Surgeries Data Analysis Report

Introduction

This project is about turning raw hospital surgery data into meaningful insights that can actually support decision-making. The dataset we worked with was stored in Excel, and we connected it to Power BI so the results could update automatically whenever the file changes.

The goal was simple: understand how many surgeries are being performed, where they're happening, what types of surgeries are most common, and how successful they are.

Some quick highlights from the data:

- **Rows (records):** 21
- **Columns (fields):** 8
- **Total surgeries (sum of No._of_TotalSurgery): 300**
- **Surgery mix:** cardiology **100** (33.3%), eurology **100** (33.3%), gastrology **100** (33.3%)
- **Record-level outcomes: 16** "Succesful", **5** "Complication" → record success rate **76.2%**
- **Age (years):** min **5**, max **80**, mean **42.9**, median **45**
- **Top cities by total surgeries:** Mumbai **57**, Delhi **55**, Chennai **45**, Bangalore **33**, Chandigarh **20**
- **Top hospitals by total surgeries:**
    - Sankara Nethralaya Chennai **25**;
    - Lilavati Hospital Mumbai **20**;
    - Apollo Hospitals Chennai **20**;
    - CMC Vellore **20**;
    - PGIMER Chandigarh **20**

Tech Stack & Flow

Data source & storage:

- **Excel on OneDrive** is the system of record (easy editing, versioning, and cloud access).

Analytics & Visualization:

- **Power BI Desktop** for modeling and visuals (local authoring).
- **Power BI Service** for sharing and **hourly OneDrive auto-sync** (no gateway when connected through OneDrive/SharePoint).

Record Success Rate= DIVIDE(CALCULATE(COUNTROWS(Records), Records[Surgical_Outcome] = "Successful"), COUNTROWS(Records))

  - **Hospitals** = DISTINCTCOUNT([Hospital_name])
  - **Cities** = DISTINCTCOUNT([City])

Refresh:

- When connected from **OneDrive – Business**, Power BI checks the file **about every hour** and syncs changes automatically.

Dataset

1. **Serial_name** – row identifier
2. **Hospital_name** – provider name
3. **City** – location
4. **No._of_TotalSurgery** – surgeries represented by that row
5. **Type_of_Surgery** – *Cardiology / Urology / Gastrology*
6. **Patient ID** – unique patient identifier
7. **Age** – patient age
8. **Surgical_Outcome** – *Successful / Complication*

We also grouped ages into categories: children **(0–17)**, young adults **(18–40)**, middle age **(41–60),** and seniors **(60+)**. This helps us quickly see patterns by age group.

	A	B	C	D	E	F
1	**Serial_name**	**Hospital_name**	**City**	**No._of_TotalSurgery**	**Type_of_Surgery**	**Surgeries_Outcome**
2	S1	AIIMS Delhi	Delhi	15	urology	Successful
3	S2	Apollo Hospitals Chennai	Chennai	20	urology	Successful
4	S3	Fortis Hospital Gurugram	Gurugram	5	urology	Successful
5	S4	Max Healthcare Delhi	Delhi	10	urology	Successful
6	S5	Sir Ganga Ram Hospital	Delhi	12	urology	Complication
7	S6	Narayana Health Bangalore	Bangalore	18	urology	Successful
8	S7	CMC Vellore	Vellore	20	urology	Successful
9	S8	Kokilaben Dhirubhai Ambani Hospital Mumbai	Mumbai	10	gastrology	Successful
10	S9	Tata Memorial Hospital Mumbai	Mumbai	12	gastrology	Successful
11	S10	Medanta The Medicity Gurugram	Gurugram	8	gastrology	Complication
12	S11	Manipal Hospitals Bangalore	Bangalore	15	gastrology	Successful
13	S12	Lilavati Hospital Mumbai	Mumbai	20	gastrology	Complication
14	S13	Amrita Hospital Kochi	Kochi	18	gastrology	Complication
15	S14	Ruby Hall Clinic Pune	Pune	17	gastrology	Successful
16	S15	Sankara Nethralaya Chennai	Chennai	25	cardiology	Successful
17	S16	King Edward Memorial Hospital Mumbai	Mumbai	15	cardiology	Successful
18	S17	PGIMER Chandigarh	Chandigarh	20	cardiology	Complication
19	S18	Jaypee Hospital Noida	Noida	9	cardiology	Successful
20	S19	B.L.K. Super Speciality Hospital Delhi	Delhi	18	cardiology	Complication
21	S20	Yashoda Hospital	Hyderabad	11	cardiology	Successful
22	S21	Yashoda Hospitals	delhi	1	cardiology	Complication
23	S22	Yashoda Hospitals	delhi	1	cardiology	Successful
24	S23	AIIMS Hospitals	Uttrakahand	1	cardiology	Successful
25						

