



# Infection Prevention And Control: Implication On Quality Health Care Delivery

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**Abstract:** Infection prevention and control (IPC) is a critical component of quality healthcare delivery, encompassing evidence-based strategies to safeguard patients, healthcare workers, and visitors from preventable infections. In Nigeria, infectious diseases pose a significant public health challenge, underscoring the importance of effective IPC measures. This study examines the implications of IPC on quality healthcare delivery in Nigeria. Despite the existence of national policies and guidelines, the country faces challenges in implementing and sustaining effective IPC practices due to resource limitations, inadequate staffing, and limited access to training and education for healthcare workers. Cultural and religious beliefs may also influence healthcare-seeking behaviour and acceptance of IPC measures. Studies conducted in Nigerian healthcare facilities reveal low hand hygiene compliance and suboptimal knowledge and adherence to standard precautions among healthcare workers. To improve IPC practices in Nigeria, sustained investment in healthcare infrastructure, staffing, education, and training is necessary. Engaging the community and addressing cultural and religious barriers can also promote better health outcomes. Strengthening IPC globally is crucial in combating healthcare-associated infections, antimicrobial resistance, and responding to disease outbreaks. Effective IPC measures, such as hand hygiene, environmental cleaning, and appropriate use of personal protective equipment, can significantly reduce the incidence of healthcare-associated infections and improve patient outcomes, ultimately contributing to the delivery of quality healthcare services.

**Keywords:** Infection prevention and control, Healthcare-associated infections, Hand hygiene, antimicrobial resistance, Personal protective equipment, Standard precautions, Quality Healthcare.

## I. INTRODUCTION

Infection prevention and control (IPC) is a crucial and evidence-based approach to safeguarding patients, caretakers, visitors, and healthcare workers against preventable infections. Effective IPC demands consistent efforts at all healthcare system levels, from policymakers and facility managers to health workers and patients. IPC plays a unique role in patient safety and quality of care, as it applies to everyone involved in healthcare, regardless of the healthcare setting. Poor IPC can cause significant harm and even fatalities, making it impossible to deliver quality healthcare services (WHO, 2023). IPC encompasses various aspects of healthcare, including hand hygiene, surgical site infections, injection safety, and antimicrobial resistance, and is critical in emergencies and routine healthcare operations alike. In low- and middle-income countries, where healthcare delivery and medical hygiene standards may be compromised, IPC programs are particularly essential (WHO, 2023).

Several studies have evaluated the state of IPC practices in Nigeria. A study conducted in a tertiary healthcare facility in Lagos found that hand hygiene compliance was low among healthcare workers, with only 18% of observed hand hygiene opportunities being performed (Adebimpe et al., 2019). Another study conducted in a teaching hospital in Enugu found that healthcare workers' knowledge and compliance with standard precautions were suboptimal (Onyedibe et al., 2019). To improve IPC practices in Nigeria, there is a need for sustained investment in healthcare infrastructure, staffing, and education and training of healthcare workers. Engaging the community in IPC initiatives and addressing cultural and religious barriers to healthcare-seeking behaviour can also help improve IPC practices and promote better health outcomes.

Strengthening global IPC is crucial to combatting healthcare-associated infections, antimicrobial resistance, and responding to disease outbreaks. A recent study found that most countries have IPC programs and guidelines, but few have the resources needed to support them, particularly in low-income countries. Moving from planning to implementation and monitoring stages is crucial in ensuring effective IPC worldwide (Tartari et al, 2021). Good quality healthcare is critical for the well-being of individuals and society. One essential aspect of quality healthcare is infection prevention and control (IPC). IPC refers to the measures taken to prevent and control infections in healthcare settings to protect patients, healthcare workers, and the community (WHO, 2020).

## 1.1 AIMS AND OBJECTIVES

The narrative review discusses the implication of IPC on healthcare delivery. The specific objectives of the review are as follows.

1. To provide the concept of infection prevention and control (IPC) and quality healthcare delivery.
2. To discuss the components of an effective IPC.
3. Discuss the impact of IPC on quality healthcare delivery.
4. Highlight the challenges and barriers to implementing effective IPC and strategies to overcome them.
5. Discuss the role of healthcare professionals in promoting infection prevention and control (IPC).

