant 1)
Confidence in Capability (Self-Efficacy)	Confidence built from experience and personal commitment	"I have never experienced a needle-prick injury... I do my best to comply" (Participant 5)

Behavioral Triggers, such as support from supervisors and reminders, were identified as important factors in maintaining compliance. As one participant mentioned, "The IPC nurse reminds us of the importance" (Participant 1), indicating that constant reinforcement through supervisory support and peer reminders helped improve adherence. Studies by Kim & Lee (2022) similarly underscore the importance of supervisory support in ensuring consistent infection control practices.

Perceived Barriers, specifically the lack of formal refresher training, were seen as hindrances to compliance. One nurse explained, "Formal refresher training is limited" (Participant 1), suggesting that while initial training may be adequate, the absence of ongoing education and skill refreshment could lead to lapses in IPC practices. This aligns with the findings of Rabanal et al. (2024), who identified the lack of continuous training as a significant barrier to maintaining high compliance with infection prevention protocols.

Finally, Confidence in Capability (Self-Efficacy) was another influencing factor. Nurses with more experience and confidence in their skills demonstrated higher levels of compliance with IPC protocols. Participant 5 noted, "I have never experienced a needle-prick injury... I do my best to comply," indicating that confidence built through experience and personal commitment enhanced compliance. This finding resonates with studies by Monegro et al. (2023), which suggest that self-efficacy, developed through repeated practice and positive outcomes, is a critical factor in maintaining high adherence to IPC measures.

In conclusion, the factors influencing IPC compliance, as discussed in Table 2, align with existing research that highlights both individual and institutional factors as crucial for maintaining high standards of infection prevention. The findings of this study are consistent with those of Abalkhail and Elbehiry (2025) and Batran et al. (2025), who emphasize that a combination of personal motivation, organizational support, and available resources is essential for enhancing compliance and reducing healthcare-associated infections in ICU settings.

Challenges in Adhering to IPC Standards

Table 3 presents the challenges ICU nurses face in adhering to Infection Prevention and Control (IPC) standards. These challenges, including workload pressure and the need to respond quickly to emergencies, significantly impact nurses' ability to consistently follow IPC protocols in the ICU setting.

The challenge of Workload and Time Pressure was identified as a significant factor influencing compliance. ICU nurses reported that heavy patient loads, numerous procedures, and overlapping doctor rounds often led to time constraints that resulted in

skipped or overlooked IPC protocols. As one nurse explained, "We sometimes forget to clean... sometimes forget to close isolation room doors" (Participant 2). This underscores how the demanding nature of ICU work can lead to lapses in essential infection control practices, even when nurses recognize their importance. This finding is supported by studies such as Batran et al. (2025), which highlight how workload and time pressure are key barriers to IPC adherence, especially in high-stress environments like the ICU.

Emergencies and Urgent Patient Care were also identified as significant challenges to IPC compliance. During life-threatening events, such as a code or sudden patient deterioration, nurses often prioritize immediate patient care over IPC protocols. One participant noted, "During a code, we prioritize saving lives, sometimes forgetting to wear gloves or perform hand hygiene" (Participant 1). This reflects the intense pressure nurses face during critical situations where the urgency of medical interventions can overshadow standard infection control practices. Research by Monegro et al. (2023) and George et al. (2023) also emphasizes that emergency situations frequently lead to compromised adherence to IPC protocols, as healthcare workers prioritize urgent care needs over preventive measures, increasing the risk of healthcare-associated infections (HAIs).

Table 3. *Challenges in Adhering to IPC Standards*

Challenge	Description	Quote
Workload and Time Pressure	Heavy patient load, multiple procedures, and overlapping doctor rounds create pressure to skip IPC protocols	"We sometimes forget to clean... sometimes forget to close isolation room doors." (Participant 2)
Emergencies and Urgent Patient Care	Life-threatening events requiring immediate attention lead to shortcuts in IPC compliance	"During a code, we prioritize saving lives, sometimes forgetting to wear gloves or perform hand hygiene." (Participant 1)

These challenges in maintaining IPC standards align with findings from various studies, including those by Abalkhail and Elbehiry (2025) and Rezaee et al. (2025), which have identified workload and emergency situations as critical factors hindering consistent adherence to IPC measures. While these factors are difficult to control in high-stress ICU environments, they highlight the need for institutional strategies that support nurses in balancing urgent care with infection prevention, such as ensuring sufficient staffing, providing continuous training, and equipping staff with the necessary resources to manage these pressures effectively.

