**Hospital Emergency Room Dashboard**

**Overview**

This project aims to provide detailed insights into patient-level data and hospital performance using interactive Power BI dashboards. The dashboard enables granular analysis and helps identify trends, bottlenecks, and areas for improvement in emergency room operations.

**Business Requirements**

**1. Patient-Level Dashboard**

**Objective:** Offer granular insights into patient-level data to enable detailed analysis and troubleshooting.

**Key Metrics:**

* Patient ID
* Patient Full Name
* Gender
* Age
* Admission Date
* Patient Race
* Wait Time
* Department Referral
* Admission Status

**2. Consolidated View Dashboard**

**Objective:** Provide a holistic summary of hospital performance for a selected date range.

**Charts to Develop:**

* Aggregated patient data over a customizable date range for broader insights and trend analysis.

**3. Monthly Trends Dashboard**

**Objective:** Monitor key metrics and trends on a month-by-month basis to identify patterns and areas for improvement.

**Charts to Develop:**

* **Patient Admission Status:** Admitted vs. non-admitted patients.
* **Patient Age Distribution:** Age group analysis in 10-year intervals.
* **Department Referrals:** Referral trends across different hospital departments.
* **Timeliness:** Percentage of patients seen within 30 minutes.
* **Gender Analysis:** Patient distribution by gender.
* **Racial Demographics:** Breakdown of patient data by race.
* **Time Analysis:** Patient volume analysis by day and hour.

**Key Performance Indicators (KPIs)**

**1. Number of Patients**

* Measures the total daily number of ER visits.
* Uses an area sparkline to track trends over time.

**2. Average Wait Time**

* Calculates the average patient wait time before being attended to.
* Uses an area sparkline to monitor daily fluctuations and identify operational inefficiencies.

**3. Patient Satisfaction Score**

* Analyzes the average daily satisfaction score of patients.
* Displays trends using an area sparkline to detect dips in satisfaction and correlate them with operational challenges.

**4. Number of Patients Referred**

* Counts the number of patients referred to different departments.
* Uses an area sparkline to track daily trends and identify departments with high referral rates.

**Tools & Technologies Used**

* **Power BI**: Data visualization and dashboard creation.
* **SQL**: Data extraction and transformation.
* **Excel**: Data preprocessing and validation.

**How to Use**

1. Import the dataset into Power BI.
2. Clean and preprocess the data using Power Query.
3. Use DAX functions to create calculated measures and KPIs.
4. Design and develop interactive dashboards using the defined charts and KPIs.
5. Analyze trends and insights to improve emergency room efficiency.

**Future Enhancements**

* Add predictive analytics to forecast patient inflow.
* Integrate real-time data streaming.
* Implement machine learning for anomaly detection in patient trends.