

The role of nursing in combating infections in hospitals

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Abstract:

Hospital-acquired infections (HAIs) are a global concern, posing significant challenges to patient safety and healthcare systems. Nurses play a crucial role in infection control within hospitals, serving as frontline warriors in the battle against HAIs. This paper explores the multifaceted role of nursing in infection prevention and control, highlighting strategies and interventions employed by nurses to mitigate risks, enhance patient safety, and uphold healthcare excellence. Nurses' responsibilities encompass leadership support, patient education, healthcare worker training, implementation of transmission-based precautions, and adherence to standard precautions. Challenges facing nursing in hospital infection control include staffing shortages, compliance with protocols, resource constraints, patient factors, and emerging pathogens. Addressing these challenges requires collaborative efforts, ongoing education, and proactive measures to strengthen nursing's role in preventing the spread of infections within hospitals.

Introduction:

Nurses form the backbone of hospital care, acting as the constant presence at a patient's bedside. Their role extends far beyond bedside manners. They are skilled medical professionals who administer medications, monitor vital signs, and provide critical care. They act as patient advocates, ensuring their needs and concerns are heard. Nurses also bridge the gap between patients and doctors, translating medical jargon and explaining treatment plans. They are educators, teaching patients about their conditions and empowering them to make informed decisions about their health (Flaubert, J. L., et al.2021).

Infections contracted by patients or those associated with healthcare facilities are an issue on a global scale. It doesn't take much effort and a lot of resources to prevent healthcare-associated infections. "Clean care is safer care." That was the overarching goal of the World Health Organization's First Global Patient Safety Challenge. A hospital infection is defined as an illness that develops during a 48-72-hour period after being admitted to the hospital or within a 10-day period after being released from the hospital (Haque, M., et al.2018). The most prevalent types of bacteria that cause infections in hospitals are Gram-positive, staphylococcus, and enterococcus. Hospital infections caused by multiple medication resistance bacteria are on the rise. Functional impairments, emotional distress, a decline in life quality, and even mortality can result from infections contracted in hospitals. The financial burden grows for a variety of reasons, including but not limited to: extended hospital stays, job losses, higher drug costs, isolation requirements, and the need for more diagnostic testing. When looking at the distribution of HI by areas, the usual order is as follows: bacteraemia, urinary tract infections, surgical wound infections, and respiratory tract infections. Factors that can be changed and those that cannot be changed contribute to the prevalence of hospital infections. The majority of immutable risk variables (such as age, illness, illness severity, and invasive procedures) are associated with the host. There are a number of factors that can be changed to improve infection control in hospitals (Haque, M., et al.2018). These include infrastructure issues, a lack of trained medical professionals, poor hand hygiene practices, improper use of gloves, needless invasive procedures, and a failure to adhere to asepsis and antisepsis protocols. Countries with sufficient preventive and control measures may reduce hospital infections by 33%. Countries with insufficient protection and control measures saw a reduction of over 50%.

Nevertheless, "zero tolerance" for hospital infections has gained acceptance as a reality, and the idea that they are medical blunders has also gained traction (Özkal, F., et al.2014).

The use of specially trained teams in invasive procedures and the development of infection control and prevention packages have the potential to eradicate hospital infections. The COVID-19 pandemic highlighted the worldwide need for dedicated healthcare workers and nurses with expertise in infection prevention and control strategies, as hospital infections are the second most common avoidable kind of illness. There is an urgent need for additional nurses trained in infection control, as this field is vital to

ensuring the public's health. Nurses with a reputation for standing up for their patients raise the bar for patient care and have the power to effect change. In order to give the best care possible, nurses should be knowledgeable about worldwide policies aimed at preventing and managing infections, keep in mind that nosocomial infections are preventable, and act accordingly (Carrico, R. M., et al.2018).

