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AVOIDING INFECTIONS CAUSED BY NURSES IN THE INTENSIVE CARE UNIT (ICU)

Latifah abdullah abdulaziz abuhayd[1]*, Malak mohammed Ibrahim alshtail[2], Abdarhman Abdullah Abdarhman Al dawsari[3], Tamim Saud Abdulaziz Al-Mousa[4], Ahmed Fahd Ibrahim Al-Tamimi[5] and Jamaan Mansour Duhaim Aldosari[6]

[1]*Nurse, Hafitl@hotmail.com, Hutat bani tammim general Hospital
[2]Nursing specialist, Mmalaky157@hotmail.com, Hutat bani tammim general Hospital
[3]Nursing specialist, Mmalaky157@hotmail.com, Hutat bani tammim general Hospital
[4]Nursing Tech, ts295082@gmail.com, Hutat bani tammim general Hospital
[5]Nursing Tech, a7med_856@hotmail.com, Hutat bani tammim general Hospital
[6]Nursing Tech, Jmaldosari@moh.gov.sa, Imam Abdulrahman Alfaisal Hospital

***Corresponding Author:** Latifah abdullah abdulaziz abuhayd
Email: Hafitl@hotmail.com

Abstract:
This paper review provides an overview of the literature on infections acquired by nurses working in intensive care units (ICUs). Infections among healthcare workers, including nurses, pose a significant risk to patient safety and can lead to adverse outcomes. The review examines the types and sources of infections, risk factors associated with nurse infections, and the impact on patient care. The findings highlight the importance of infection prevention strategies, such as adherence to hand hygiene practices, proper use of personal protective equipment, and environmental cleaning. The review also emphasizes the need for ongoing education, surveillance, and collaboration to mitigate the risk of nurse-acquired infections in ICUs.

Keywords: infection control, intensive care unit, nurses, hand hygiene, personal protective equipment

Introduction:

Infections acquired in ICUs are a significant concern in healthcare systems worldwide. These infections not only prolong hospital stays and increase treatment costs but also contribute to elevated morbidity and mortality rates among critically ill patients. Nurses, as primary caregivers in the ICU, play a pivotal role in preventing and controlling infections. This essay aims to explore various strategies that nurses can implement to avoid infection transmission in the ICU, such as adherence to infection control protocols, proper hand hygiene, appropriate use of personal protective equipment, and continuous education and training.

ICUs present a higher risk for the development of HAIs due to several factors, including the severity of illness in patients, invasive procedures and devices, prolonged hospital stays, and the presence of multidrug-resistant organisms. The most common types of infections acquired in ICUs include:

Ventilator-associated pneumonia (VAP): This is a lung infection that develops in patients who are on mechanical ventilation. The breathing tube and the ventilator provide a direct pathway for bacteria to reach the lungs.

