

Phase 1: Ideation Phase

Defining problem statement

Field	Details
Date	9 November 2025
Team ID	NM2025TMID00719
Project Name	Medical Inventory Management System
Maximum Marks	4 Marks

The Challenge

Our current manual or fragmented medical inventory management processes suffer from **low data visibility, high inaccuracy, and poor compliance control**, leading to significant operational risks and unnecessary costs.

Key Pain Points and Negative Impacts

1. High Risk of Critical Stockouts and Treatment Delays:

- **Pain Point:** We lack real-time, consolidated visibility into stock levels across all clinics, hospitals, and satellite warehouses. Relying on periodic, manual counts and siloed systems prevents accurate, centralized monitoring.
- **Impact:** This results in frequent, unpredicted **stockouts of essential supplies** (Tier A items), necessitating expensive, last-minute emergency procurement and potentially **delaying critical patient treatments or procedures**.

2. Excessive Waste and Financial Loss from Expiration:

- **Pain Point:** The manual tracking of lot numbers and expiration dates is error-prone, making it impossible to enforce a consistent **First Expired, First Out (FEFO)** rotation policy.
- **Impact:** This leads to a high percentage of medical supplies, especially pharmaceuticals and high-value surgical items, **expiring on the shelf**, resulting in significant, preventable financial write-offs and resource waste.

3. Regulatory Non-Compliance and Audit Vulnerability:

- **Pain Point:** We cannot quickly and accurately trace the usage history (who used it, on which patient, and when) of specific lot/batch numbers for recalled or expired medical devices.
- **Impact:** This exposes the organization to **severe regulatory penalties** (e.g., FDA/Health Authority fines), complicates audit responses, and poses a direct **patient safety risk** in the event of a product recall.

4. Inefficient Labor Utilization and High Carrying Costs:

- **Pain Point:** Staff spend excessive time on non-value-added activities, such as manually searching for stock, correcting inventory errors, and physically re-keying data into multiple disconnected systems (ERP, local spreadsheets).
- **Impact:** This drives up **operational labor costs**, inflates overall inventory carrying costs due to unnecessary safety stock buffers, and takes clinical staff away from direct patient care.