In the relentless battle against infections within hospital settings, nurses stand as frontline warriors, playing a pivotal role in safeguarding patient health and curbing the spread of infectious diseases. As the healthcare landscape continues to evolve, the importance of nursing in infection prevention and control cannot be overstated. From implementing stringent hygiene protocols to educating patients and colleagues alike, nurses serve as catalysts for change in the ongoing fight against hospital-acquired infections (Garcia, R., et al.2022). This paper explores the multifaceted role of nursing in combating infections within hospitals, highlighting the diverse strategies and interventions employed by nurses to mitigate risks, enhance patient safety, and uphold the standards of healthcare excellence.

❖ **Hospital-acquired infections:**

Hospital-acquired infections, also known as healthcare-associated infections (HAIs), are infections that patients develop during the course of receiving medical care in a healthcare facility, such as a hospital or clinic. These infections can be caused by bacteria, viruses, fungi, or parasites and can manifest in various ways, ranging from mild to severe. Common types of hospital-acquired infections include surgical site infections (SSIs), which occur at the site of a surgical incision or wound; urinary tract infections (UTIs), often associated with the use of urinary catheters; central line-associated bloodstream infections (CLABSIs), which occur in patients with central venous catheters; ventilator-associated pneumonia (VAP), a type of pneumonia that develops in patients on mechanical ventilation; Clostridium difficile infection (CDI), a bacterial infection of the colon; bloodstream infections, often associated with intravenous catheters; and skin and soft tissue infections, which can result from surgical procedures or breaks in the skin (Khan, H. A. et al.2017).

❖ **Common symptoms of hospital-acquired infections (HAIs):**

According to (Mehta, Y., et al.2014).

- **Fever:** Fever is a common symptom of infection, including HAIs. It may indicate the body's immune response to an invading pathogen.
- **Localized Pain or Swelling:** Infections at the site of a surgical wound, catheter insertion site, or other medical devices may cause localized pain, tenderness, redness, or swelling.
- **Increased Heart Rate (Tachycardia) or Breathing Rate (Tachypnea):** Infections can lead to an increased heart rate or breathing rate as the body attempts to fight off the infection and deliver oxygen to tissues.

- **Malaise:** Patients with HAIs may experience a general feeling of discomfort or unease, often described as malaise.
- **Respiratory Symptoms:** Infections such as pneumonia acquired in the hospital may present with symptoms such as cough, shortness of breath, chest pain, and difficulty breathing.
- **Urinary Symptoms:** Urinary tract infections (UTIs) acquired in the hospital may cause symptoms such as burning with urination, frequent urination, urgency, and cloudy or foul-smelling urine.
- **Gastrointestinal Symptoms:** Infections such as Clostridium difficile (C. difficile) colitis may cause symptoms such as diarrhea, abdominal pain, cramping, and fever.

Patients and healthcare providers should remain vigilant for any signs or symptoms suggestive of infection, particularly in individuals with risk factors for acquiring HAIs, such as prolonged hospitalization, recent surgery, or compromised immune function (Khan, H. A. et al.2017).



❖ Nurses' Responsibilities in Health Care Facilities for Infection Control and Prevention

- **Leadership Support:**

It is the responsibility of senior nursing executives and other organizational leaders to guarantee that frontline staff have enough resources to continuously follow infection prevention protocols within the healthcare organization. The senior leadership team should also make sure that the people in charge of carrying out the infection prevention program get the right kind of training, namely training that is focused on preventing infections. For the initiative to be successful, these individuals require the backing of leaders who will grant them the authority to make it happen. Those in charge of healthcare delivery teams serve as examples to their colleagues in other fields. To get the desired level of quality, effective leadership necessitates the ongoing assessment of current practices and the introduction of new ones. It is the nurse's duty to incorporate leadership development into her or his own performance



improvement plan and to take the necessary actions to make it a reality (Carrico, R. M., et al.2018).

- **Patient, family and caregiver education:**

When it comes to preventing infections in healthcare facilities, nurses are essential in educating patients, their families, and caregivers. This promotes a team effort to keep everyone safe. Nurses provide vital information and skills to patients and their support systems by drawing on their extensive training and experience as frontline caregivers. Patients need to be given the tools they need to take charge of their own healthcare and avoid unnecessary risks (Carrico, R. M., et al.2018). People they know and trust, such as family and friends, are often their only source of support. Patient involvement starts with information sharing, followed by an evaluation of their abilities to complete desired tasks, confirmation of those abilities, evaluation of performance, and guidance on how to improve. Language and health literacy are two additional factors that should be considered when designing training and information programs (Özkal, F., et al.2014).

