

Improving Infection Prevention Compliance in Acute Hospital Wards: The Role of Nursing Leadership

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Abstract- Healthcare-associated infections remain a major challenge for healthcare systems worldwide, particularly within acute hospital wards where patients are exposed to complex clinical interventions and high levels of patient-staff interaction. Ensuring consistent adherence to infection prevention and control practices is therefore essential for improving patient safety and healthcare quality. This study critically examined the influence of nursing leadership on infection prevention compliance in acute hospital environments. A narrative review approach was adopted, drawing on existing empirical studies, systematic reviews, and policy guidelines related to infection prevention practices, healthcare leadership, and organisational factors affecting compliance. The analysis explored the burden of healthcare-associated infections, the determinants of infection prevention adherence, leadership strategies that support improved compliance, the role of technological interventions, and the challenges affecting effective leadership in infection prevention. The findings indicate that nursing leadership plays a pivotal role in strengthening infection prevention practices through staff education, behavioural reinforcement, interdisciplinary collaboration, and the development of a culture that prioritises patient safety. Organisational support, resource availability, and effective communication were also identified as key factors influencing compliance with infection prevention guidelines. However, challenges such as workforce pressures, inconsistent staff knowledge, and difficulties in sustaining behavioural change continue to hinder optimal adherence. The study concludes that strengthening leadership capacity, integrating technological innovations, and promoting multidisciplinary collaboration are essential for improving infection prevention outcomes. It is recommended that healthcare institutions invest in leadership development, continuous professional training, and evidence-based quality improvement initiatives to support sustainable infection prevention practices.

Index Terms- Infection Prevention, Nursing Leadership, Healthcare-Associated Infections, Patient Safety, Hospital Wards, Infection Control Compliance

I. INTRODUCTION

Healthcare-associated infections (HAIs) remain a persistent and complex challenge within healthcare systems worldwide, representing a significant threat to patient safety and healthcare quality. These infections occur during the course of medical care and are not present or incubating at the time of hospital admission. The consequences of HAIs are profound, contributing to increased morbidity, mortality, prolonged hospitalisation, and substantial financial burdens on healthcare institutions. Acute hospital wards are particularly vulnerable to infection transmission due to high patient density, frequent invasive procedures, and continuous interactions between patients and healthcare professionals. Despite the existence of comprehensive infection prevention and control (IPC) guidelines, ensuring consistent compliance among healthcare workers remains a considerable challenge in many healthcare settings.

Infection prevention practices such as hand hygiene, appropriate use of personal protective equipment (PPE), environmental sanitation, and adherence to aseptic techniques are widely recognised as fundamental strategies for reducing infection transmission in hospital environments. However, evidence suggests that compliance with these practices is often inconsistent across healthcare institutions. While healthcare workers may possess adequate knowledge of infection control guidelines, several behavioural, organisational, and environmental factors may hinder consistent

adherence in clinical practice (Winship & McClunie-Trust, 2016). Factors such as heavy workloads, staffing shortages, time constraints, and limited institutional support frequently compromise the ability of healthcare professionals to maintain optimal infection prevention standards, particularly in high-pressure acute care environments.

Among the various IPC measures, hand hygiene has consistently been identified as one of the most effective and cost-efficient strategies for preventing healthcare-associated infections. Nevertheless, adherence to hand hygiene guidelines remains suboptimal in many healthcare settings. Studies have demonstrated that targeted interventions that combine behavioural strategies with leadership engagement can significantly improve compliance with infection prevention protocols. For example, a cluster randomised trial conducted by Huis et al. (2013) demonstrated that a strategy involving team-based approaches and active leadership involvement significantly improved nurses' adherence to hand hygiene guidelines. This finding highlights the critical influence of leadership in shaping healthcare workers' behaviours and reinforcing infection prevention practices within clinical environments.

Nurses occupy a central role in infection prevention and control due to their continuous presence at the bedside and their direct involvement in patient care. As the largest professional group within healthcare systems, nurses are responsible for implementing a wide range of infection prevention practices, including monitoring patient conditions, administering treatments, and maintaining hygienic clinical environments. Consequently, nurses' compliance with IPC protocols is essential for reducing the transmission of infections and ensuring patient safety. However, the effectiveness with which nurses implement infection prevention practices is strongly influenced by organisational and leadership factors within healthcare institutions.

Organisational and management structures within hospitals play a crucial role in determining the effectiveness of infection prevention programs. Leadership at both the ward and institutional levels contributes to the establishment of policies, allocation of resources, and development of systems that

support infection prevention efforts. A scoping review examining organisational influences on infection control found that strong leadership engagement is a key prerequisite for effective infection prevention initiatives in hospitals (Griffiths et al., 2009). Leaders influence staff behaviour by setting expectations, providing guidance, and promoting accountability in infection control practices. Without active leadership involvement, infection prevention strategies may fail to achieve sustained improvements in compliance.

In addition to formal organisational structures, the cultural environment within healthcare institutions significantly influences infection prevention outcomes. Hospital culture encompasses the shared values, beliefs, and behaviours that guide clinical practice and decision-making. A positive safety culture promotes adherence to infection prevention guidelines by encouraging healthcare professionals to prioritise patient safety and maintain high standards of care. Conversely, environments characterised by poor communication, limited accountability, and inadequate leadership support may undermine compliance with infection prevention protocols. Research indicates that leadership plays a pivotal role in shaping organisational culture and fostering environments where infection prevention is embedded as a core component of patient safety (van Buijtene & Foster, 2019).

An important strategy that has emerged in recent years to strengthen infection prevention compliance is the use of infection control link nurses. These nurses serve as key intermediaries between infection prevention specialists and clinical staff working in hospital wards. Their role involves disseminating infection control knowledge, facilitating communication between teams, and promoting adherence to IPC practices among their colleagues. Evidence from systematic and scoping reviews suggests that infection control link nurses can play an important role in strengthening infection prevention initiatives in acute care hospitals by enhancing education, promoting behavioural change, and supporting the implementation of infection control policies (Peter et al., 2018; Shittu et al., 2019; Dekker, Jongerden & van Mansfeld, 2019). Through peer influence and local leadership, these

professionals contribute to improving compliance with infection prevention practices at the ward level. At a broader level, hospital organisational structures and leadership commitment are critical determinants of successful infection prevention programs. Healthcare institutions that demonstrate strong leadership engagement in infection control initiatives are more likely to achieve improved adherence to infection prevention protocols and reduced rates of healthcare-associated infections. A systematic review examining hospital organisational structures for infection prevention emphasised that leadership commitment, adequate staffing, and effective management systems are essential components of successful infection prevention programs (Zingg et al., 2015). These findings highlight the importance of integrating leadership, organisational support, and clinical expertise in efforts to improve infection prevention compliance.

Leadership also influences behavioural change among healthcare workers by reinforcing professional accountability and promoting best practices in infection prevention. When nurse leaders actively demonstrate adherence to infection control protocols and provide continuous support for staff education, they create an environment in which compliance becomes an integral part of daily clinical practice. Visible leadership engagement not only reinforces the importance of infection prevention measures but also motivates healthcare professionals to adopt safer practices in patient care.