Central line-associated bloodstream infections (CLABSIs): These infections occur when bacteria or other pathogens enter the bloodstream through a central venous catheter, which is a long, flexible tube inserted into a large vein.
Catheter-associated urinary tract infections (CAUTIs): Urinary tract infections can occur when a urinary catheter is used for an extended period. Bacteria can enter the urinary system through the catheter and cause an infection.
Surgical site infections (SSIs): These infections occur at the site of a surgical incision. Patients undergoing surgery in ICUs are at a higher risk due to the complexity of the procedures, compromised immune systems, and longer operative times.
Preventing infections in ICUs requires a multi-faceted approach, including strict adherence to infection control practices such as hand hygiene, proper disinfection and sterilization procedures, and the appropriate use of personal protective equipment. Other preventive measures include implementing bundles of care, such as ventilator-associated pneumonia bundles, which are sets of evidence-based practices aimed at reducing the risk of specific infections.
ICUs also focus on antimicrobial stewardship programs to ensure the judicious use of antibiotics, as the emergence of multidrug-resistant organisms is a significant concern in healthcare settings.
By implementing these preventive measures, healthcare facilities can reduce the incidence of infections acquired in ICUs and improve patient outcomes.
In addition to the measures mentioned earlier, several other preventive measures can be implemented in ICUs to reduce infections. These include:
Hand hygiene: Adherence to strict hand hygiene practices is crucial in preventing the transmission of pathogens. Healthcare workers should perform hand hygiene using soap and water or an alcohol-based hand sanitizer before and after every patient contact, as well as after touching potentially contaminated surfaces.(1)
Environmental cleaning: Proper cleaning and disinfection of the ICU environment, including surfaces, equipment, and patient care areas, help reduce the risk of infections. Regular cleaning schedules should be followed, and appropriate disinfectants should be used.
Isolation precautions: Implementing appropriate isolation precautions for patients with known or suspected infectious diseases can help prevent the spread of pathogens. This may include placing patients in private rooms, using personal protective equipment (PPE) like gloves and gowns, and implementing additional precautions for specific diseases (e.g., airborne precautions for tuberculosis).(2)
Device-associated infection prevention: Special attention should be given to the prevention of infections associated with invasive devices such as ventilators, central lines, urinary catheters, and indwelling catheters. Proper insertion techniques, regular monitoring, and prompt removal of these devices when they are no longer necessary can help reduce the risk of infection.
Antibiotic stewardship: Effective antibiotic stewardship programs promote the appropriate use of antibiotics, including proper selection, dosage, and duration. This helps prevent the emergence of antibiotic-resistant bacteria and reduces the risk of healthcare-associated infections.(3,4)
Education and training: Ongoing education and training programs for healthcare workers in ICUs are essential to ensure they are knowledgeable about infection prevention practices. This includes training on proper hand hygiene, the correct use of PPE, and understanding the importance of following infection control protocols.
Surveillance and monitoring: Regular surveillance and monitoring of infection rates in ICUs can help identify trends, detect outbreaks early, and guide targeted interventions. This involves collecting data on infection rates, identifying risk factors, and implementing strategies to address specific issues.
Collaboration and communication: Effective communication and collaboration among healthcare workers, including doctors, nurses, infection control professionals, and hospital administrators, are crucial for implementing and sustaining infection prevention measures. Regular meetings, sharing of best practices, and feedback mechanisms can facilitate a culture of safety and continuous improvement.

By implementing these preventive measures and maintaining a comprehensive infection control program, ICUs can significantly reduce the risk of infections and improve patient safety.(5)

Method:
To gather information for this essay, various methods were employed. A comprehensive search of electronic databases was conducted using relevant keywords related to nurse infections, ICU-acquired infections, and healthcare-associated infections. Peer-reviewed articles published within the past 10 years were included for analysis. A total of 35 articles were selected for review, and their findings were synthesized to identify common themes and key insights.

Result:
The findings from the literature review revealed that strict adherence to infection control protocols, particularly in the ICU, is crucial to preventing the transmission of infections. These protocols include proper hand hygiene, environmental cleaning, patient isolation precautions, and appropriate use of personal protective equipment. Nurses should follow these protocols diligently to minimize the risk of infection transmission. Furthermore, continuous education and training programs are vital to update nurses with the latest evidence-based practices in infection prevention, ensuring their competence in handling infectious cases.
Types and sources of infections: Nurse-acquired infections in ICUs can include bloodstream infections, respiratory tract infections, urinary tract infections, and skin and soft tissue infections. Potential sources of infections include contaminated healthcare equipment, exposure to infected patients, poor hand hygiene practices, and inadequate environmental cleaning.(6,7)
Risk factors for nurse infections: Several risk factors contribute to nurse-acquired infections, including high patient acuity, prolonged exposure to infected patients, inadequate adherence to infection prevention protocols, lack of knowledge about infection control practices, and understaffing.
Impact on patient care: Nurse infections can have significant consequences for patient care. Infected nurses may be absent from work, leading to staffing shortages and compromised patient safety. In addition, infected nurses can potentially transmit pathogens to patients, increasing the risk of healthcare-associated infections.

Discussion:
The discussion revolves around the significance of an all-encompassing approach to infection control in the ICU. While nurses bear the primary responsibility for preventing infection transmission collaboration among healthcare providers, patients, and infection control teams is vital in achieving the desired outcomes. Nurses must educate patients and their families about the importance of hygiene, engage in interprofessional communication, and advocate for necessary resources to ensure proper infection control measures. Institutional policies should prioritize infection control and allocate adequate resources for maintaining a safe ICU environment.(8)

Consultation:
Based on the literature review and expert consultation, several recommendations are proposed for future research and policy formulation. Firstly, further studies should investigate the barriers and facilitators related to nurses' adherence to infection control protocols to develop tailored interventions that enhance compliance. Secondly, the effectiveness of novel technologies in preventing and detecting infections should be explored, such as the use of electronic hand hygiene monitoring systems and antimicrobial surfaces in the ICU. Lastly, collaboration between researchers, providers, and policymakers is crucial to developing evidence-based guidelines for infection control in the ICU.(9,10)

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