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1. TITLE:

Optimizing Inventory Management in Healthcare: A Case Study of Narayana Health

2. INTRODUCTION:

Efficient inventory management in hospitals is critical to ensuring the timely availability of drugs, medical consumables, equipment, and other essential supplies while minimizing costs and waste. Poor inventory control can lead to stockouts, overstocking, expiration of medicines, financial losses, and disruption in patient care.

Narayana Health, one of India's largest healthcare providers, operates multiple hospitals across the country and is known for its cost-effective healthcare delivery. The organization's supply chain strategy emphasizes efficiency, cost-cutting, and adherence to Central Buying Unit (CBU) protocols. Despite these measures, inventory-related challenges persist, such as managing near-expiry stocks, non-moving inventory, and supplier returns.

This study aims to assess and optimize inventory management practices at Narayana Health, identifying key challenges and proposing strategies to improve efficiency, reduce costs, and ensure uninterrupted patient care.

3. RESEARCH QUESTION:

How can inventory management be optimized at Narayana Health to enhance efficiency, reduce costs, and ensure seamless patient care?

4. OBJECTIVES:

- To evaluate the current inventory management practices at Narayana Health.
- To identify challenges in inventory procurement, storage, and utilization.
- To analyze the impact of inefficient inventory management on cost and service delivery.
- To propose strategies for optimizing inventory management to reduce wastage and improve efficiency.
- To assess the effectiveness of Central Buying Unit (CBU) protocols in streamlining procurement.

5. HYPOTHESIS:

Effective inventory management in healthcare can significantly reduce costs, minimize wastage, and improve service delivery without compromising patient care.

6. MATERIAL AND METHODS:

STUDY DESIGN:

This will be a descriptive, observational, and analytical study conducted as a case study at Narayana Health.

SETTING:

The study will be conducted at Narayana Health hospitals across India, focusing on procurement, inventory control, and supply chain management processes.

STUDY POPULATION:

a. Inclusion Criteria:

- Employees working in supply chain and inventory management at Narayana Health.
- Pharmacists and procurement officers involved in hospital inventory management.
- Data from hospital inventory records and procurement reports.

b. Exclusion Criteria:

- Employees not involved in supply chain management.
- Hospitals outside Narayana Health's network.

c. Study tools:

- Structured questionnaires for supply chain staff.
- Interviews with procurement officers and pharmacists.
- Analysis of inventory reports, purchase orders, and stock audits.

DURATION OF STUDY:

The study will be conducted over a period of three months.

SAMPLE SIZE:

A minimum of 50 supply chain professionals, pharmacists, and procurement officers across different Narayana Health hospitals will be surveyed.

SAMPLING TECHNIQUE:

Purposive sampling will be used to select relevant stakeholders involved in inventory management.

DATA COLLECTION PROCEDURE:

- Data will be collected through surveys, interviews, and inventory record analysis.
- Stock audit reports will be reviewed to assess inventory trends.
- Procurement data will be analyzed to identify inefficiencies.

OPERATIONAL DEFINITIONS:

- **Inventory Optimization:** The process of maintaining an adequate stock level to meet demand without overstocking.
- **Stock-out:** A situation where essential supplies are unavailable due to poor inventory management.
- **Near-expiry Stock:** Medical supplies approaching their expiration date, requiring urgent utilization or return.
- **Central Buying Unit (CBU):** The procurement system implemented by Narayana Health to centralize purchasing and cost control.

7. DATA ANALYSIS PLAN:

- Data will be analyzed using Microsoft Excel and SPSS (Version 26).
- Descriptive statistics will be used to analyze procurement patterns, stock levels, and wastage.
- Chi-square tests will be applied to assess the relationship between inventory practices and stock-out rates.
- Regression analysis will be used to determine the impact of inventory optimization on cost reduction.

8. ETHICAL CONSIDERATIONS:

- Informed consent will be obtained from all study participants.
- Confidentiality of inventory data and procurement records will be maintained.
- Ethical approval will be sought from the concerned ethics committee at Narayana Health.

9. IMPLICATIONS OF RESEARCH:

This research will help Narayana Health optimize its inventory management, leading to:

- Cost savings through better procurement and reduced wastage.
- Improved patient care by ensuring the availability of essential medical supplies.
- Enhanced supply chain efficiency through data-driven decision-making.
- Policy recommendations for better stock management and adherence to CBU protocols.

10. REFERENCES:

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4. Narayana Health. Annual Report 2023-24. Available at: [Official NH Website]