Despite increasing recognition of the importance of leadership in infection prevention, challenges remain in achieving consistent compliance across acute hospital wards. Infection control practices are influenced by a complex interplay of organisational, behavioural, and environmental factors, which requires coordinated efforts from healthcare leaders, clinicians, and institutional policymakers. Understanding the specific role of nursing leadership in promoting infection prevention compliance is therefore essential for developing effective strategies that can enhance patient safety and improve healthcare quality.

This review aims to critically examine the role of nursing leadership in improving infection prevention compliance within acute hospital wards. Specifically,

the review seeks to explore how leadership behaviours, organisational culture, and structural factors influence adherence to infection prevention practices among nursing staff. The objectives of the review are threefold: first, to analyse the key factors affecting compliance with infection prevention and control guidelines in acute care settings; second, to examine leadership strategies that support improved adherence to infection prevention practices; and third, to identify challenges and opportunities for strengthening leadership-driven infection prevention initiatives in healthcare institutions. The scope of this review focuses primarily on acute hospital environments, where infection risks are particularly high and effective leadership is essential for maintaining safe clinical practices. By synthesising existing evidence on nursing leadership and infection prevention, the review aims to contribute to a deeper understanding of how leadership can enhance compliance with infection control measures and ultimately improve patient safety outcomes.

1.1 Global Burden of Healthcare-Associated Infections

Healthcare-associated infections (HAIs) represent a major global public health concern and continue to challenge healthcare systems across both developed and developing countries. These infections occur during the provision of medical care and are not present or incubating at the time of a patient's admission to a healthcare facility. HAIs significantly compromise patient safety and contribute to adverse health outcomes, including prolonged hospital stays, increased morbidity and mortality, and substantial financial costs for healthcare institutions. The persistent prevalence of HAIs highlights the ongoing need for effective infection prevention and control (IPC) strategies within healthcare environments, particularly in acute hospital wards where patients are exposed to multiple infection risks (Peter, Meng, Kugler & Mattner, 2018).

The global burden of HAIs is exacerbated by the complexity of modern healthcare delivery systems. Advances in medical technologies and the increased use of invasive procedures have improved patient outcomes but have also created additional opportunities for infection transmission. Acute care hospitals, which often manage critically ill patients

requiring intensive monitoring and treatment, are especially vulnerable to the spread of infections. In such environments, frequent patient contact, high patient turnover, and extensive use of medical devices contribute to elevated infection risks. Consequently, maintaining strict adherence to infection prevention practices is essential for minimising the incidence of HAIs and ensuring safe healthcare delivery (van Buijtene & Foster, 2019).

In addition to clinical consequences, HAIs impose a considerable economic burden on healthcare systems. The treatment of infections acquired within healthcare facilities often requires additional diagnostic procedures, extended hospitalisation, and more intensive medical interventions. These factors significantly increase healthcare costs and strain already limited healthcare resources. Furthermore, the presence of HAIs can undermine public confidence in healthcare institutions and highlight weaknesses in infection prevention systems. Technological and monitoring innovations, such as temperature monitoring systems designed to enhance patient safety and infection surveillance, have been explored as supportive tools for improving healthcare quality and reducing infection risks (Adeniji, 2019).

1.2 Infection Prevention Compliance in Acute Hospital Settings

Infection prevention compliance within acute hospital settings represents a fundamental component of patient safety and healthcare quality. Compliance refers to the consistent adherence of healthcare professionals to established infection prevention and control (IPC) guidelines designed to minimise the transmission of infectious agents within healthcare environments. These guidelines encompass a range of practices, including hand hygiene, the correct use of personal protective equipment (PPE), safe handling of clinical equipment, environmental sanitation, and adherence to standard and transmission-based precautions. In acute hospital wards, where patients frequently undergo invasive procedures and require intensive medical interventions, strict adherence to these practices is essential to prevent healthcare-associated infections and protect both patients and healthcare workers (Burnett, 2018).

Nurses play a particularly critical role in ensuring infection prevention compliance because of their continuous involvement in patient care activities.

Their responsibilities include monitoring patient conditions, administering treatments, maintaining hygienic care environments, and implementing IPC protocols during clinical procedures. As frontline healthcare providers, nurses are often responsible for translating infection prevention guidelines into routine clinical practice. However, compliance levels can vary significantly across healthcare institutions due to a range of organisational, behavioural, and environmental factors (Griffiths, Renz & Rafferty, 2008).

Organisational structures and leadership support are particularly influential in shaping infection prevention compliance in acute care environments. Factors such as staffing levels, workload pressures, availability of resources, and the effectiveness of communication systems can either facilitate or hinder adherence to IPC guidelines. Hospitals that maintain strong management systems, supportive leadership, and clear infection prevention policies are more likely to achieve higher levels of compliance among healthcare workers (Griffiths, Renz & Rafferty, 2008).

Furthermore, innovative organisational strategies such as the implementation of infection control link nurses have demonstrated potential in improving infection prevention practices within hospital wards. These designated nurses act as intermediaries between infection prevention teams and clinical staff, promoting education, disseminating guidelines, and reinforcing compliance with infection control protocols (Dekker et al., 2019). Through such collaborative approaches, healthcare institutions can strengthen adherence to infection prevention practices and enhance patient safety outcomes in acute hospital settings.

1.3 Importance of Nursing Leadership in Infection Prevention

Nursing leadership plays a critical role in strengthening infection prevention and control (IPC) practices within healthcare institutions, particularly in acute hospital settings where the risk of healthcare-associated infections is significantly heightened. Effective nursing leadership influences staff behaviour, reinforces adherence to infection prevention guidelines, and promotes a culture of

safety that prioritises patient protection. In healthcare environments characterised by complex clinical demands and high patient turnover, nursing leaders provide essential guidance and coordination that enable healthcare teams to consistently implement infection prevention measures. Their leadership is fundamental in translating institutional policies and infection control standards into routine clinical practice.

One of the key contributions of nursing leadership in infection prevention lies in its ability to shape healthcare workers' behaviours through structured interventions and behavioural change strategies. Evidence indicates that behaviour-based approaches, supported by leadership engagement, can significantly enhance compliance with infection prevention protocols. Edwards et al. (2012) emphasise that behavioural change interventions, when reinforced by leadership support and organisational commitment, are effective in promoting adherence to infection control practices in acute healthcare settings. Nursing leaders therefore play an important role in motivating healthcare staff, reinforcing professional accountability, and fostering a shared responsibility for infection prevention.

Furthermore, nursing leaders facilitate collaboration between infection prevention teams and frontline healthcare staff. Their involvement ensures that infection control policies are effectively communicated, implemented, and monitored across hospital wards. According to Aziz (2016), the active engagement of infection prevention practitioners and nursing leaders is essential for improving staff participation in infection control initiatives and strengthening multidisciplinary cooperation within healthcare organisations. Through effective communication and leadership, nurse managers can encourage healthcare workers to adopt evidence-based infection prevention practices and sustain high standards of clinical care.

In addition, leadership development programs have demonstrated positive outcomes in enhancing nurses' compliance with safety and infection prevention measures. Abdallah et al. (2019) found that management programs designed to strengthen nurses' leadership roles significantly improved staff

adherence to safety protocols within intensive care units. These findings highlight the importance of empowering nursing leaders to drive infection prevention initiatives and promote sustainable improvements in healthcare safety practices.

