Project Title

Medical Equipment Supply and Maintenance

Milestone 1

Problem Definition

Group 8

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Problem Setting:

In healthcare facilities, for systematic operation of medical equipment, supply and maintenance is of great importance as it contributes to patient care and safety. Inadequate supply or maintenance can result in frequent disruptions to critical healthcare services, compromising patient care and increasing operational costs. Recently, a large urban hospital experienced multiple disruptions in its critical medical equipments like MRI machines, CT scanners and life-support systems which resulted in cancelled surgeries and care delays. Therefore, to avoid such situations, proactive maintenance needs to be enforced in healthcare facilities ensuring equipment reliability and minimizing downtime.

Problem definition:

A real-world challenge faced by the healthcare domain is continuous and reliable availability of equipments. To address the comprehensive management of medical equipment, we integrate supply chain principles in healthcare facilities. To ensure that the supply and maintenance is smooth, we aim to analyze the data primarily focusing on supplier details, revenue generation, maintanence logs, hospitals/ healthcare facilities supplied to, equipment inventory, maintenance scheduling, patient information, allocation of equipments to various departments, and user access records.

Objective:

This project seeks to develop a data driven solution to implement medical equipment supply and maintenance system which ensures consistency of availability, operational efficiency, improve patient care quality and reduce operational costs.

End-Goal:

Transforming the hospitals supply and maintenance practices in order ensure enhanced patient care, data driven healthcare allowing more informed decision making in equipment handling and maintenance, mitigating compliance risks and improving the hospital reputation and patient satisfaction. Through this, we aim to understand:

- how medical equipment is used (whether it is overutilized or underutilized) across various departments within the facilities.
- predict maintenance requirements in advance to avoid delays.
- monitor supply chain process.
- resource allocation and cost optimization
- impact on patient care
- identify any breaches of access and usage of equipment.