Hospital Emergency Room Dashboard – MIS Project

My First Excel MIS Dashboard on ER Performance

PURPOSE OF PROJECT

We need to create a Hospital Emergency Room Analysis Dashboard in Power BI to improve efficiency and provide useful insights. This dashboard will help stakeholders monitor, analyze, and make better decisions for managing patients and improving services.

Project Overview

01

First end-to-end Excel MIS Dashboard

02

Built during foundational data analytics journey

03

Focus: Real-time Emergency Room (ER) operations

04

Enables data-driven decision making in healthcare

Project Context

Hospitals face challenges in managing ER operations

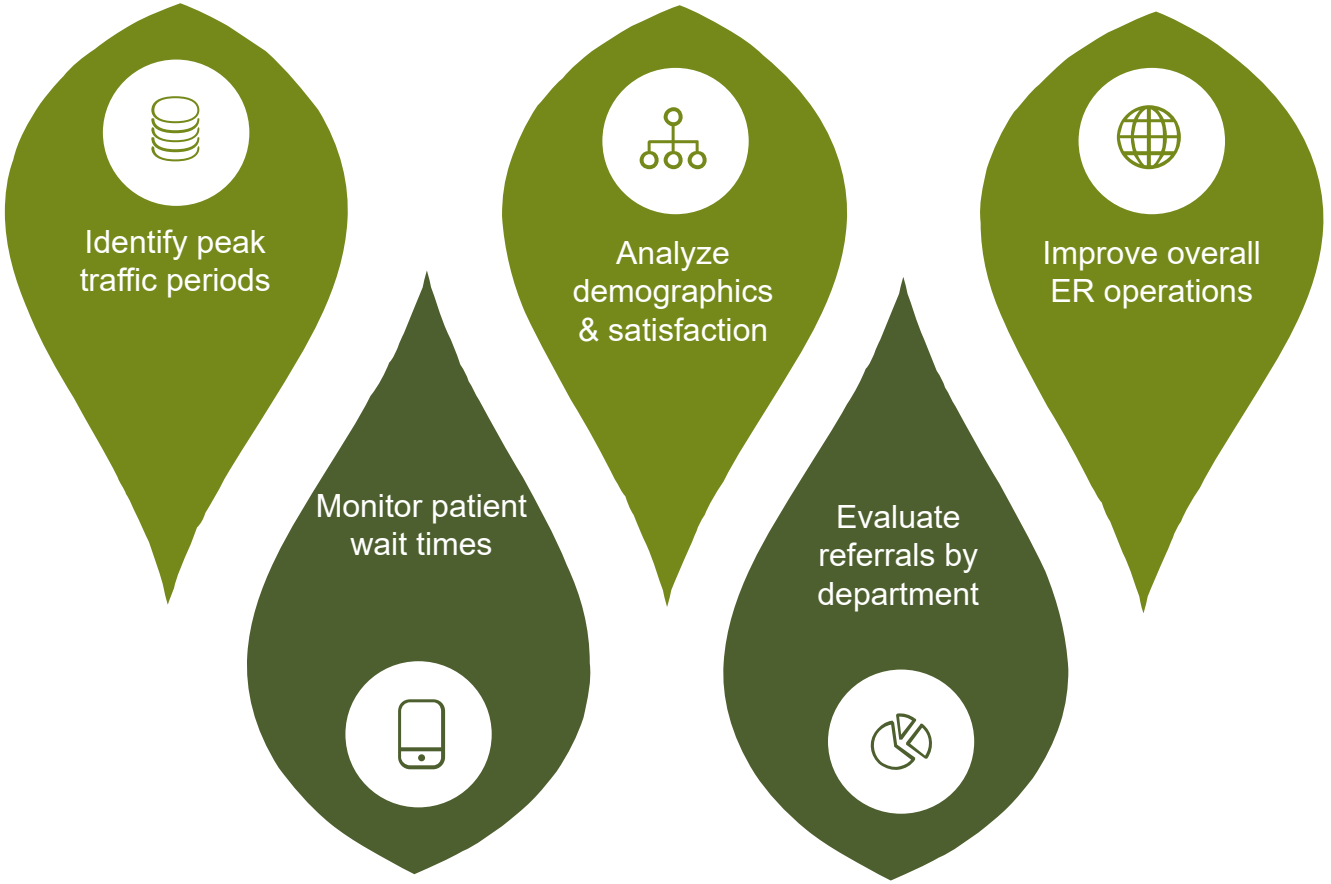
Difficulties: tracking wait times, peak loads, patient satisfaction

