Hospital Emergency Room Analytics Report

Executive Summary

This report presents a comprehensive analysis of Emergency Room (ER) operations using interactive Power BI dashboards. The analysis covers the period April 2023 to October 2024 and includes 9,216 unique patient records. The objective is to evaluate patient flow, waiting times, satisfaction levels, admissions, referrals, and demographics to support data-driven decision-making.

Project Objectives

- Monitor Emergency Room performance using key operational KPIs
- Identify peak patient inflow periods by day and hour
- Evaluate patient waiting time and satisfaction levels
- Understand admission patterns and referral trends
- Analyze patient demographics for better care planning
- Optimize staffing and resource utilization

Data Overview

Time Period Covered: April 2023 – October 2024
Total Patients Analyzed: 9,216
Dashboards Developed: Monthly View, Consolidated View, Patient Details, Key Takeaways

Key Performance Indicators (KPIs)

- Total Number of Patients
- Average Waiting Time (~35 minutes)
- Patient Satisfaction Score (~5/10)
- Number of Patients Referred

Emergency Room Performance Analysis

The Emergency Room consistently handled high patient volumes throughout the analysis period. The average waiting time of approximately 35 minutes indicates opportunities to improve patient flow and overall service efficiency.

Operational Load Analysis

Mondays, Saturdays, and Tuesdays experienced the highest patient volumes. Peak congestion occurred during late morning, evening, and late-night hours, suggesting the need for staffing optimization during these periods.

Department Referral Analysis

A significant number of patients did not require referrals. Among referred cases, General Practice and Orthopedics accounted for the majority, followed by Physiotherapy and Cardiology.

Patient Demographics Analysis

Adults aged 30–39 formed the largest patient group, followed closely by those aged 20–29. Gender distribution was nearly equal. White patients represented the largest racial group, followed by African American, multi-racial, and Asian patients.

Key Insights

- High patient inflow with moderate satisfaction suggests process bottlenecks
- Peak congestion aligns with staffing gaps
- Fast-track treatment can benefit non-referred patients

Recommendations

1. Optimize staffing during peak hours
2. Introduce fast-track treatment pathways
3. Improve patient communication regarding wait times
4. Continuously monitor KPIs using Power BI dashboards

Conclusion

This analysis highlights the importance of data-driven insights in Emergency Room operations. By leveraging Power BI dashboards, hospital management can improve operational efficiency, enhance patient satisfaction, and make informed strategic decisions.