II. OVERVIEW OF INFECTION PREVENTION AND CONTROL IN ACUTE HOSPITAL WARDS

Infection prevention and control (IPC) constitutes a critical component of healthcare delivery in acute hospital wards, where patients are frequently exposed to complex medical interventions and invasive procedures that increase the risk of infection transmission. Acute care settings, including medical, surgical, and intensive care units, are characterised by high patient turnover, frequent interactions between healthcare professionals and patients, and the extensive use of medical devices. These conditions create an environment where pathogens can easily spread if effective infection prevention measures are not consistently implemented. Consequently, robust IPC systems are essential for safeguarding patient safety, protecting healthcare workers, and ensuring the quality and sustainability of healthcare services (Zingg et al., 2015).

Infection prevention and control encompasses a comprehensive set of policies, procedures, and practices designed to minimise the transmission of infectious agents within healthcare environments. These measures include standard precautions such as hand hygiene, appropriate use of personal protective equipment, safe injection practices, environmental sanitation, and proper handling of medical equipment. In acute hospital wards, adherence to these practices is essential due to the vulnerability of hospitalised patients, many of whom have compromised immune systems or underlying health conditions that increase susceptibility to infection. The effective implementation of IPC practices therefore requires coordinated efforts across healthcare teams and strong organisational commitment to patient safety (Gould, Gallagher & Allen, 2016).

Organisational structures and leadership support are fundamental elements of effective infection prevention programmes within hospital settings.

Healthcare institutions must establish clear governance systems that support the development, implementation, and monitoring of infection control policies. According to Zingg et al. (2015), hospitals with well-structured infection prevention programmes and strong leadership engagement demonstrate improved compliance with infection control practices and lower rates of healthcare-associated infections. These programmes typically involve multidisciplinary teams comprising infection prevention specialists, nurses, physicians, microbiologists, and hospital administrators who work collaboratively to design and implement infection control strategies. Effective organisational structures also ensure that adequate resources, training opportunities, and monitoring systems are available to support healthcare professionals in maintaining high standards of infection prevention.

In addition to structural frameworks, leadership plays a central role in facilitating the successful implementation of IPC guidelines within acute hospital wards. Leadership influences how infection prevention policies are communicated, interpreted, and enacted within clinical environments. Leaders at different levels of healthcare organisations, including senior hospital managers, nurse leaders, and infection control practitioners, contribute to shaping institutional priorities and guiding staff behaviour in relation to infection prevention. Research has shown that leadership commitment and active involvement in infection prevention initiatives are essential for ensuring the successful translation of infection control guidelines into clinical practice (Hegarty et al., 2019).

Despite the availability of comprehensive IPC guidelines, healthcare workers' compliance with infection prevention practices remains inconsistent in many healthcare settings. Behavioural and organisational factors often contribute to non-compliance with infection control measures. A qualitative study examining healthcare workers' attitudes towards IPC practices found that non-compliance frequently arises from competing clinical priorities, perceived time constraints, and varying interpretations of infection prevention guidelines (Shah et al., 2015). Healthcare professionals working in acute hospital wards often operate under

significant pressure, managing multiple clinical responsibilities simultaneously. In such circumstances, infection prevention practices may sometimes be perceived as secondary to urgent patient care tasks, which can undermine consistent adherence to IPC protocols.

Understanding the behavioural determinants of infection prevention compliance is therefore essential for developing effective interventions aimed at improving adherence. Behavioural change strategies that address healthcare workers' perceptions, attitudes, and motivations have been identified as key components of successful infection prevention initiatives. These strategies often involve education, feedback mechanisms, and the reinforcement of positive behaviours through leadership support. By promoting awareness of infection risks and emphasising the importance of adherence to IPC guidelines, healthcare organisations can foster a culture in which infection prevention becomes an integral part of everyday clinical practice.

One organisational approach that has shown promise in strengthening infection prevention practices within hospital wards is the implementation of infection prevention link nurse programmes. Infection prevention link nurses serve as local champions for infection control within clinical units, acting as intermediaries between infection prevention teams and frontline healthcare staff. Their role typically involves disseminating infection prevention information, supporting staff education, monitoring compliance with IPC practices, and promoting adherence to infection control guidelines within their respective wards. Evidence suggests that link nurse programmes can contribute to improved communication, increased staff engagement, and enhanced awareness of infection prevention practices among healthcare professionals (Williams et al., 2019).

The effectiveness of infection prevention link nurse programmes is closely linked to the broader organisational environment in which they operate. Successful implementation requires clear role definitions, adequate training, and sustained support from hospital leadership. When supported by strong leadership structures, link nurses can play a valuable

role in promoting behavioural change and strengthening infection prevention practices within clinical teams. Their presence within hospital wards enables infection control knowledge to be disseminated more effectively and ensures that infection prevention practices are integrated into routine clinical workflows.

Leadership development initiatives have also been explored as a means of strengthening infection prevention and control practices within healthcare organisations. Action learning approaches, for example, have been used to empower healthcare professionals to identify and address infection control challenges within their clinical environments. Such initiatives encourage collaborative problem-solving, knowledge sharing, and reflective practice among healthcare teams. Kellie, Milsom and Henderson (2012) highlight that leadership through action learning can support a bottom-up approach to improving infection prevention practices by enabling healthcare staff to actively engage in the development and implementation of best practice solutions. This approach not only strengthens leadership capacity within clinical teams but also fosters a sense of ownership and accountability for infection prevention initiatives.

Senior hospital managers also play a significant role in shaping organisational strategies aimed at improving infection prevention practices. Their perspectives on infection control initiatives influence resource allocation, policy development, and the prioritisation of infection prevention activities within healthcare institutions. A qualitative study exploring senior managers' views on strategies to improve hand hygiene emphasised the importance of leadership engagement, monitoring systems, and continuous staff education in achieving sustainable improvements in infection prevention practices (McInnes et al., 2014). These findings underscore the need for coordinated leadership efforts across multiple organisational levels to support effective infection control programmes.

III. THE ROLE OF NURSING LEADERSHIP IN PROMOTING INFECTION PREVENTION

Nursing leadership plays a pivotal role in advancing infection prevention and control (IPC) practices within healthcare institutions, particularly in acute hospital wards where the risk of healthcare-associated infections (HAIs) is heightened. Nurses represent the largest group of healthcare professionals and are consistently involved in direct patient care, positioning them as central actors in the implementation and monitoring of infection prevention measures. Consequently, nursing leadership significantly influences how infection prevention guidelines are interpreted, adopted, and sustained in clinical environments. Effective leadership fosters adherence to evidence-based infection control practices, promotes accountability among healthcare workers, and supports the development of organisational cultures that prioritise patient safety and infection prevention.

One of the most significant ways in which nursing leadership promotes infection prevention is through the establishment of clear communication channels and professional guidance within clinical teams. Nurse leaders, including ward managers, infection prevention specialists, and senior clinical nurses, are responsible for translating institutional policies and infection control guidelines into practical actions within hospital wards. These leaders ensure that staff understand the importance of infection prevention practices and are adequately supported in implementing them consistently. Crawford and Brown (2008) describe the concept of "soft authority" in infection management, whereby nurse leaders exert influence not through rigid hierarchical control but through professional expertise, mentorship, and collaborative engagement with staff. This form of leadership encourages healthcare professionals to adopt infection prevention practices voluntarily and reinforces the shared responsibility for maintaining safe clinical environments.