Without reporting → delays & inefficiency

Dashboard solves by centralizing ER insights

Project Objectives

The dashboard empowers hospital stakeholders to:



Key Dashboard Features

Patient Count Trends – Daily flows with sparklines

Age Group Distribution – Demographics

Average Waiting Time – Staff efficiency tracker

Timeliness of Service – % seen within 30 mins

Satisfaction Score – Patient feedback analysis

Gender Analysis – Male vs Female visits

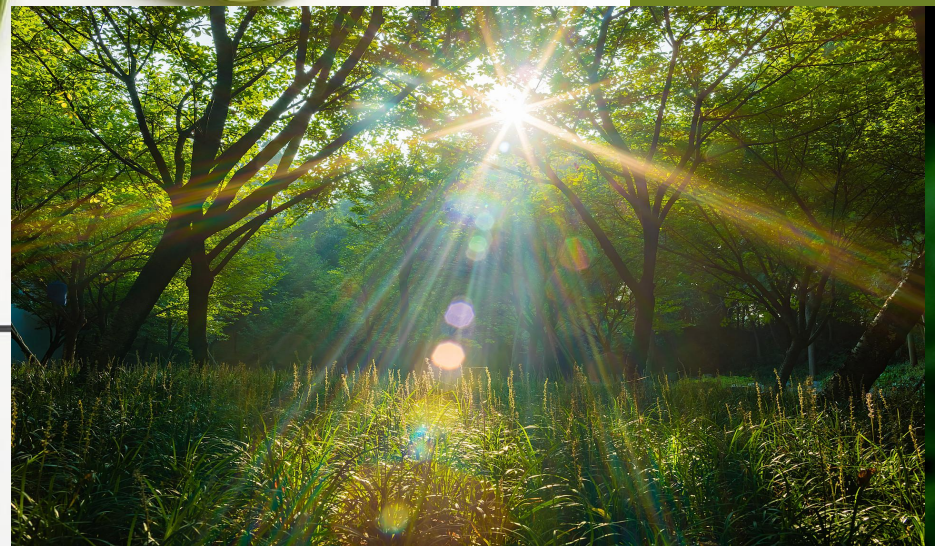
Admission Status – % admitted vs. not admitted

Department Referrals – Top referred departments

Dataset Details

Records: Patient-level ER visits

Fields:



- Patient ID
- Date of Visit
- Waiting Time
- Satisfaction Score
- Age Group
- Gender
- Admission Status
- Referral Department

Tools & Excel Techniques Used

Data Cleaning & Structuring

Pivot Tables for summaries

Charts – Bar, Pie, Column, Doughnut

Sparklines – Trends

Conditional Formatting – KPI highlighting

Excel Formulas:

- IF(), AVERAGEIF(), COUNTIF()
- INDEX-MATCH(), SUMIFS()
- Logical + aggregation functions

Project Steps

Business Requirement Gathering → Understanding of Data → Data Connection (Import Data Using Power Query) → Data Cleaning and Data Quality Check Using Power Query

Creating Calendar Table using Power Query → Data Modeling - Power Pivot → Adding Required Columns (DAX Calculation in Power Pivot) → Creating Pivots and Dashboard Lay outing

Charts Development and Formatting → Dashboard / Report Development → Insights Generation