- **Healthcare workers' education and training in infection prevention:**

No nurse can do their job effectively without committing to lifelong learning. Every nurse should incorporate an evaluation of their performance gaps into their professional development plan so that they may work to close such gaps. While it's crucial to be well-versed in a variety of practice-related topics, it's even more necessary to be able to use that knowledge, think critically about both anticipated and unforeseen challenges, and maintain a high standard of performance in all practice settings (Carrico, R. M., et al.2018). By participating in ongoing professional development, nurses may keep up with the newest evidence-based practices and standards for infection control, which improves their ability to apply these measures in their everyday work. Healthcare institutions recognize the importance of nurses' contributions to infection prevention and the promotion of a safe healthcare environment for both patients and healthcare staff. To this end, they invest in continuing education and training programs.

- **Transmission-Based Precautions:**

These precautions are used in addition to standard precautions when necessary to prevent communicable disease transmission. Contact precautions involve gloving and gowning when in contact with the patient or their environment. Droplet precautions require wearing a surgical mask when within close proximity to a patient with a droplet-transmitted disease. Airborne precautions necessitate wearing a fit-tested N-95 respirator and eye protection when in contact with patients with airborne-transmitted diseases like tuberculosis. Proper implementation and adherence to these precautions are critical to prevent the spread of infectious diseases in healthcare settings (Ahmad, S., D., 2021).

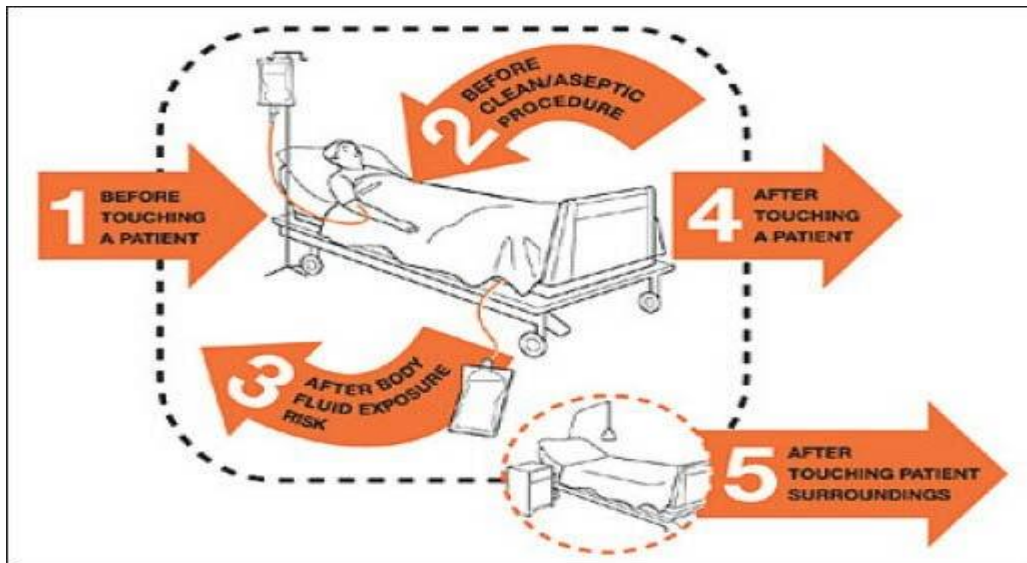


- **Standard precautions:**

When providing medical treatment, it is essential to adhere to standard procedures to stop the spread of infectious diseases. All patients are considered to be potentially infected or colonized with an organism that could be transmitted in the healthcare context, so nurses should use Standard Precautions. Some may mistakenly assume that conventional precautions only apply to specific bodily fluids due to the Occupational Safety and Health Administration's (OSHA) Bloodborne Pathogens conventional's focus on bloodborne pathogens. Actually, one of the tenets of standard precautions is the idea that both people and healthcare facilities can have infectious microorganisms (Ahmad, S., D., 2021). The identification of these dangers and the subsequent execution of measures to prevent the migration of those organisms constitute the implementation of Standard Precautions. Microorganisms can infect both patients and healthcare workers. Even in asymptomatic patients, blood-borne infections such as HIV and hepatitis B and C can live in the blood and other bodily fluids since these microbes are ubiquitous in the healthcare setting. **Essential elements of Standard Precautions include:**

