IDEATION PHASE – DOCUMENT 3:

EMPATHY MAP CANVAS

Date	06 November 2025
Team ID	NM2025TMID04603
Project Name	Medical Inventory Management
Maximum Marks	4 Marks

Title: Empathy Mapping for *"Medical connect- Medical inventory Management"*

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1. **Objective**

   To understand the needs, feelings, challenges, and motivations of the users (such as doctors, nurses, pharmacists, and inventory managers) involved in medical inventory management, in order to design a more efficient, user-friendly, and reliable system**.**

2. **Stakeholders Identified**

Empathy Map Insights → Design/Operational Objectives

Empathy Insight	**Corresponding Objective**
Users are frustrated by manual processes and paperwork	Implement a **digital inventory management system** with automated ordering.
Users fear stockouts impacting patient care	Ensure **real-time stock visibility** and **predictive demand forecasting**.
Users want better control over expiry dates and wastage	Add **expiry tracking and alerts** for near-expiry items.

Empathy Insight	Corresponding Objective
Users overorder due to uncertainty	Provide **accurate analytics and usage reports** to optimize ordering.
Users feel overwhelmed by non-clinical tasks	Simplify workflows to **reduce administrative burden** and improve staff efficiency.

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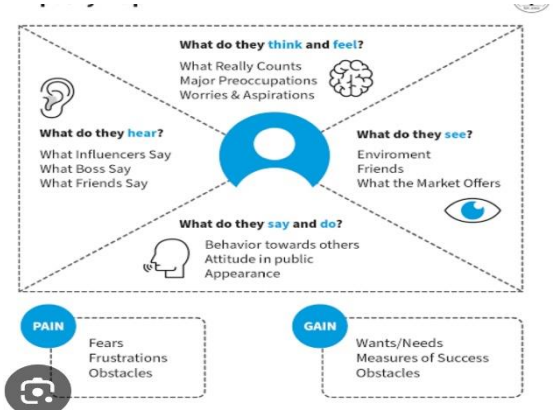
2. Empathy Map Canvas Layout

3. **Identify key personas** – e.g., Pharmacist, Nurse, Supply Chain Officer.
4. **Conduct interviews** or observations to gather real quotes (for the "SAYS" box).
5. **Map emotional and behavioral insights** from the field (for "THINKS" and "FEELS").
6. **Use the PAINS & GAINS** to define requirements for your system (e.g., real-time dashboards, automated reorder alerts).

Example: Hospital inventory manager, nurse in charge of stock, or pharmacy technician.



Canvas Layout

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| USER / PERSONA |

| Hospital Inventory Manager / Pharmacist / Nurse |

| Responsible for tracking and maintaining medical supplies. |

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SAYS	THINKS
- “We’re always running out of critical items.”	- “I need to ensure we never run out of meds.”
- “Ordering is so slow.”	- “Manual tracking takes too much time.”
- “Suppliers are delayed.”	
- “I wish I had real-time visibility of stocks.”	- “What if I overorder and waste resources?”
DOES	FEELS
- Checks stock levels manually or via Excel.	- Stressed when shortages occur.
- Places orders with suppliers.	- Frustrated by lack of visibility or outdated systems.
- Communicates with nurses & procurement.	- Feels responsible for patient safety.
- Monitors expiry dates.	
- Logs received items.	- Relieved when system runs smoothly.
PAINS	GAINS
- Stockouts causing treatment delays.	- Automated alerts for low stock or expiry.
- Overstock and wastage.	- Real-time visibility across departments.
- Tedious manual data entry.	- Simplified ordering

| - Supplier delays. | process. |

| - Compliance tracking | - Data-driven forecasts. |

| is complex. | - Peace of mind knowing |

| | supplies are reliable. |

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4. Empathy Map Analysis

To understand the **needs, pains, motivations, and experiences** of key stakeholders (like pharmacists, nurses, or inventory managers) involved in managing medical inventory — so we can design better systems, workflows, or tools.

Persona Example

Name: Maria, Hospital Pharmacist
Role: Oversees medication storage and supply for inpatient wards.
Goal: Ensure accurate stock levels, avoid shortages or expiries, and minimize time spent on manual tracking.

SAYS

- “I can’t afford to run out of critical drugs like insulin or antibiotics.”
- “The current inventory reports are always a few days late.”
- “We waste so much due to expired stock.”
- “Audits take too long — I wish everything was automated.”

THINKS

- “If the system was smarter, I could focus on patient care instead of paperwork.”
- “We’re losing money because of poor visibility in stock movement.”
- “I need real-time alerts before items expire or run low.”
- “Integrating with supplier databases would save us time.”

SEES

- Cluttered storage rooms with similar-looking packages.
- Manual logs and spreadsheets for tracking.
- Delays in supply chain deliveries.
- Occasional miscommunication between pharmacy and procurement departments.

HEARS

- “We can’t find this item anywhere!” (from nurses or doctors)
- “Another batch expired last month.”
- “Head office needs new reports by tomorrow.”
- “Suppliers are late again.”

PAINS

- Stockouts leading to treatment delays.
- Overstocking and wastage due to expirations.
- Time-consuming manual audits.
- Lack of real-time visibility into inventory.
- Errors in data entry and tracking.

GAINS

- Automated alerts for low stock and expiry dates.
- Centralized dashboard with real-time data.
- Integration with procurement and supplier systems.
- Reduced waste and improved cost-efficiency.
- Time saved on manual tracking and reporting.

Insights

1. **Automation and visibility** are top priorities.
2. **Human errors** in manual systems cause both shortages and waste.
3. **User-friendly digital tools** can reduce workload and stress.
4. **Predictive analytics** (e.g., usage forecasts) can optimize restocking.

