

Assessment of Inventory Management Practices for Essential Medicines at Nairobi West Hospital, Kenya

Introduction

Inventory management plays a crucial role in ensuring the availability of essential medicines in hospitals. Inefficient inventory systems lead to frequent stockouts, expired medications, and financial losses, ultimately affecting patient care. Studies indicate that 30% of hospitals in Kenya experience recurrent medicine shortages due to poor inventory management (Ministry of Health Kenya, 2023). Nairobi West Hospital is a leading healthcare institution that requires a robust inventory system to manage its pharmaceutical supply chain effectively.

Research Question

What are the key challenges in inventory management of essential medicines at Nairobi West Hospital, and how can they be addressed?

Objectives

- To evaluate the current inventory management practices for essential medicines at Nairobi West Hospital.
- To identify major challenges, such as frequent stockouts, medicine expiries, and inefficiencies in procurement.
- To propose data-driven recommendations that can improve medicine availability and reduce financial losses.

Hypothesis

"Implementing an automated inventory system will significantly reduce stockout rates (by $\geq 20\%$) and expiry rates (by $\geq 15\%$) within six months."

Materials and Methods

Study Design

This study follows a descriptive cross-sectional design using a mixed-methods approach quantitative to comprehensively evaluate inventory management practices.

Study Population

- **Inclusion Criteria:**
- Pharmacists responsible for medicine inventory.
- Procurement officers involved in medicine supply management.
- Nurses handling medicine requisitions.

- **Exclusion Criteria:**
- Non-clinical hospital staff.
- Healthcare professionals not directly involved in medicine inventory management.

Study Tools

- Stock Records Analysis covering the period January–March 2025 to evaluate stockout and expiry rates.
- Data will be analysed using Excel to measure trends and inefficiencies.

Duration of Study Two months (April 2025-May 2025)

Sample Size

- Medicine stock is analysed for past months for three months.

Sampling Technique

- Stratified questions for pharmacy staff
- Simple random questions for nonpharmacy staff

Data Collection Procedure

- Examination of stock room and records for purchases
- Collecting pharmacist experience data through standardized surveys
- Evaluation of purchase orders and patient count.

Movement of Drugs and Quality Purchase

The movement of drugs in the hospital follows a systemic process so that the drugs are not delayed. These are as follows

Procurement: Medicines are purchased from licensed suppliers following hospital policies and national regulations.

Receiving: Drugs need to be checked upon arrival to avoid the mistakes.

Storage: Medicines stored based on temperature requirements.

Dispensing: Pharmacists distribute medicines to patients as per prescriptions.

Tracking: Inventory tracking software records drug usage, allowing timely reordering to prevent stockouts.

Quality Purchase

To ensure the procurement of high-quality medicines, the following measures are implemented:

- **Supplier:** Only approved and certified pharmaceutical suppliers are engaged.
 - **Regulatory Standards:** Medicines must be approved by the Pharmacy and Poisons Board of Kenya (PPB) and WHO Good Manufacturing Practices (GMP).
 - **Batch Testing:** Sample testing is conducted on received batches to confirm compliance with safety and efficacy standards.
 - **Expiration Monitoring:** Regular stock audits help prevent the identify the expired items.
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Data Analysis Plan The responses will be qualitatively analysed to assess the impact of facilitators and barriers. Descriptive statistics (means, percentages) will be generated using SPSS v28 to evaluate trends in medicine availability.

Ethical Considerations

Informed consent will be obtained from all study participants before data collection, ensuring voluntary participation. The anonymity and confidentiality of particular data will be strictly maintained, with all personal identifiers removed from the database. Access will be restricted, available only to authorized research personnel. Ethical guidelines will be followed throughout the study to uphold participant rights and data integrity.

Implications of Research This study will provide actionable insights into improving inventory management in Nairobi West Hospital in Kenya. It can inform policy changes, optimize resource allocation, and enhance patient satisfaction.

References

1. Ministry of Health Kenya. Essential Medicines List. 2023.
2. World Health Organization. Guidelines for Good Storage Practices. 2021.