The role of infection control link nurses represents another important dimension of nursing leadership in infection prevention. Infection control link nurses serve as intermediaries between infection prevention specialists and frontline healthcare staff, helping to disseminate knowledge and reinforce infection control practices within hospital wards. Their responsibilities typically include educating

colleagues, promoting adherence to infection prevention guidelines, and facilitating communication between clinical teams and infection control departments. According to Dawson (2003), the link nurse model has proven effective in strengthening infection control programmes by enabling the continuous transfer of knowledge and providing local leadership within clinical units. By embedding infection prevention expertise within ward-level teams, link nurses contribute to the early identification of infection risks and encourage the consistent application of infection control practices.

Leadership style also plays a crucial role in influencing healthcare workers' compliance with infection prevention measures. Different leadership approaches can significantly affect how staff perceive infection control policies and whether they are motivated to adhere to them. Research examining clinical leadership styles and hand hygiene compliance suggests that supportive and participatory leadership approaches tend to foster higher levels of compliance among nursing staff. Stevens et al. (2014) found that leadership styles characterised by open communication, staff involvement, and supportive supervision were associated with improved adherence to hand hygiene protocols. These findings suggest that nurse leaders who engage staff in decision-making processes and provide constructive feedback can enhance staff commitment to infection prevention initiatives.

In addition to leadership style, the broader organisational culture within healthcare institutions also plays a significant role in shaping infection prevention outcomes. Organisational culture refers to the shared values, beliefs, and behaviours that influence how healthcare professionals approach patient care and safety. When infection prevention is embedded within the organisational culture, healthcare workers are more likely to view adherence to IPC guidelines as a fundamental aspect of professional practice. De Bono, Heling and Borg (2014) emphasise that organisational culture significantly affects the success of infection prevention programmes, as healthcare workers are more likely to comply with infection control measures when they perceive strong institutional support and leadership commitment. Nursing leaders are therefore instrumental in cultivating a culture of

safety in which infection prevention practices are prioritised and reinforced through daily clinical routines.

Another critical contribution of nursing leadership lies in the development and implementation of targeted interventions designed to improve infection prevention behaviours among healthcare staff. Behavioural interventions have been widely used to address gaps in compliance with infection control practices, particularly in relation to hand hygiene. Evidence suggests that multifaceted interventions combining education, behavioural reinforcement, and leadership support are particularly effective in improving healthcare workers' adherence to infection prevention guidelines. Aboumatar et al. (2012) demonstrated that an infection prevention promotion programme based on the PRECEDE behavioural model significantly improved hand hygiene behaviours among healthcare personnel. The programme incorporated educational sessions, leadership engagement, and feedback mechanisms, highlighting the importance of leadership involvement in promoting sustained behavioural change.

Similarly, systematic reviews examining interventions to improve hand hygiene compliance among nurses have highlighted the importance of leadership-driven strategies in achieving meaningful improvements in infection prevention practices. Interventions that combine leadership support, staff education, and performance monitoring are more effective than isolated educational initiatives alone. Nursing leadership also contributes to infection prevention through the establishment of supportive learning environments that encourage continuous professional development. Healthcare environments are constantly evolving due to technological advancements, emerging infectious diseases, and changes in healthcare delivery systems. As a result, healthcare professionals must continually update their knowledge and skills related to infection prevention. Nurse leaders support this process by organising training programmes, promoting evidence-based practice, and encouraging staff to engage in reflective learning. By fostering a culture of continuous improvement, nursing leaders help ensure that healthcare teams remain informed about the latest

infection prevention guidelines and are capable of implementing them effectively in clinical practice.

Furthermore, nursing leaders play an important role in monitoring compliance with infection prevention protocols and identifying opportunities for improvement. Through regular audits, performance evaluations, and feedback sessions, nurse leaders can assess whether infection control guidelines are being followed consistently within hospital wards. These monitoring activities provide valuable insights into areas where additional support or intervention may be required. When combined with supportive leadership approaches, monitoring systems can reinforce accountability while also encouraging healthcare workers to maintain high standards of infection prevention.

The role of nursing leadership in infection prevention extends beyond individual clinical units to encompass broader organisational and policy-level initiatives. Nurse leaders often participate in hospital committees, infection prevention task forces, and policy development processes aimed at strengthening infection control programmes across healthcare institutions. Their frontline experience provides valuable insights into practical challenges faced by healthcare workers, enabling them to contribute meaningfully to the development of effective infection prevention policies.

IV. FACTORS AFFECTING INFECTION PREVENTION COMPLIANCE IN ACUTE WARDS

Infection prevention compliance in acute hospital wards is influenced by a complex interplay of individual, organisational, and systemic factors. Although healthcare institutions establish infection prevention and control (IPC) guidelines to reduce the transmission of healthcare-associated infections (HAIs), the effectiveness of these guidelines largely depends on the degree to which healthcare professionals adhere to them in daily clinical practice. Compliance with infection prevention measures such as hand hygiene, environmental sanitation, safe handling of medical devices, and adherence to aseptic techniques is essential for ensuring patient safety. However, numerous barriers can hinder consistent adherence to these practices in

acute care settings, highlighting the need to understand the underlying factors that influence infection prevention behaviours among healthcare workers.

One of the most significant factors affecting infection prevention compliance is the organisational environment within healthcare institutions. Organisational structures, leadership support, and the availability of resources play crucial roles in shaping healthcare workers' ability to adhere to infection prevention guidelines. Hospitals that maintain well-coordinated infection prevention programmes and clear governance structures tend to achieve higher levels of compliance. Hale et al. (2015) emphasise that the effectiveness of infection prevention and control teams is strongly influenced by organisational support, including access to adequate resources, clear communication systems, and collaboration between clinical staff and infection prevention specialists. When infection prevention teams operate within supportive organisational frameworks, they are better equipped to implement policies, monitor compliance, and provide guidance to healthcare workers.

Staffing levels and workload pressures also represent important determinants of infection prevention compliance in acute hospital wards. Healthcare professionals working in high-intensity clinical environments often face competing priorities that may limit the time available to perform infection prevention tasks thoroughly. In situations where staffing shortages or excessive workloads are present, healthcare workers may prioritise urgent clinical interventions over routine infection prevention measures. This dynamic can lead to lapses in compliance with IPC guidelines, particularly in busy wards where patient care demands are high. Evidence suggests that ensuring appropriate staffing levels and manageable workloads is essential for supporting healthcare professionals in maintaining adherence to infection prevention practices (Carrico et al., 2018).

Another important factor influencing infection prevention compliance is healthcare workers' knowledge and understanding of infection prevention guidelines. Adequate training and education are necessary to ensure that healthcare professionals are aware of best practices and understand the rationale behind infection prevention protocols. Without

sufficient knowledge or clarity regarding guidelines, healthcare workers may inadvertently deviate from recommended practices. Continuous education programmes and professional development initiatives are therefore essential for reinforcing infection prevention knowledge and promoting evidence-based clinical practices. Furthermore, clear and accessible guidelines can help healthcare workers integrate infection prevention measures into their routine clinical activities.