Practical Strategies to Improve IPC Compliance

Table 4 outlines the practical strategies aimed at improving ICU nurses' compliance with Infection Prevention and Control (IPC) protocols. These strategies focus on addressing both individual and institutional factors to enhance adherence to IPC standards and improve patient safety in the ICU.

Ongoing Training and Refresher Courses are essential for reinforcing IPC protocols and ensuring that nurses remain updated on the latest infection control practices. The implementation plan includes quarterly training sessions on IPC protocols and refresher courses for ICU nurses. This strategy aims to improve nurses' knowledge and ensure the consistent application of IPC standards across all shifts and procedures. As noted by Batran et al. (2025), ongoing education is crucial for maintaining high levels of compliance, as it keeps staff informed and engaged with best practices in infection control.

Table 4. *Practical Strategies to Improve IPC Compliance*

Strategy	Implementation Plan	Expected Outcome
Ongoing Training and Refresher Courses	Quarterly training on IPC protocols and refresher courses	Improved knowledge and application of IPC standards

Leadership Support and Peer Reminders	Regular feedback, reminders from supervisors and IPC nurses	Increased accountability and sustained compliance
Readily Available Resources	Ensure consistent availability of PPE, hand hygiene supplies, and cleaning materials	Easier adherence to IPC protocols
Peer-to-Peer Reinforcement	Encouraging staff to remind and support each other	Increased collaboration and improved consistency in IPC practices

Leadership Support and Peer Reminders play a significant role in maintaining accountability and reinforcing IPC compliance. The implementation plan calls for regular feedback, reminders from supervisors, and consistent support from IPC nurses. The expected outcome is increased accountability and sustained compliance, as continuous supervision and peer reminders help to reinforce the importance of adhering to IPC protocols. This is consistent with findings from studies such as Monegro et al. (2023) and Kim & Lee (2022), which emphasize that leadership engagement and peer reinforcement are key factors in improving adherence to infection prevention protocols.

Readily Available Resources are a critical factor in enabling nurses to comply with IPC protocols. The plan includes ensuring the consistent availability of personal protective equipment (PPE), hand hygiene supplies, and cleaning materials.

By making these resources easily accessible, nurses are more likely to adhere to IPC protocols without unnecessary delays or barriers. This strategy supports the findings of George et al. (2023), who noted that resource availability is one of the main facilitators of high IPC compliance in healthcare settings, as it removes logistical challenges that could prevent proper infection control practices.

Peer-to-Peer Reinforcement encourages staff to remind and support each other in adhering to IPC protocols. By fostering a culture of collaboration and mutual accountability, this strategy aims to improve consistency in IPC practices across the ICU team.

Encouraging peer reminders and support is expected to enhance teamwork and ensure that nurses remain vigilant in following infection control measures. This approach is supported by research from Abalkhail and Elbehiry (2025), which found that peer reinforcement within healthcare teams positively impacted the consistency of IPC compliance.

In summary, the strategies outlined in Table 4 are designed to address the various factors influencing IPC compliance, from individual knowledge to institutional support. These strategies align with research findings from Batran et al. (2025), Monegro et al. (2023), and George et al. (2023), which emphasize the importance of continuous training, leadership engagement, resource availability, and peer support in improving infection control practices and ultimately enhancing patient safety in ICU settings.

Workplace Application Plan (WAP) for Strengthening IPC Practices

Table 5 presents the Workplace Application Plan (WAP) designed to strengthen Infection Prevention and Control (IPC) practices in the ICU. The WAP outlines key components that aim to improve nurses' adherence to IPC protocols through training, consistent monitoring, team involvement, and motivation strategies.

Training Sessions for ICU Nurses are a central component of the WAP. The plan includes conducting lectures and practical demonstrations on hand hygiene, personal protective equipment (PPE) usage, and environmental cleaning.

This strategy is expected to lead to improved compliance with IPC protocols and a reduction in healthcare-associated infections (HAIs).

Consistent with Batran et al. (2025), ongoing education is essential for improving both knowledge and practical application of IPC measures. Training ensures that ICU nurses remain updated on best practices and are equipped to implement them consistently.