Formula

Calendar Table Formula

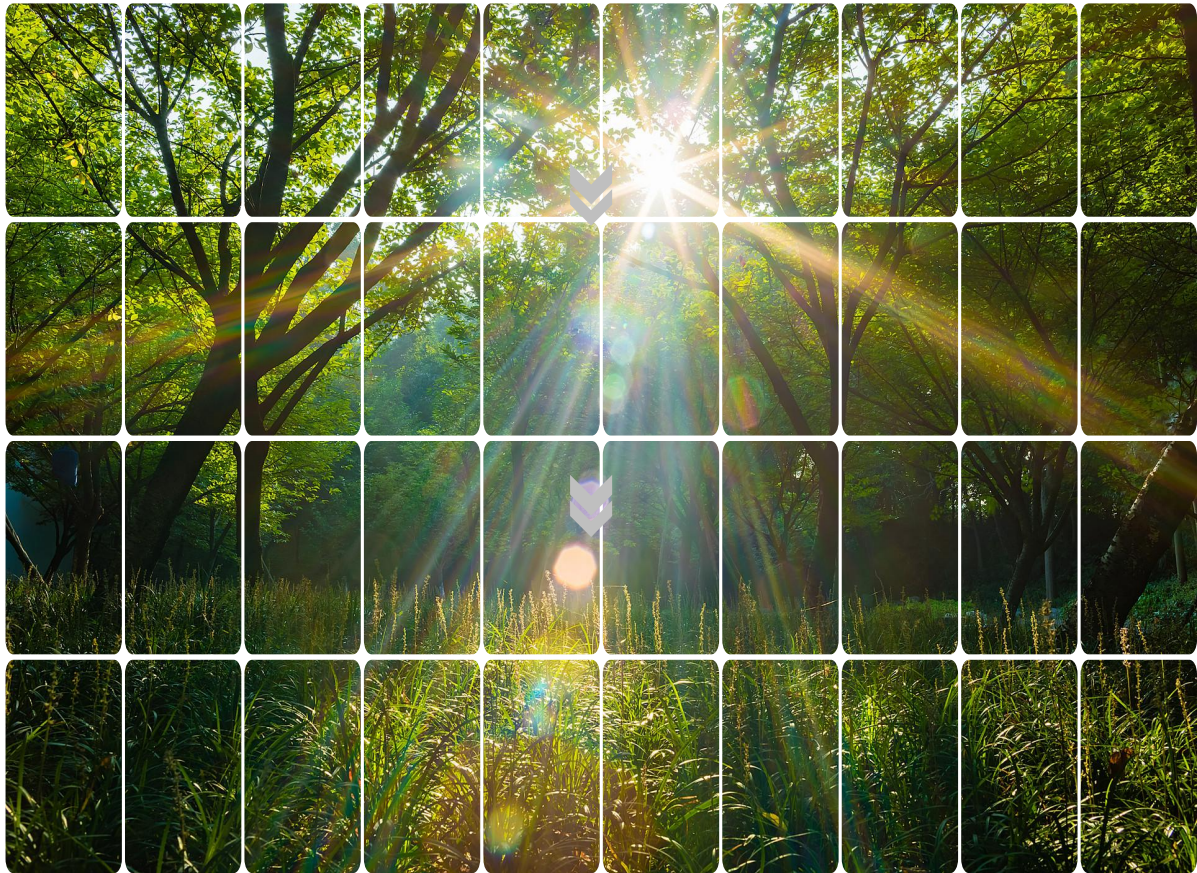
=List.Dates(#date(2023,01,01),731,#duration(1,0,0,0))

DAX Formula for Age Group :

=IF([Patient Age]>=70,"70-79",IF([Patient Age]>=60,"60-69",IF([Patient Age]>=45,"45-59",IF([Patient Age]>=30,"30-44",IF([Patient Age]>=15,"15-29",IF([Patient Age]>=5,"05-14","0-4"))))))

DAX Formula For Patient Attend Status :

=IF([Patient Waittime]<30,"Within Time","Delay")



Project Workflow

Requirement Understanding – Define KPIs

Data Preparation – Clean & structure

Pivot Table Creation – Summarize data

Chart Development – Build visuals

Dashboard Design – Interactive layout

Testing & Refinement – Validate outputs

Charts to Create

- **Patient Admission Status:** Show how many patients were admitted vs. not admitted.
- **Patient Age Distribution:** Group patients by age.
- **Timeliness:** Measure the percentage of patients seen within 30 minutes.
- **Gender Analysis:** Display the number of patients by gender.
- **Department Referrals:** Check which departments patients are referred to the most.

Project Learnings

Value of clean data for accuracy

Visual storytelling aids decisions

Excel is a powerful BI tool

Gained confidence to independently build MIS dashboards

Business Impact

Identify busiest days for staffing

Faster decision-making with visual insights

Reduce waiting times via shift planning

Improve resource allocation

Balance workloads across departments

Reduce service delays

Enhance patient satisfaction

Strengthen hospital operational excellence

Comparative Analysis

ER performance compared across weekdays vs weekends

Admission rates compared across referral departments

Wait time differences by gender & age group

Helps spot hidden trends in service delivery

KPI Scorecard Snapshot

Quick summary of the most critical ER KPIs:

Avg. Patient Waiting Time

Admission vs. Discharge Ratio

% Patients Seen Within 30 Minutes

Patient Satisfaction Score

Designed for “at-a-glance” decision making

Stakeholder Benefits

1

Hospital Management: Optimize staff & reduce delays

2

Doctors: Prioritize urgent cases effectively

3

Nurses/Admins: Manage patient inflow with clarity

4

Patients: Better care, faster service, higher satisfaction

Challenges Faced

Time spent on data cleaning before analysis

Handling inconsistent or missing data

Ensuring dashboard usability for non-technical users

Balancing dashboard simplicity with detailed insights

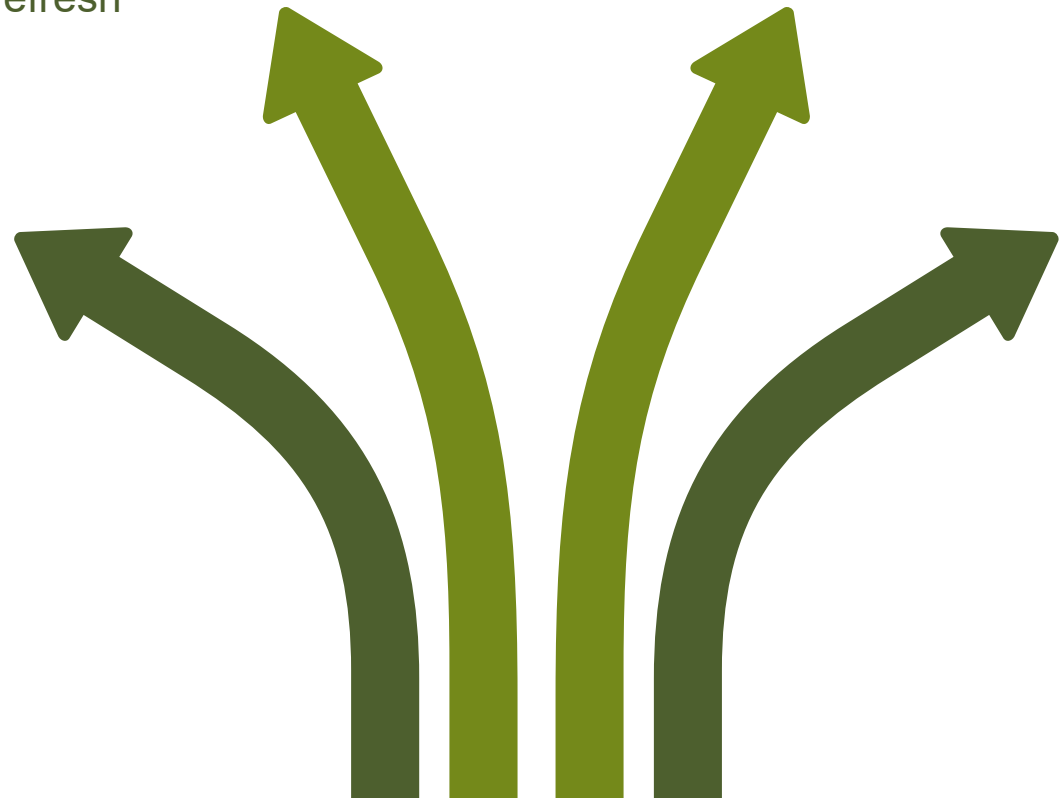
Future Scope

Power Query integration – Auto-refresh

Rebuild in Power BI

Connect to SQL / Access / CSV

Add forecasting for patient inflow



How to Use This Project

Download/Clone the repo

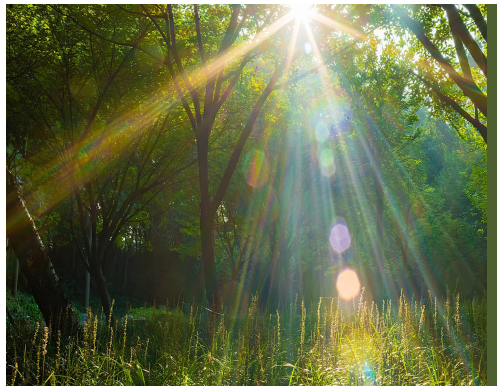
Open the .xlsx file

Explore dashboard sheet

Modify dataset → auto-updated results

Conclusion & Call-to-Action

Dashboard = Real-world application of Excel as BI tool



Learnings will extend into Power Query & Power BI

First step into Healthcare Data Analytics

Let’s connect to explore Data + Healthcare innovations

Every great presentation is complete with a great audience —
and that’s you!

Excel Project

MIS

Pivot Table