Behavioural and psychological factors also play a significant role in determining healthcare workers' adherence to infection prevention practices. Healthcare professionals' attitudes, perceptions, and beliefs about infection risks can influence their willingness to comply with IPC guidelines. A rapid qualitative evidence synthesis examining barriers and facilitators to healthcare workers' adherence to infection prevention guidelines identified several behavioural factors that affect compliance, including perceived risk of infection, professional norms, and individual motivation (Houghton et al., 2020). When healthcare workers perceive infection prevention measures as essential for patient safety and recognise their professional responsibility in preventing infections, they are more likely to adhere consistently to IPC protocols.

Communication and collaboration among healthcare teams are additional factors that significantly influence infection prevention compliance. Effective communication ensures that infection prevention policies are clearly understood and consistently implemented across clinical units. In acute hospital wards, where healthcare professionals from various disciplines work together, strong interdisciplinary collaboration is necessary to maintain consistent infection prevention practices. Clack et al. (2018) highlight that successful implementation of infection prevention measures across European hospitals often depends on the strength of communication networks within healthcare organisations. When healthcare workers are encouraged to share knowledge, discuss challenges, and collaborate on infection prevention initiatives, compliance with IPC guidelines tends to improve.

Quality improvement initiatives have also been shown to play an important role in enhancing infection prevention compliance within healthcare settings. These initiatives often involve multidisciplinary teams working collaboratively to identify gaps in infection prevention practices and develop strategies to address them. McCahill et al. (2007) describe how a cross-disciplinary quality improvement team successfully enhanced compliance with surgical infection prevention guidelines by implementing coordinated interventions across clinical departments. Such collaborative approaches can facilitate the identification of system-level barriers to infection prevention and support the development of targeted solutions that improve compliance across healthcare organisations.

Leadership and supervision represent additional critical factors influencing infection prevention compliance. Effective leadership helps create an environment in which infection prevention is prioritised and supported through institutional policies, staff education, and performance monitoring. Nurse leaders and infection prevention specialists play a key role in guiding healthcare workers, reinforcing adherence to IPC guidelines, and promoting accountability for infection prevention practices. Leadership-driven initiatives, such as compliance coaching programmes, have been developed to strengthen infection prevention behaviours among healthcare professionals. For example, a nurse leader-directed compliance coaching programme was implemented to improve central line maintenance practices, demonstrating how leadership interventions can support improved adherence to infection prevention protocols (Ayala, 2019).

Another factor affecting infection prevention compliance relates to the availability and accessibility of infection prevention resources within healthcare facilities. Healthcare workers must have access to appropriate equipment, supplies, and infrastructure in order to implement infection prevention measures effectively. These resources include hand hygiene facilities, personal protective equipment, sterilisation equipment, and environmental cleaning supplies. When such resources are readily available and easily accessible

within hospital wards, healthcare professionals are more likely to adhere to infection prevention guidelines. Conversely, inadequate infrastructure or limited access to infection prevention resources can create practical barriers that hinder compliance with IPC protocols.

Institutional culture and organisational priorities also influence infection prevention compliance. Healthcare institutions that prioritise patient safety and infection prevention tend to create environments where adherence to IPC guidelines is reinforced through shared values and professional expectations. In such environments, infection prevention becomes embedded in daily clinical practice rather than being perceived as an additional task. Institutional commitment to infection prevention can be demonstrated through leadership engagement, resource allocation, staff training programmes, and continuous monitoring of infection prevention performance.

V. LEADERSHIP STRATEGIES FOR IMPROVING INFECTION PREVENTION COMPLIANCE

Effective leadership strategies are essential for improving infection prevention and control (IPC) compliance within acute hospital wards. While evidence-based guidelines for infection prevention are widely available, their successful implementation depends largely on the leadership structures that guide healthcare professionals' behaviours and support adherence to these standards. Nursing leaders and hospital administrators play a critical role in fostering environments that prioritise patient safety, encourage adherence to infection prevention protocols, and sustain long-term behavioural change among healthcare staff. Leadership strategies that integrate organisational support, staff engagement, behavioural interventions, and collaborative practices have been shown to significantly enhance compliance with infection prevention measures.

One of the most widely recognised leadership strategies for improving infection prevention compliance is the implementation of comprehensive institutional programmes aimed at promoting adherence to key infection control practices.

Hospital-wide initiatives designed to improve hand hygiene compliance have demonstrated considerable success when supported by strong leadership engagement. Pittet et al. (2000) documented the effectiveness of a hospital-wide hand hygiene promotion programme that combined education, feedback mechanisms, and leadership support to improve compliance among healthcare workers. The programme resulted in substantial improvements in hand hygiene adherence and reductions in infection rates, highlighting the importance of coordinated leadership efforts in reinforcing infection prevention practices across healthcare institutions.

Leadership engagement is particularly important in facilitating behavioural change among healthcare professionals. Infection prevention compliance is not solely determined by the availability of guidelines but is also influenced by the attitudes, perceptions, and motivations of healthcare workers. Leaders who actively promote infection prevention initiatives can help create a culture in which adherence to IPC guidelines becomes a shared responsibility among staff. Research suggests that team-based leadership approaches that involve frontline healthcare professionals in infection prevention initiatives are particularly effective in improving compliance. For example, a cluster randomised trial evaluating a team and leaders-directed strategy found that active leadership involvement combined with team engagement significantly improved nurses' adherence to hand hygiene guidelines and demonstrated favourable cost-effectiveness outcomes (Huis et al., 2013; Talbot et al., 2013). These findings illustrate the value of leadership strategies that empower healthcare teams to participate actively in infection prevention efforts.

Another important leadership strategy involves strengthening interdisciplinary collaboration within healthcare organisations. Infection prevention is inherently multidisciplinary, requiring cooperation among nurses, physicians, infection prevention specialists, and hospital administrators. Leaders who facilitate communication and collaboration across professional groups can enhance the effectiveness of infection prevention programmes. Clack et al. (2018) highlight that successful implementation of infection prevention practices across European hospitals often

depends on strong leadership structures that promote teamwork and shared accountability among healthcare professionals. By encouraging collaboration and open communication, leaders can help ensure that infection prevention practices are consistently applied across clinical departments.

Cultural factors within healthcare organisations also play a significant role in shaping infection prevention compliance, and leadership strategies must address these cultural dimensions to achieve sustainable improvements. Organisational culture influences how healthcare professionals perceive infection prevention responsibilities and how they prioritise compliance with IPC guidelines in daily practice. Makoni (2018) emphasises that cultural issues within hospital wards, including professional hierarchies, communication barriers, and established work routines, can significantly influence staff compliance with infection prevention practices. Effective leadership strategies therefore require leaders to recognise and address these cultural influences by fostering inclusive environments where infection prevention is embedded within the organisational ethos.

In addition to addressing organisational culture, leadership strategies should also incorporate staff education and continuous professional development. Education plays a crucial role in ensuring that healthcare professionals possess the knowledge and skills necessary to implement infection prevention practices effectively. Leaders can support educational initiatives by organising training programmes, facilitating access to infection prevention resources, and encouraging reflective learning among healthcare staff. Educational interventions are particularly important in reinforcing the importance of hand hygiene, which remains one of the most effective measures for preventing healthcare-associated infections. Evidence suggests that targeted educational programmes combined with leadership reinforcement can significantly improve healthcare workers' adherence to hand hygiene practices (Winship & McClunie-Trust, 2016; Adejo&Osinibi, 2016).