- ✓ **Hand Hygiene:** Nurses should prioritize hand hygiene as the primary measure to prevent the spread of microorganisms (Hillier, M. D. 2020). This includes using alcohol-based hand rubs or hand washing with soap and water, particularly before and after patient contact, after touching blood or body fluids, after removing gloves, and before eating. Patients and families should also be educated

on proper handwashing techniques, emphasizing scrubbing for at least 20 seconds and ensuring coverage of all hand surfaces (Carrico, R. M., et al.2018).



- ✓ **Personal Protective Equipment (PPE):** PPE serves as a barrier to protect against infectious organisms. Nurses must select and use appropriate PPE, such as gloves, gowns, masks, and eye protection, based on the infectious agent, type of interaction, and transmission method. Proper donning and doffing techniques are crucial to prevent cross-contamination. Additionally, puncture-proof disposal systems should be utilized for uncapped needles and sharps to ensure safe disposal (Verbeek, J. H., et al.2020).
- ✓ **Environmental Cleaning:** Thorough cleaning and disinfection of medical equipment and environmental surfaces are essential to prevent infection transmission. Nurses must ensure that reusable equipment is cleaned between each patient contact using broad-spectrum antimicrobial agents. Collaboration with environmental services is vital to maintain cleanliness and prevent infections spread through contaminated objects (Carrico, R. M., et al.2018).
- ✓ **Respiratory Hygiene and Cough Etiquette:** Implementation of respiratory hygiene and cough etiquette is crucial when caring for patients with respiratory infections. Patients should be instructed to cover their mouth and nose when coughing or sneezing, dispose of tissues properly, and perform hand hygiene afterward. Healthcare facilities should provide adequate supplies and visual reminders to promote compliance with respiratory hygiene measures (Bahegwa, R. P., et al.2022).

❖ **Challenges Facing Nursing in Hospital Infection Control:**

- **Staffing Shortages:** Nursing shortages can strain infection control efforts, leading to increased workloads and decreased adherence to protocols. Understaffing may result in inadequate patient monitoring and delayed response to infection outbreaks.

- **Compliance with Protocols:** Ensuring consistent adherence to infection control protocols among nursing staff can be challenging. Factors such as time constraints, competing priorities, and lack of awareness or training may contribute to non-compliance.
- **Resource Constraints:** Limited availability of essential resources, such as personal protective equipment (PPE), cleaning supplies, and staffing, can hinder infection control efforts. Inadequate resources may compromise the ability to maintain a clean environment and implement preventive measures effectively (Loveday, H. P., et al.2014).
- **Patient Factors:** Patient-related challenges, such as non-adherence to isolation precautions, poor hygiene practices, and antibiotic misuse, can contribute to healthcare-associated infections (HAIs) and complicate infection control efforts.
- **Emerging Pathogens and Antimicrobial Resistance:** The emergence of new pathogens and the spread of antimicrobial-resistant organisms pose significant challenges to infection control. Nursing staff must stay updated on evolving infection trends and adjust protocols accordingly to mitigate risks (Magill, S. et al.2014).

Conclusion:

In conclusion, nurses are indispensable in the fight against hospital-acquired infections, leveraging their expertise, compassion, and dedication to safeguard patient health. Despite facing various challenges, nurses continue to demonstrate resilience and commitment to infection prevention and control. To further strengthen nursing's role in this vital area, healthcare organizations must prioritize leadership support, invest in education and training, provide adequate resources, and foster a culture of safety and collaboration. By empowering nurses and enhancing infection control practices, hospitals can effectively reduce the incidence of HAIs, improve patient outcomes, and ensure a safer healthcare environment for all.

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