Table 5. Workplace Application Plan (WAP) for Strengthening IPC Practices

Component	Action Plan	Expected Impact
Training Sessions for ICU Nurses	Conduct lectures, practical demonstrations on hand hygiene, PPE usage, and environmental cleaning	Improved compliance and reduced HAI incidence
Daily Observation Checklist	Use observation forms for daily monitoring of IPC adherence	Regular feedback, ensuring real-time corrections
Peer and Supervisor Involvement	Integrate IPC discussions into regular team meetings and performance evaluations	Foster team accountability and strengthen IPC culture
Ongoing Evaluation and Feedback	Biannual evaluations of compliance rates and HAI statistics	Continuous improvement and adjustments to IPC practices
Recognition and Incentives	Reward high-compliant nurses and teams	Motivation and sustained commitment to IPC

The Daily Observation Checklist is another critical component of the WAP. This strategy involves using observation forms for daily monitoring of IPC adherence. The expected impact is regular feedback, which allows for real-time corrections and ensures that lapses in IPC practices are addressed immediately. Studies like those by Monegro et al. (2023) emphasize the importance of continuous monitoring to identify gaps in compliance and make timely adjustments to prevent the spread of infections. Real-time feedback is crucial for reinforcing correct behaviors and improving overall compliance in high-pressure environments like the ICU.

Peer and Supervisor Involvement is also incorporated into the WAP. IPC discussions will be integrated into regular team meetings and performance evaluations to foster a culture of accountability and collaboration. By encouraging nurses to share experiences, discuss challenges, and support each other, the plan seeks to strengthen the IPC culture within the ICU. This approach aligns with findings by George et al. (2023), who highlighted the importance of leadership and peer support in improving compliance. Active involvement from supervisors and peers encourages a collaborative approach to infection control, making adherence to IPC protocols a shared responsibility.

Ongoing Evaluation and Feedback will be conducted through biannual evaluations of compliance rates and healthcare-associated infection (HAI) statistics. The goal is to ensure continuous improvement by tracking progress and making adjustments to IPC practices as needed. Biannual evaluations provide an opportunity to assess the effectiveness of the WAP and make necessary changes to optimize infection control efforts. This component reflects the findings of Rezaee et al. (2025), who stressed the importance of periodic evaluations to maintain high standards in IPC practices and address emerging challenges.

Finally, Recognition and Incentives will be used to reward high-compliant nurses and teams. The expected impact is to motivate and sustain commitment to IPC protocols by acknowledging and rewarding those who demonstrate consistent adherence. Research by Batran et al. (2025) and Monegro et al. (2023) supports the idea that recognition and incentives significantly contribute to improved compliance, as they provide positive reinforcement and encourage nurses to maintain high standards of infection control.

In conclusion, the components of the WAP outlined in Table 5 are designed to create a supportive and structured approach to improving IPC compliance in the ICU. These strategies, which include ongoing training, real-time monitoring, peer and supervisor involvement, continuous evaluation, and recognition, are all backed by research that emphasizes the importance of education, feedback, leadership, and motivation in achieving sustained improvements in

infection prevention practices. The WAP is expected to lead to significant reductions in HAIs and improved patient safety by fostering a culture of accountability, collaboration, and continuous improvement.

IV. CONCLUSIONS

In conclusion, this study highlights critical areas of concern in ICU nurses' compliance with Infection Prevention and Control (IPC) protocols, particularly the discrepancies between self-reported adherence and actual practice. While nurses demonstrate high awareness of IPC protocols, lapses in hand hygiene, PPE usage, and invasive device care reveal the challenges of consistent compliance in high-pressure ICU settings.

The Workplace Application Plan (WAP) proposed in this study, which includes ongoing training, daily monitoring, leadership involvement, and recognition, offers a comprehensive approach to addressing these gaps and improving adherence to IPC standards. By fostering a culture of accountability, collaboration, and continuous improvement, the WAP is expected to reduce healthcare-associated infections and enhance patient safety.

Based on the findings, the following actionable recommendations are proposed: First, healthcare institutions should prioritize ongoing IPC training and refresher courses for ICU nurses, ensuring that knowledge is continuously updated and reinforced. Second, daily monitoring through observation checklists should be implemented to provide real-time feedback and immediate corrections.

Third, fostering a collaborative environment through regular IPC discussions in team meetings and performance evaluations will strengthen peer accountability and reinforce best practices.

Finally, leadership should support nurses with necessary resources, such as PPE and hand hygiene supplies, and provide recognition and incentives to sustain motivation and compliance. These measures, when combined, will promote a more robust IPC culture and lead to improved patient outcomes in ICU settings.

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