

# The role of nursing in improving medical inventory management and quality of work in health facilities: a systematic review

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2. Nursing Ministry of Health branch in Makkah
3. Nurse TECHNICIANS Ministry of Health branch in Makkah
4. NURSING Ministry of Health branch in Makkah
5. NURSING Ministry of Health branch in Makkah
6. NURSING Khulai health centre
7. NURSING Al Shamsi Emergency Center
8. Nursing Hada alsham PHC
9. technician \_Nursing Makkah Health cluster
10. technician \_Nursing Madrasah PHC
11. Technician-Nursing Hail-Alhait General Hospital
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## Abstract

Effective medical inventory management is vital for ensuring the smooth operation of healthcare facilities and the delivery of high-quality patient care. Nurses, as primary healthcare providers, play a key role in managing medical supplies and contributing to the overall efficiency of inventory systems. This systematic review aims to examine the role of nursing in improving medical inventory management and its impact on the quality of work within healthcare settings. The review synthesizes existing literature on nurse involvement in inventory practices, the influence of efficient inventory management on patient care, and the challenges faced by nurses in this domain. Findings indicate that active nurse participation in inventory management helps reduce stockouts, minimize waste, and improve patient safety, leading to enhanced care delivery. However, barriers such as inadequate training, lack of standardization, and resource constraints limit the effectiveness of current practices. The integration of technology, such as automated tracking systems, further supports nurses in optimizing inventory management. The review concludes that healthcare institutions should invest in nurse training, standardize inventory procedures, and leverage technological advancements to improve both inventory management and the overall quality of care. Future research should focus on overcoming existing challenges and exploring innovative solutions to enhance nurse-driven inventory management in healthcare facilities.

Keywords: Nursing, Medical Inventory Management, Quality of Work, Healthcare Facilities

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## **Introduction**

Efficient medical inventory management is crucial for the smooth operation of healthcare facilities, ensuring that essential supplies and medications are available when needed [1]. This plays a significant role in improving the quality of care provided to patients. Nurses, as integral members of healthcare teams, interact with medical inventory daily and are directly involved in patient care, making them key contributors to the effectiveness of inventory management systems.

Nurses' responsibilities extend beyond clinical care, often involving the monitoring, tracking, and organization of medical supplies, which can significantly influence the quality of healthcare services [2]. A well-managed inventory ensures that nurses have the necessary tools and medications to perform their duties, ultimately enhancing patient safety and satisfaction. Conversely, poor inventory management can result in delays, medication errors, and suboptimal care, all of which can detract from the quality of patient outcomes.

Despite the crucial role nurses play in this area, there is a lack of comprehensive studies that systematically review the impact of nursing practices on medical inventory management and the overall quality of work in healthcare facilities [3]. This systematic review aims to fill this gap by synthesizing existing research on the role of nursing in improving medical inventory management and its direct impact on the quality of work in healthcare settings. By doing so, it seeks to provide evidence-based insights for better integration of nursing roles in inventory control processes, with the goal of optimizing healthcare delivery.

## **Literature Review**

Nurses play a crucial role in inventory control within healthcare settings. Their responsibilities include managing and maintaining the availability of essential supplies and equipment needed for patient care. Effective medical inventory management is a cornerstone of quality healthcare delivery [4]. It ensures that healthcare providers have timely access to the necessary medical supplies, pharmaceuticals, and equipment to deliver optimal patient care [5]. Nurses, as frontline healthcare providers, are frequently involved in inventory-related tasks, such as monitoring supply levels, ensuring the proper storage of medications, and reporting inventory discrepancies. This literature review examines the intersection of nursing practices and medical inventory management, focusing on how nurses contribute to improving the quality of work and patient care in healthcare facilities.

### **The Role of Nurses in Medical Inventory Management**

In any healthcare setting, efficient inventory management is crucial for ensuring that essential supplies and equipment are readily available when needed. This holds true for hospital nurses, who play a vital role in patient care and rely heavily on various resources to deliver quality healthcare services. Effective inventory management can streamline operations, minimize waste, and contribute to better patient outcomes [3]

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Nurses play a pivotal role in managing medical inventory, though their involvement varies depending on the healthcare setting. Research has shown that nurses often participate in tracking inventory usage, ensuring that supplies are appropriately stocked, and maintaining accurate records of supplies consumed during patient care. In addition, nurses act as intermediaries between the clinical and administrative teams, communicating the need for supplies and assisting in the prioritization of inventory orders to prevent shortages [5].

Material resources in healthcare can be classified according to several criteria: purpose, storage specificity, value and level of criticality or application. In relation to purpose the resources can comprise large groups of materials, namely: medicines, hygiene, laboratory, computer, maintenance, food products and medical-hospital supplies. Nurses' involvement in inventory management helps minimize waste, prevent stockouts, and ensure that the supplies used are appropriate for the patients' needs. Study [6] highlighted that effective nurse involvement in inventory management can reduce the time spent on procurement processes and improve the accuracy of stock levels, thereby reducing operational costs. Moreover, this active participation enables nurses to ensure that critical supplies are available, reducing delays in patient care and improving overall patient outcomes.