Design Opportunities

- Build an **AI-driven inventory platform** with demand forecasting.
- Use **barcode or RFID scanning** for real-time updates.
- Create a **mobile dashboard** for nurses and pharmacists.
- Automate **expiry alerts and reorder notifications.**
- Integrate **supplier communication channels** directly into the system.

5. Insights Derived

1. Need for Real-Time Visibility

- **Users feel blind** to current inventory levels and expiry dates.
- Real-time dashboards and alerts would reduce anxiety and enable faster decision-making.
- Insight: *Visibility = confidence. Systems that update live data empower better control and trust.*

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2. Manual Processes Cause Errors and Wastage

- Manual tracking through spreadsheets or paper logs leads to **inaccurate counts**, **duplicate entries**, and **missed expirations**.
- Insight: *Automation (e.g., barcode/RFID scanning) is essential to reduce human error and maintain compliance.*

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3. Communication Gaps Between Departments

- Pharmacists, nurses, and procurement teams often **work in silos**, causing delays or misalignment in ordering.
- Insight: *Integrating communication and data sharing across departments improves coordination and reduces delays.*

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4. Reactive Instead of Proactive Inventory Management

- Staff typically respond **after** a shortage or expiry occurs.
- Insight: *Predictive analytics and demand forecasting can shift operations from reactive to proactive management.*

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5. High Administrative Burden

- Staff spend **too much time on stock reports and audits** instead of patient care.
- Insight: *Simplifying workflows through automation and intuitive interfaces can free up time for clinical duties.*

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6. Financial Leakage from Overstocking and Expirations

- Overstocking ties up capital, while expired stock leads to financial losses.
- Insight: *Smart reorder algorithms and expiry tracking can optimize stock levels and minimize waste.*

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7. Compliance and Accountability Are Stress Points

- Users fear **audit failures** or being blamed for discrepancies.
- Insight: *Transparent tracking and audit trails reduce anxiety and increase accountability.*

Focus Area	Derived Insight	Potential Solution
Real-time visibility	Lack of accurate, current stock data	Implement IoT/barcode-enabled systems
Predictive management	Reactive restocking	Use AI for demand forecasting
Waste reduction	Frequent expirations	Automated expiry alerts
Efficiency	Time lost to manual work	Automate reporting and reconciliation
Collaboration	Siloed communication	Shared digital platform for departments

6. Design Implications for Medical Connect

Need for Real-Time Visibility

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8. Training and Ease of Use Are Critical

- **Users struggle with complex or outdated systems.**
- **Insight:** ***Design must prioritize simplicity and training support — a user-friendly interface encourages adoption.***

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9. Supply Chain Reliability Impacts Inventory Performance

- **Delays or inconsistent supplier performance directly affect hospital operations.**
- **Insight:** ***Integrating supplier systems and using performance analytics helps maintain smooth supply chains.***

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10. Data-Driven Decision Making Is Underused

- **Many decisions are made on intuition, not analytics.**
- **Insight:** ***Providing actionable insights (e.g., consumption trends, reorder recommendations) can guide smarter procurement.***

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6.Design Implications for Medical Connect:

Medical Inventory Management System

1. User-Centered Interface Design

Implication:

Different users (pharmacists, nurses, warehouse staff, procurement officers) have distinct needs and technical skill levels.

Design Action:

- Create role-based dashboards (e.g., pharmacist view = expiry alerts; procurement view = supplier performance).
- Use simple, intuitive UIs with visual aids (color-coded alerts, icons for stock levels).

- Support mobile and tablet access for use in storage areas and wards.

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2. Automation and Smart Tracking

Implication:

Manual tracking is error-prone and inefficient.

Design Action:

- Integrate barcode or RFID scanning for real-time stock updates.
- Enable automatic alerts for low stock, expiries, or mismatched quantities.
- Use IoT sensors in storage units (temperature, humidity) for sensitive medical items.

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3. Predictive Analytics and Forecasting

Implication:

Inventory management is currently reactive — restocking only after shortages occur.

Design Action:

- Build AI-driven forecasting tools that analyze consumption trends.
- Show predictive reorder points and expected future shortages.
- Visualize data (charts, graphs) to aid data-driven decision-making.

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4. System Integration and Interoperability

Implication:

Hospitals rely on multiple systems (EHR, billing, supplier portals).

Design Action:

- Ensure API-based integration with hospital ERP, supplier systems, and logistics tracking.
- Enable bidirectional data flow so updates in one system reflect across all platforms.
- Design for HL7 / FHIR compliance (standard healthcare data formats).

Design Focus	Implication	Design Direction
Usability	Diverse user roles	Role-based, intuitive UI
Accuracy	Human error in manual tracking	RFID/barcode automation
Proactivity	Reactive restocking	Predictive analytics
Collaboration	Siloed communication	Integrated communication tools
Compliance	Regulatory demands	Secure audit trails
Sustainability	Stock wastage	Expiry alerts & redistribution
Scalability	Organizational growth	Cloud-based modular architecture

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7. **Empathy Map Canvas Summary**

   To understand the experiences, needs, frustrations, and motivations of key users (e.g., pharmacists, nurses, storekeepers, and procurement officers) involved in managing medical supplies.

   This helps identify opportunities to design a more efficient, reliable, and user-friendly inventory management system.

- Primary Users: Pharmacists, nurses, inventory managers, procurement staff
- Goal: Maintain optimal stock levels, ensure timely supply, prevent shortages and expirations, and comply with hospital standards.