## II. MATERIAL AND METHODS

This narrative review used a systematic literature review as the main method to provide an overview of already existing and relevant scientific research in this area, with special consideration to the implication of IPC on the quality of healthcare delivery. To conduct this literature search, the researchers consulted several electronic databases, including "PubMed", "PubMed", "Scopus", "Google Scholar", "Elicit.com", "freefullpdf", "Hydi", and "research Rabbit" using Keywords such as Infection prevention and control, Healthcare-associated infections, Hand hygiene, Antimicrobial resistance, Personal protective equipment, Standard precautions, and Quality Healthcare using different Boolean operators of research. The researcher also included additional internet articles based on their relevance and contribution to the narrative. Relevant reviewed and original researched articles were identified using the inclusion and exclusion criteria. Keywords were extracted using the United States National Library of Medicine "MeSH on Demand via the following link <https://meshb.nlm.nih.gov/MeSHonDemand>.

The results of the studies are presented in a narrative description accompanied by figures to illustrate key concepts. The review is organized into 5 main sections: abstract, introduction, materials and method, results, and conclusion.

## III. RESULTS

The results of the selected literature search are presented below

### 3.1 Concept of Infection Prevention and Control (IPC) and Quality Healthcare Delivery

An infection is defined as the successful transmission of pathogenic microorganisms, such as bacteria, viruses, parasites, or fungi that are spread (CDC, 2020). Infection Prevention and Control (IPC) is the scientific approach and practical measures used to prevent and control the spread of infections in healthcare settings. It involves identifying, assessing, and managing the risks associated with infectious agents and implementing measures to reduce or eliminate these risks. IPC measures include hand hygiene, the use of personal protective equipment (PPE), environmental cleaning and disinfection, and proper management of medical waste (WHO, 2020).

Infection prevention and control (IPC) refers to the measures and activities that aim to prevent and control the spread of infections in healthcare settings, among patients, healthcare workers, and visitors. IPC involves the use of various strategies, such as hand hygiene, the use of personal protective equipment, safe injection practices, sterilization and disinfection, environmental cleaning, and waste management. IPC also involves the development and implementation of policies, guidelines, and protocols for the prevention and management of infections, as well as education and training of healthcare workers and patients on infection prevention and

control measures. IPC is crucial in reducing the incidence and impact of healthcare-associated infections, which can lead to increased morbidity, mortality, and healthcare costs. Infection Prevention and Control (IPC) is a practical, evidenced-based approach to preventing patients and health workers from being harmed by avoidable infections (WHO, 2021).

The implementation of IPC practices and policies has significant implications for quality healthcare delivery. Healthcare-associated infections can have a detrimental impact on patient outcomes, leading to increased morbidity and mortality rates, longer hospital stays, and increased healthcare costs (Moses et al., 2015). IPC measures, such as hand hygiene, environmental cleaning and disinfection, and appropriate use of PPE, can significantly reduce the incidence of HAIs and improve patient outcomes (Moses et al., 2015). Effective IPC also contributes to the overall quality of healthcare delivery by promoting patient safety and reducing the risk of adverse events. Adverse events, such as medication errors, patient falls, and pressure ulcers, can result in significant harm to patients and are a major contributor to healthcare-related costs (Leape et al., 2019). IPC measures can help prevent adverse events by reducing the risk of HAIs and promoting safe patient care (Leape et al., 2019).

Quality healthcare delivery is a crucial component of healthcare, and it involves providing safe, effective, patient-centered, timely, efficient, and equitable care to patients (Agency for Healthcare Research and Quality [AHRQ], 2022). To achieve quality healthcare delivery, healthcare providers must take a comprehensive approach that includes several factors. These factors include the quality of medical treatments, the availability of healthcare facilities and resources, the expertise and qualifications of healthcare providers, and the effectiveness of healthcare systems and processes (AHRQ, 2022). Quality healthcare delivery involves providing safe, effective, patient-centered, timely, efficient, and equitable care to patients. It encompasses a range of factors that contribute to the overall delivery of healthcare services, including the quality of medical treatments, the availability of healthcare facilities and resources, the expertise and qualifications of healthcare providers, and the effectiveness of healthcare systems and processes (AHRQ, 2022).