#### **Impact of Effective Inventory Management on Quality of Care**

Several studies have emphasized the relationship between effective inventory management and the quality of patient care. In a study [7], the authors found that healthcare facilities with efficient inventory systems reported fewer incidents of supply shortages, leading to fewer delays in patient care. Nurses, being the primary users of medical supplies, are directly affected by the efficiency of inventory systems. A lack of essential supplies can lead to workflow disruptions, increased stress, and compromised patient safety. This underscores the importance of a well-functioning inventory system that nurses can rely on to deliver high-quality care [8]

Furthermore, inventory management has been linked to overall patient satisfaction. Proper stock levels ensure that nurses are not forced to find alternative solutions, which can sometimes result in errors or delays. According to a study [9], the direct correlation between stockouts and delayed patient care significantly influences patient satisfaction. Ensuring that nurses have access to the right supplies in a timely manner supports their ability to provide care efficiently, thus improving the quality of patient experience and outcomes.

Effective inventory management is vital for hospital nurses to deliver safe and effective patient care. By prioritizing patient safety, time efficiency, and cost control, nurses can improve inventory management processes. Implementing best practices such as regular monitoring, standardized procedures, collaboration with other departments, training, and continuous improvement can contribute to a well-managed inventory system, which ultimately benefits nurses and patients like [10].

### **Barriers to Effective Inventory Management**

Inventory management is the process of efficiently controlling the continual flow of items in and out of existing inventory. Despite the critical role nurses play in inventory management, several barriers hinder their involvement and the overall effectiveness of inventory systems. A major challenge is the lack of standardized inventory management practices across different healthcare settings. Inconsistent practices can lead to inefficiencies, errors, and difficulties in tracking inventory accurately [9]. Additionally, inadequate training and insufficient integration of technology in inventory management systems limit nurses' ability to effectively manage medical supplies. Nurses often report a lack of formal training in inventory management, which leads to inefficiencies and increases the likelihood of errors, such as overstocking or understocking [10].

Another barrier is the increasing complexity of healthcare needs, which leads to higher demands for medical supplies and more frequent inventory turnover. This can overwhelm the capacity of nurses to maintain effective stock management, especially in busy or under-resourced facilities [11]. The increasing pressure on healthcare workers, combined with administrative burdens, often detracts from nurses' ability to focus on inventory tasks, impacting the overall quality of care.

### **The Role of Technology in Enhancing Inventory Management**

The integration of technology in inventory management has been increasingly highlighted as a key solution to the challenges associated with manual inventory tracking. Several studies have explored how technology, such as barcode scanning systems and automated inventory tracking, can support nurses in their inventory management roles. For instance, a study [12] found that the use of barcode scanning improved the accuracy and speed of inventory checks, reducing errors and ensuring that nurses could focus more on patient care. Automated systems have also been shown to improve real-time tracking of supplies, leading to more efficient stock replenishment and reducing shortages [13].

Moreover, the use of electronic health records (EHR) has been linked to better coordination between nursing staff and inventory management teams, ensuring that medical supplies are ordered in a timely manner based on patient needs [14]. By integrating patient care data with inventory systems, hospitals can better predict and manage the demand for supplies, leading to more efficient resource allocation.

The literature reveals a strong connection between the role of nurses in medical inventory management and the overall quality of care provided in healthcare facilities. Nurses' involvement in inventory management can lead to improved patient outcomes, enhanced operational efficiency, and reduced costs. However, barriers such as lack of training, inconsistent practices, and the complexity of modern healthcare systems present challenges to the optimal functioning of inventory systems. Technological advancements offer promising solutions, but their implementation requires careful planning and support. Future research should focus on developing standardized protocols and exploring the full potential of technology to streamline inventory management, thereby improving the quality of work and patient care in healthcare settings.

### **Conclusion**

This systematic review highlights the critical role that nursing plays in improving medical inventory management and the overall quality of work within healthcare facilities. Nurses are not only involved in direct patient care but also contribute significantly to the

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efficiency of inventory management by monitoring stock levels, ensuring timely replenishment, and preventing shortages. Their engagement in inventory processes directly impacts the quality of care, patient safety, and operational efficiency.

The review reveals that effective inventory management systems, supported by nurse involvement, reduce the occurrence of stockouts and delays in patient care, thereby enhancing patient satisfaction and safety. The integration of technology, such as barcode systems and automated tracking tools, further strengthens the role of nurses by improving accuracy and reducing the likelihood of errors. However, barriers such as insufficient training, lack of standardized procedures, and resource constraints remain prevalent, preventing optimal inventory management in some healthcare settings.

To address these challenges, healthcare institutions should prioritize providing nurses with adequate training in inventory management, standardize inventory practices across facilities, and invest in technology to streamline the process. By doing so, healthcare organizations can enhance the quality of care, minimize waste, and improve patient outcomes. Future research should focus on exploring innovative solutions to overcome these barriers and further understand the full potential of nurse-driven inventory management in improving healthcare delivery.

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