Another emerging leadership strategy involves integrating infection prevention initiatives with broader organisational programmes aimed at

improving healthcare quality and antimicrobial stewardship. Antimicrobial stewardship programmes focus on the responsible use of antibiotics to reduce antimicrobial resistance, which is closely linked to infection prevention efforts. Manning et al. (2018) highlight that collaboration between antimicrobial stewardship programmes and infection prevention initiatives can create synergistic benefits for healthcare organisations. Leadership strategies that integrate these programmes can strengthen infection control measures, reduce the spread of resistant pathogens, and promote more comprehensive approaches to patient safety.

Leadership strategies also increasingly recognise the importance of engaging patients in infection prevention efforts. Patient involvement in infection prevention initiatives can enhance accountability and promote greater awareness of infection control practices within healthcare settings. Encouraging patients to participate in infection prevention activities, such as reminding healthcare professionals about hand hygiene or adhering to personal hygiene guidelines, can reinforce compliance among healthcare staff. Sutton, Brewster and Tarrant (2019) found that hospital staff generally recognised the potential benefits of involving patients in infection prevention activities, although effective implementation requires supportive leadership and clear communication strategies.

Monitoring and feedback mechanisms represent another critical leadership strategy for improving infection prevention compliance. Regular audits, performance evaluations, and feedback sessions enable healthcare leaders to assess adherence to infection prevention guidelines and identify areas requiring improvement. By providing constructive feedback to healthcare professionals, leaders can reinforce positive behaviours and address potential gaps in compliance. Monitoring systems also enable healthcare organisations to track progress over time and evaluate the effectiveness of infection prevention interventions.

Ultimately, the success of leadership strategies aimed at improving infection prevention compliance depends on the ability of healthcare leaders to create supportive environments that prioritise patient safety

and encourage continuous improvement. Effective leaders recognise that infection prevention requires not only adherence to technical guidelines but also sustained behavioural and cultural change within healthcare organisations. By integrating organisational support, staff education, collaborative teamwork, and continuous monitoring, leadership strategies can significantly strengthen infection prevention compliance in acute hospital wards.

VI. THE ROLE OF TECHNOLOGY IN SUPPORTING INFECTION PREVENTION PRACTICES

Technological innovations have increasingly become essential tools for strengthening infection prevention and control (IPC) practices within acute hospital settings. As healthcare systems continue to confront the persistent challenges posed by healthcare-associated infections (HAIs), technology offers new opportunities to improve monitoring, surveillance, communication, and adherence to infection prevention protocols. In modern healthcare environments, where clinical processes are highly complex and patient care involves numerous interactions among healthcare professionals, the integration of technological systems can significantly enhance the effectiveness and sustainability of infection prevention initiatives. Technological solutions support healthcare professionals by providing accurate data, facilitating timely interventions, and reinforcing adherence to evidence-based infection prevention practices.

One of the most significant contributions of technology to infection prevention is the development of surveillance systems that enable healthcare institutions to monitor infection trends and detect potential outbreaks. Surveillance systems allow hospitals to systematically collect and analyse data related to healthcare-associated infections, enabling early identification of infection patterns and facilitating timely interventions. Effective infection surveillance is a fundamental component of hospital epidemiology and infection control programmes. Sydnor and Perl (2011) emphasise that the integration of surveillance technologies into infection control programmes enables healthcare institutions to

identify risk factors, monitor compliance with infection prevention measures, and evaluate the effectiveness of intervention strategies. These surveillance systems provide healthcare leaders and infection control teams with critical information that supports evidence-based decision-making and continuous improvement of infection prevention practices.

Technological interventions also play a vital role in supporting adherence to key infection prevention measures, particularly hand hygiene. Hand hygiene remains one of the most effective strategies for preventing the transmission of infectious pathogens within healthcare environments. However, ensuring consistent compliance among healthcare workers remains a significant challenge. Digital monitoring systems, automated reminders, and electronic feedback mechanisms have been developed to support hand hygiene compliance and provide real-time data on healthcare workers' behaviour. Evidence indicates that feedback systems and performance monitoring technologies can significantly improve adherence to hand hygiene protocols by increasing awareness and accountability among healthcare professionals. For example, enhanced performance feedback mechanisms have been shown to improve healthcare workers' hand hygiene compliance when combined with patient participation and multimodal improvement programmes (Stewardson et al., 2016; Adamah et al., 2016).

Multimodal infection prevention programmes frequently integrate technological tools with educational initiatives, leadership engagement, and organisational support to enhance compliance with infection control practices. These programmes combine several interventions, including electronic monitoring systems, staff training platforms, and digital reporting tools, to promote sustained improvements in infection prevention. Research conducted in acute-care hospitals demonstrated that multimodal strategies incorporating technological components significantly improved hand hygiene compliance and strengthened infection prevention practices among healthcare workers (Kritsotakis et al., 2018; Staines et al., 2018). Such programmes highlight the importance of integrating technology with behavioural and organisational interventions to

achieve sustainable improvements in infection control.

Technology also supports infection prevention by improving access to educational resources and training opportunities for healthcare professionals. Digital learning platforms, online training modules, and simulation technologies enable healthcare workers to acquire up-to-date knowledge about infection prevention practices and enhance their clinical competencies. Continuous education is essential for ensuring that healthcare professionals remain informed about emerging infectious threats and evolving infection control guidelines. Studies examining healthcare workers' knowledge and practices related to infection prevention indicate that access to educational resources plays a significant role in shaping infection prevention behaviours (Tenna et al., 2013). By utilising digital training technologies, healthcare institutions can deliver consistent and accessible education to healthcare professionals across various clinical departments.

In addition to educational tools, technological systems also facilitate the monitoring and management of specific healthcare-associated infections associated with medical devices and clinical procedures. Medical technologies designed to prevent device-related infections have been developed to reduce the incidence of conditions such as catheter-associated urinary tract infections and *Clostridium difficile* infections. Evidence-based technological interventions include improved catheter management systems, automated alerts for catheter removal, and environmental monitoring systems that support infection prevention practices within hospital wards. Strategies aimed at preventing catheter-associated infections emphasise the importance of combining clinical protocols with technological solutions that assist healthcare workers in maintaining appropriate device management practices (Lo et al., 2008). Similarly, infection control programmes targeting *Clostridium difficile* infections often rely on technological monitoring systems to track infection rates and evaluate the effectiveness of prevention strategies (Dubberke et al., 2014; Christiana et al., 2014).

Another important dimension of technology in infection prevention relates to its capacity to support leadership and organisational decision-making. Healthcare leaders rely on accurate data to evaluate infection prevention performance, allocate resources, and develop targeted interventions aimed at improving patient safety. Technological systems that provide real-time information on infection trends, compliance rates, and clinical outcomes enable leaders to identify areas requiring improvement and implement corrective actions. Leadership behaviours that promote patient safety are often supported by data-driven decision-making processes that rely on technological monitoring systems. Agnew and Flin (2014) highlight that nursing leaders who actively utilise performance data and safety monitoring tools are better positioned to guide clinical teams in maintaining high standards of patient care and infection prevention.