### 3.2 Components of an Effective IPC

Standard precautions are basic infection prevention and control measures used to reduce the risk of transmitting infectious agents in healthcare settings. According to the Centers for Disease Control and Prevention (CDC), standard precautions include the following practices (CDC, 2021):

- **Hand hygiene:** Perform hand hygiene before and after all patient contact, as well as before and after any activity that involves contact with potentially infectious material.
- **Personal protective equipment (PPE):** Use appropriate PPE, such as gloves, gowns, masks, and eye protection, based on the type of exposure anticipated.
- **Respiratory hygiene and cough etiquette:** Cover your mouth and nose with a tissue when coughing or sneezing and dispose of the tissue immediately. Perform hand hygiene after contact with respiratory secretions.
- **Patient placement:** Place patients with known or suspected infectious diseases in a single-patient room, or cohort patients with the same disease
- **Environmental cleaning and disinfection:** Clean and disinfect surfaces and equipment that are frequently touched by patients or healthcare workers.
- **Safe injection practices:** Follow safe injection practices to prevent the transmission of infectious agents (CDC, 2021).

### 3.3 Impact of IPC On Quality Healthcare Delivery

The various impacts of IPC on quality healthcare delivery are discussed below.

**The Impact of IPC on Patient Outcomes and Healthcare Delivery:** IPC has a significant impact on patient outcomes and healthcare delivery. Effective implementation of IPC measures can prevent the spread of infections in healthcare settings, which can reduce morbidity and mortality rates among patients. IPC also reduces healthcare costs by preventing healthcare-associated infections (HAIs) and avoiding additional medical treatments and hospital stays. Furthermore, IPC can help improve patient satisfaction with healthcare services and increase trust in healthcare providers.

**Importance of IPC in Reducing Healthcare-Associated Infections (HAIs):** HAIs are infections that occur because of healthcare interventions. They can be caused by bacteria, viruses, fungi, or other microorganisms and can occur in any healthcare setting. HAIs can have serious consequences for patients, including prolonged hospital stays, increased morbidity and mortality rates, and increased healthcare costs. Effective implementation of IPC measures can reduce the incidence of HAIs and prevent the spread of infections in healthcare settings.

**IPC Guidelines and Regulations:** IPC guidelines and regulations provide a framework for implementing IPC measures in healthcare settings. These guidelines and regulations are developed by national and international organizations, such as the Centers for Disease Control and Prevention (CDC) and the World Health Organization (WHO). They provide recommendations for hand hygiene, environmental cleaning and disinfection, PPE use, and other IPC measures. Healthcare facilities must comply with these guidelines and regulations to ensure the safety of patients and healthcare workers (CDC, 2021).

### 3.4 Strategies for Implementing IPC

**Hand hygiene and its importance in IPC:** Hand hygiene is the most crucial measure for preventing the spread of infections in healthcare settings. Effective hand hygiene practices can reduce the transmission of pathogens from healthcare workers to patients, from patients to healthcare workers, and from one patient to another. Hand hygiene is essential in IPC, as it reduces the risk of healthcare-associated infections (HAIs) and protects patients and healthcare workers.

**Personal protective equipment (PPE) and its proper use:** PPE refers to specialized clothing or equipment that healthcare workers wear to protect themselves and their patients from infectious agents. Proper use of PPE is essential in IPC, as it helps prevent the spread of infections in healthcare settings. The appropriate use of PPE includes the proper selection, donning, and doffing of PPE, as well as the proper disposal of contaminated PPE.

**Environmental cleaning and disinfection:** Effective environmental cleaning and disinfection are critical components of IPC. Environmental cleaning and disinfection involve the use of cleaning agents and disinfectants to remove and kill pathogens from surfaces in healthcare settings. Proper environmental cleaning and disinfection can reduce the risk of HAIs and protect patients and healthcare workers (WHO, 2019).