Key Findings & Use Cases:

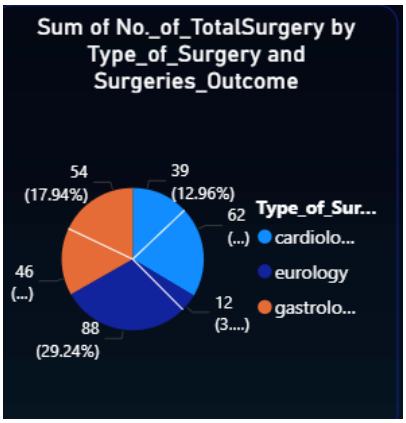
- **Total surgeries: 300** across 21 records.
- **Balanced mix** by type: **Cardiology 100**, ***Urology* 100**, **Gastrology 100** (each **33.3%**).
- **Cities with the highest volume: Mumbai (57)**, **Delhi (55)**, **Chennai (45)**, **Bangalore (33)**, **Chandigarh (20)**.
- **Hospitals with the highest volume:**
  - **Sankara Nethralaya Chennai – 25**
  - **Lilavati Hospital Mumbai – 20**
  - **Apollo Hospitals Chennai – 20**
  - **CMC Vellore – 20**
  - **PGIMER Chandigarh – 20**

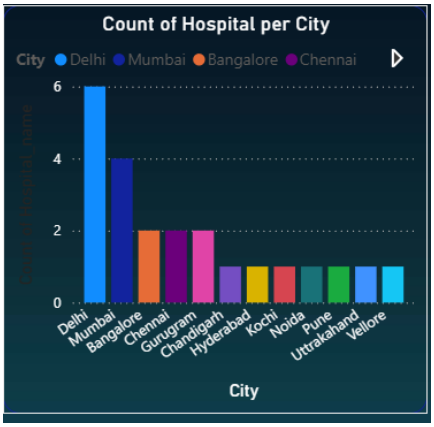
Outcomes:

- **Record-level** outcomes show **76.2%** “Successful”.

Where to use :

- **Hospital operations:** identify high-load cities/hospitals and plan OT capacity, beds, and staffing.
- **Service mix planning:** with a balanced mix, management can set targets (e.g., grow cardiology in under-represented cities).
- **Quality & safety:** monitor outcome trends by **age group**, **type**, and **provider**, flag outliers for review.
- **Finance:** align pricing/contracts to the volume profile; prioritize high-demand services in growing cities.





Final Output

The final output is a **Power BI dashboard** connected directly to the Excel file in OneDrive. It contains:

- **Key metrics** (total surgeries, success rate, number of hospitals, number of cities).
- Visuals such as:
  - Surgery types breakdown (donut chart).
  - Surgeries by city (ranked bar chart).
  - Top hospitals (bar chart).
  - Age group distribution (bar chart).
  - Surgical outcomes (donut chart).

With slicers for city, hospital, type of surgery, and outcome, users can filter the data interactively.

Because the dataset lives in OneDrive, the report refreshes **automatically every hour**, keeping everything up-to-date without any manual work.