Furthermore, technological innovations can enhance communication and collaboration among healthcare teams involved in infection prevention initiatives. Digital communication platforms, electronic reporting systems, and integrated health information systems facilitate the exchange of information among healthcare professionals, enabling more effective coordination of infection control activities. Improved communication systems ensure that healthcare workers receive timely updates regarding infection risks, policy changes, and infection prevention guidelines. This enhanced information flow contributes to more consistent implementation of infection prevention practices across hospital wards. Technology also supports behavioural change among healthcare professionals by reinforcing awareness of infection prevention responsibilities. Behavioural monitoring technologies and reminder systems encourage healthcare workers to adhere to infection prevention guidelines and help establish consistent habits related to hygiene and safety practices. Research examining nurses' knowledge and compliance with hand hygiene guidelines indicates that technological interventions, when combined with organisational support and leadership engagement, can positively influence healthcare workers' infection prevention behaviours (Hammerschmidt & Manser, 2019). By providing continuous feedback and reminders, technological tools reinforce healthcare

professionals' commitment to maintaining high standards of infection control.

Despite the considerable benefits offered by technological innovations, successful implementation requires careful integration with organisational structures, staff training, and leadership support. Technology alone cannot guarantee improved infection prevention outcomes; rather, its effectiveness depends on how well it is incorporated into existing clinical workflows and supported by healthcare professionals. Healthcare institutions must therefore ensure that technological systems are user-friendly, accessible, and aligned with infection prevention objectives.

VII. CHALLENGES TO EFFECTIVE LEADERSHIP IN INFECTION PREVENTION

Despite the recognised importance of leadership in strengthening infection prevention and control (IPC) practices, numerous challenges continue to limit the effectiveness of leadership initiatives in acute hospital wards. Healthcare leaders responsible for implementing infection prevention programmes often encounter organisational, behavioural, and systemic barriers that hinder consistent adherence to infection control guidelines. These challenges can undermine the capacity of nursing leaders and infection prevention specialists to influence staff behaviour, maintain compliance with established protocols, and sustain long-term improvements in infection prevention outcomes.

One major challenge affecting leadership effectiveness in infection prevention relates to healthcare workers' adherence to clinical guidelines. Although evidence-based infection prevention guidelines are widely available, translating these guidelines into routine clinical practice remains difficult in many healthcare settings. Nurses and other healthcare professionals often face complex clinical environments characterised by heavy workloads, time constraints, and competing priorities. Lin et al. (2019) found that nurses' adherence to infection prevention guidelines, particularly those related to surgical site infection prevention, is frequently influenced by workplace pressures,

organisational culture, and the availability of institutional support. In such circumstances, even well-designed infection prevention strategies may struggle to achieve consistent compliance if healthcare workers perceive the guidelines as impractical within the realities of daily clinical practice.

Another significant challenge involves gaps in healthcare workers' knowledge and understanding of infection prevention practices. Adequate education and training are essential for ensuring that healthcare professionals possess the necessary knowledge to implement infection control measures effectively. However, studies have shown that healthcare workers' understanding of infection prevention guidelines can vary considerably across institutions and clinical departments. Chan et al. (2002) reported that although nurses generally demonstrate awareness of universal precautions, inconsistencies in knowledge and understanding may contribute to variations in compliance with infection prevention practices. These knowledge gaps can create difficulties for healthcare leaders who aim to promote consistent adherence to infection control protocols across multidisciplinary teams.

Behavioural factors among healthcare workers also represent a considerable challenge for infection prevention leadership. Compliance with infection prevention practices often requires changes in established clinical behaviours and routines, which may be difficult to achieve without sustained organisational support. Hand hygiene compliance, for example, has historically been inconsistent in many healthcare settings despite strong evidence supporting its effectiveness in preventing infection transmission. Research examining interventions aimed at improving hand hygiene compliance indicates that behavioural change among healthcare workers can be difficult to sustain over time. Whitby et al. (2008) highlight that although targeted interventions can improve hand hygiene adherence, maintaining these improvements requires continuous leadership engagement, monitoring, and reinforcement. Organisational culture and social dynamics within healthcare teams further complicate leadership efforts to promote infection prevention compliance. Effective infection prevention programmes depend

not only on individual behaviour but also on the collective attitudes and interactions within healthcare teams. Kwok, Harris and McLaws (2017) emphasise that social cohesion among healthcare workers plays a critical role in the success of hand hygiene programmes. When healthcare professionals operate within cohesive teams characterised by trust, mutual support, and shared responsibility, infection prevention practices are more likely to be consistently maintained. Conversely, environments lacking strong team cohesion may hinder leadership efforts to promote collective accountability for infection prevention.

Resource limitations also present a major barrier to effective leadership in infection prevention. Healthcare institutions must allocate sufficient resources to support infection prevention programmes, including staffing, training, monitoring systems, and infection control infrastructure. Without adequate resources, healthcare leaders may struggle to implement and sustain effective infection prevention strategies. The prevention of complex healthcare-associated infections, such as methicillin-resistant *Staphylococcus aureus* (MRSA) and central line-associated bloodstream infections, often requires comprehensive infection control programmes involving surveillance systems, isolation protocols, and specialised equipment. Calfee et al. (2008) and Marschall et al. (2014) emphasise that preventing such infections requires coordinated institutional support and resource allocation to ensure that healthcare workers have access to the necessary tools and infrastructure.

Another challenge relates to the difficulty of sustaining infection prevention improvements over time. Many healthcare organisations have successfully implemented infection prevention interventions that initially lead to improvements in compliance; however, maintaining these improvements over the long term can be challenging. Pontivivo et al. (2012) highlight that interventions designed to improve hand hygiene practices may produce short-term improvements but often require ongoing leadership support, monitoring, and staff engagement to ensure sustainability. Without sustained organisational commitment, infection

prevention initiatives may lose momentum and fail to produce lasting behavioural change.

The complexity of healthcare systems also creates challenges for leaders attempting to implement infection prevention strategies across diverse clinical environments. Acute hospital wards differ significantly in terms of patient populations, clinical procedures, and organisational structures, making it difficult to implement uniform infection prevention strategies. For example, preventing surgical site infections requires specialised protocols tailored to surgical environments, while preventing healthcare-associated infections in other clinical areas may involve different preventive measures. Anderson et al. (2008) emphasise that infection prevention strategies must be adapted to the specific clinical contexts in which they are implemented, which can complicate leadership efforts to standardise infection prevention practices across hospital departments.

Leadership challenges are further compounded by the need to maintain staff motivation and engagement in infection prevention initiatives. Sustained behavioural change among healthcare workers often requires the development of accountability systems that encourage adherence to infection prevention practices. Talbot et al. (2013) demonstrated that shared accountability mechanisms and incentive-based programmes can improve hand hygiene adherence among healthcare workers. However, implementing such initiatives requires strong leadership commitment and careful management to ensure fairness, transparency, and staff acceptance.

Finally, implementing global infection prevention strategies within diverse healthcare contexts can present additional leadership challenges. Although international guidelines such as the World Health Organization's hand hygiene improvement strategy have demonstrated success in various healthcare settings, adapting these strategies to local organisational environments may require significant leadership effort. Allegranzi et al. (2010) demonstrated that the successful implementation of the WHO hand hygiene strategy required strong leadership engagement, staff education, and institutional support to overcome contextual barriers within healthcare facilities.