**Surveillance and monitoring of HAIs:** Surveillance and monitoring of HAIs are critical in IPC. Surveillance involves the systematic collection, analysis, and interpretation of data on HAIs, while monitoring involves the regular inspection and assessment of IPC practices in healthcare settings. Effective surveillance and monitoring can help identify trends and outbreaks of HAIs and improve IPC practices in healthcare settings.

**Education and training of healthcare workers:** Education and training of healthcare workers are essential in IPC. Healthcare workers need to understand the importance of IPC measures and know how to implement them effectively. Proper education and training can help healthcare workers develop the knowledge and skills needed to prevent the spread of infections in healthcare settings (WHO, 2009).

### 3.5 Challenges and Barriers to Implementing Effective IPC And Strategies to Overcome Them

**Barriers to compliance with IPC guidelines:** Compliance with IPC guidelines can be challenging due to various barriers, including lack of resources, inadequate staffing, and lack of awareness of IPC guidelines among healthcare workers.

**Limited resources and inadequate staffing:** Limited resources and inadequate staffing can pose significant challenges to implementing effective IPC measures in healthcare settings. Healthcare facilities may not have the necessary resources or staffing levels to implement IPC guidelines effectively (WHO, 2020).

**Challenges in monitoring and surveillance:** Effective monitoring and surveillance of IPC practices can be challenging due to various factors, including lack of resources, inadequate staffing, and limited data collection and analysis systems.

**Resistance to change:** Resistance to change is a significant challenge in IPC implementation. Healthcare workers may resist changes to established IPC practices, which can hinder the implementation of effective IPC measures (WHO, 2020).

### 3.6 Role of Healthcare Professionals in Promoting Infection Prevention and Control (IPC)

Healthcare professionals play a critical role in promoting infection prevention and control (IPC) measures. According to the World Health Organization (WHO), healthcare professionals are the first line of defence against healthcare-associated infections (HAIs) and must be knowledgeable about IPC practices to prevent the transmission of infections (WHO, 2021). Studies have shown that healthcare professionals who have a good understanding of IPC practices are more likely to implement them consistently (Kim et al., 2019). For example, a study conducted in a hospital in South Korea found that healthcare professionals who received IPC education were more likely to comply with hand hygiene guidelines and use appropriate PPE (Kim et al., 2019). Healthcare professionals can promote IPC measures in several ways, including:

**Leading by example:** Healthcare professionals should follow IPC practices themselves, such as practising good hand hygiene and wearing appropriate PPE, to serve as a model for patients and other staff members.

**Educating patients and their families:** Healthcare professionals can educate patients and their families about the importance of IPC practices and how they can help prevent the spread of infections.

**Monitoring and enforcing IPC guidelines:** Healthcare professionals should monitor compliance with IPC guidelines and enforce them when necessary to prevent the spread of infections.

**Participating in IPC programs:** Healthcare professionals should actively participate in IPC programs in their workplace, such as hand hygiene campaigns and antibiotic stewardship programs. In summary, healthcare professionals have a crucial role in promoting and implementing IPC measures to prevent the spread of infections in healthcare settings. It is essential that they receive appropriate education and training to ensure that they are equipped with the knowledge and skills to implement IPC practices effectively (Kim et al., 2019).

#### IV. CONCLUSION

Infection prevention and control is an essential aspect of quality healthcare delivery. Proper implementation of IPC measures can reduce the incidence of HAIs, improve patient outcomes, and promote the well-being of healthcare workers and the community. Implementing IPC measures requires a multi-disciplinary approach, active engagement of healthcare workers and patients, adequate resources and staffing, continuous education and training, regular monitoring and feedback, and collaboration with public health authorities. There is no one solution to controlling the spread of infectious diseases, and effective IPC indeed requires government intervention and collaboration between healthcare agencies, individuals, and communities. Until certain risk factors are addressed, and behaviours modified, the war against infectious diseases will continue to be a predominant and costly health issue around the world as its importance in quality healthcare delivery can never be underestimated.

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