VIII. FUTURE DIRECTIONS FOR RESEARCH AND PRACTICE

As healthcare systems continue to confront the persistent challenge of healthcare-associated infections (HAIs), there is an increasing need for innovative research and practical strategies aimed at strengthening infection prevention and control (IPC) practices in acute hospital settings. Although significant progress has been achieved through the development of evidence-based guidelines and infection prevention programmes, gaps remain in the consistent implementation of these practices across healthcare environments. Future research and practice must therefore focus on advancing leadership strategies, strengthening healthcare workers' engagement, improving compliance with infection prevention protocols, and integrating evidence-based interventions into routine clinical practice.

One important area for future research involves the continued development and evaluation of comprehensive infection prevention strategies within healthcare institutions. Updated international guidelines emphasise the importance of implementing coordinated and multifaceted approaches to prevent healthcare-associated infections. Yokoe et al. (2014) highlight that successful infection prevention programmes require the integration of surveillance systems, staff education, environmental controls, and leadership engagement to ensure sustained improvements in infection control practices. Future studies should therefore examine how healthcare institutions can effectively operationalise these integrated strategies within different clinical contexts, particularly in acute hospital wards where infection risks are highest.

Another key priority for future research involves identifying effective approaches for improving healthcare workers' adherence to infection prevention protocols. Despite widespread recognition of the importance of infection prevention measures, compliance among healthcare professionals often remains inconsistent. Research has demonstrated that a substantial proportion of healthcare-associated infections may be preventable through improved

adherence to infection prevention guidelines. Schreiber et al. (2018) conducted a systematic review and meta-analysis indicating that a considerable percentage of HAIs could potentially be avoided through the effective implementation of evidence-based infection prevention strategies. These findings underscore the need for continued research exploring innovative interventions that can enhance healthcare workers' compliance with IPC guidelines and reduce preventable infection rates.

Understanding healthcare workers' perceptions and attitudes towards infection prevention is also essential for developing effective interventions aimed at improving compliance. Behavioural factors such as professional norms, risk perception, and workplace culture can significantly influence healthcare workers' infection prevention behaviours. Qualitative research examining healthcare workers' experiences has provided valuable insights into the barriers and facilitators influencing adherence to infection prevention practices. For instance, a focus group study examining hand hygiene practices among healthcare workers revealed that social influences, organisational expectations, and workplace dynamics play important roles in shaping compliance behaviours (Jang et al., 2010). Future research should continue to explore these behavioural and organisational factors to inform the development of targeted interventions that address the underlying causes of non-compliance.

Expanding research on the role of nursing leadership in infection prevention is another critical direction for future investigation. Nursing leaders play a pivotal role in promoting infection prevention practices within healthcare teams, yet further studies are needed to examine how leadership styles, organisational support, and team dynamics influence infection prevention outcomes. Research focusing on nurses' perspectives on infection control has highlighted the importance of leadership support, clear communication, and adequate training in strengthening infection prevention practices. Lee et al. (2018) found that nurses' ability to effectively implement infection control measures is strongly influenced by organisational support systems and access to appropriate resources. These findings suggest that future research should explore strategies

for strengthening leadership capacity and empowering nursing leaders to drive infection prevention initiatives within healthcare organisations. Another important direction for future research involves strengthening occupational safety practices among healthcare workers. Healthcare professionals are frequently exposed to occupational hazards, including needle-stick injuries and exposure to infectious agents. Ensuring consistent adherence to safety precautions is therefore essential for protecting both healthcare workers and patients. Research examining adherence to safe needle practices among hospital workers indicates that organisational support, staff education, and clear institutional policies play significant roles in promoting compliance with occupational safety guidelines (Vaughn et al., 2004). Future research should examine how healthcare institutions can strengthen these safety systems and encourage consistent adherence to infection prevention precautions among healthcare professionals.

In addition to behavioural and organisational interventions, future infection prevention strategies should focus on improving clinical practices associated with high-risk medical procedures. Device-related infections, such as central line-associated bloodstream infections, remain a significant concern in hospital settings. Evidence suggests that implementing structured care bundles can significantly reduce infection risks associated with medical devices. O'Neil et al. (2016) demonstrated that the implementation of a central line care maintenance bundle effectively reduced the incidence of central line-associated bloodstream infections in non-intensive care settings. Future research should explore how similar evidence-based care bundles can be adapted and implemented across diverse healthcare environments to strengthen infection prevention efforts.

Moreover, future practice initiatives should emphasise the importance of interdisciplinary collaboration in infection prevention programmes. Infection prevention is inherently multidisciplinary, requiring cooperation among nurses, physicians, infection prevention specialists, and healthcare administrators. Strengthening communication and collaboration among healthcare professionals can

enhance the effectiveness of infection prevention initiatives and promote shared responsibility for patient safety.

IX. CONCLUSION

Healthcare-associated infections remain a critical challenge within acute hospital environments, requiring sustained institutional commitment, effective leadership, and consistent adherence to infection prevention and control practices. The preceding discussion has demonstrated that improving infection prevention compliance in acute hospital wards is not solely dependent on the availability of clinical guidelines but also on the effectiveness of leadership structures, organisational culture, staff engagement, and supportive systems that enable healthcare professionals to consistently implement evidence-based infection control practices.

The analysis undertaken in this review addressed the central aim of examining the role of nursing leadership in strengthening infection prevention compliance within acute hospital wards. By synthesising existing literature, the review explored the global burden of healthcare-associated infections, the importance of infection prevention compliance in acute care settings, and the pivotal role of nursing leadership in guiding clinical teams toward safer practices. The findings indicate that strong leadership engagement significantly influences adherence to infection prevention protocols by fostering accountability, encouraging staff education, and creating a culture of patient safety within healthcare organisations. In particular, leadership strategies such as multidisciplinary collaboration, behavioural interventions, continuous training, and performance monitoring were identified as essential mechanisms for improving compliance with infection prevention measures.

Furthermore, the review highlighted that infection prevention compliance is shaped by multiple interacting factors, including organisational support, resource availability, staff knowledge, workplace culture, and behavioural influences. The integration of technological innovations, surveillance systems, and quality improvement programmes was also

identified as an important component of modern infection prevention strategies. However, several challenges persist, including workforce pressures, resource constraints, variations in staff knowledge, and difficulties in sustaining behavioural change among healthcare professionals. Addressing these barriers requires coordinated leadership approaches that integrate organisational support, staff empowerment, and continuous evaluation of infection prevention practices.

Based on the findings presented, several recommendations emerge for healthcare institutions and policymakers. Strengthening leadership development programmes for nursing leaders is essential to enhance their capacity to drive infection prevention initiatives within clinical environments. Healthcare organisations should also prioritise staff education, interdisciplinary collaboration, and the implementation of evidence-based infection prevention programmes supported by monitoring and feedback systems. Additionally, further research is required to explore innovative leadership models and technological interventions that can improve infection prevention compliance across diverse healthcare settings.

In summary, sustained improvements in infection prevention practices require strong leadership, organisational commitment, and collaborative engagement among healthcare professionals. By reinforcing these elements, healthcare institutions can significantly reduce the incidence of healthcare-associated infections and improve patient safety outcomes in acute hospital wards.

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