

Healthcare Analysis with Power BI

CASE STUDY: ANALYZING HEALTHCARE DATA IN POWER BI



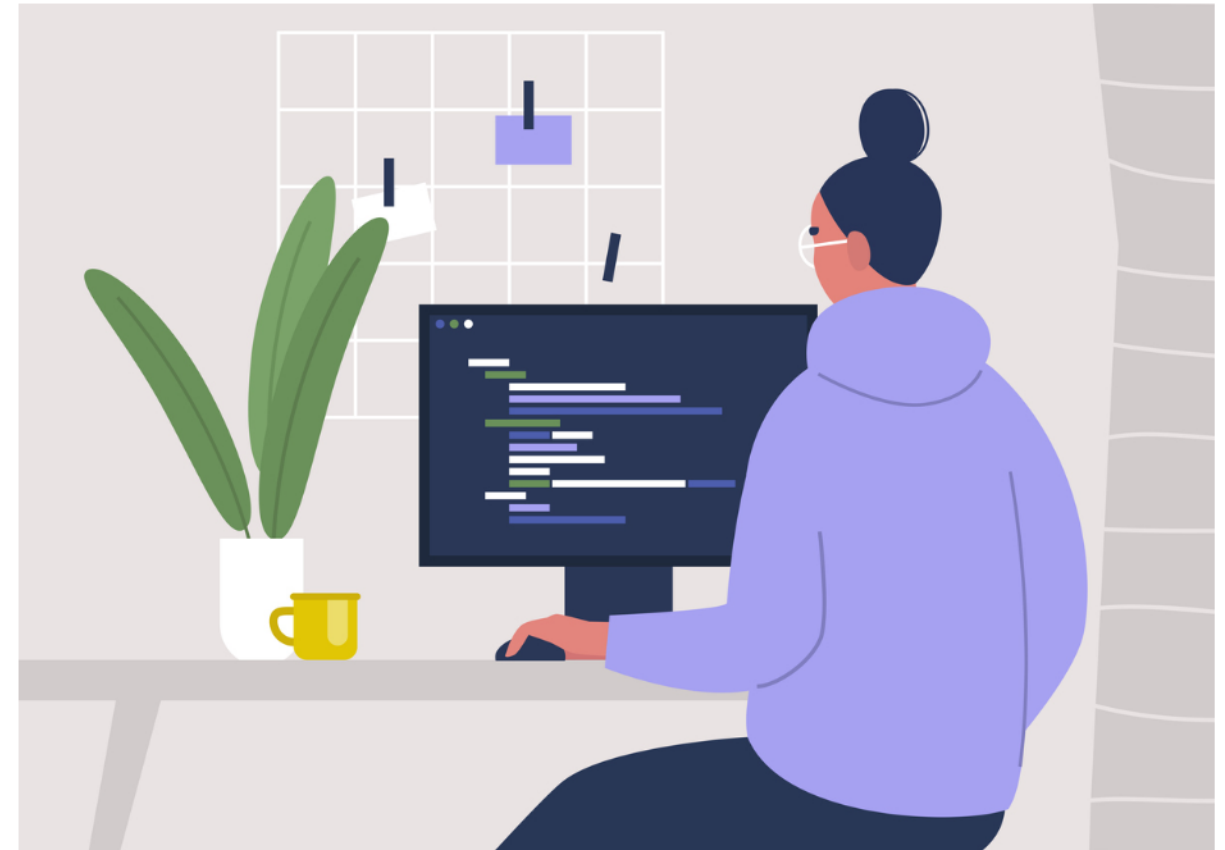
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What is a case study?

- Apply Power BI Skills
- Combine previously learned concepts
- Solve an example real-world problem

Prerequisite Courses:

- Data Visualization in Power BI
- DAX Functions in Power BI



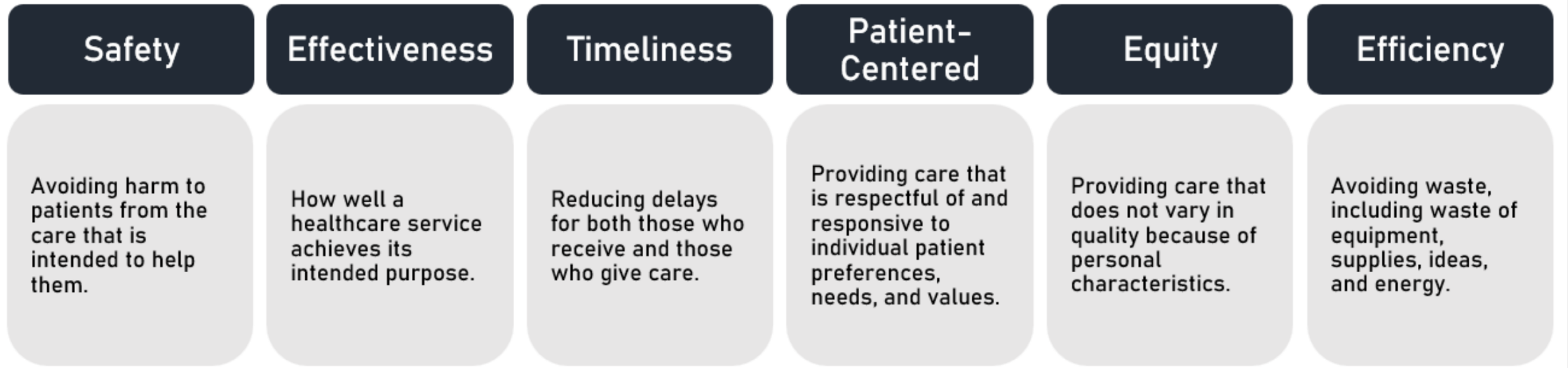
Case study goals



A fictitious consulting company (HealthStat) has hired you to uncover insights on potential hospital efficiency opportunities.

- Analyze an anonymized dataset from hospitals.
- Leverage Power BI to create an engaging dashboard.

Framework for healthcare quality



- Analytical framework for healthcare quality.
- Focus for this case study is efficiency domain.

¹ <https://www.ahrq.gov/talkingquality/measures/six-domains.html>

Measuring Hospital efficiency

Length of stay (LOS) is the duration in days for a patient stay in a hospital.

- Reducing LOS can lower costs, increase capacity, and improve throughput.
- Factors impacting LOS: patient age, health status, procedure, complications, mortality risk, hospital size, etc.



¹ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5898738/>

Terminology overview



- **Inpatient:** person who has been admitted to a hospital bed.
- **Discharge:** release of a patient from hospital care by a medical worker.
- **Disposition:** the patient destination or status upon discharge.
- **Elective:** reason for surgery was planned (not an emergency).

Patient population for analysis

Elective hip replacement surgery



- Patients with hip pain, typically arthritis, may require elective hip replacement surgery.
- Damaged bone and cartilage is removed and replaced with prosthetic components.
- Arrival to hospital with surgery on day zero, stay 0-2 days.

¹ <https://orthoinfo.aaos.org/en/treatment/total-hip-replacement/>

The dataset

Key characteristics

- New York state-wide hospital discharge data for 2016.
- Elective hip replacement surgery patients.
- One single table with 30 columns.
- Each row represents a single inpatient stay, or **discharge**.



Dataset outcome attributes

Key outcome attributes of interest for the case study

Column name	Description
length_of_stay	Total days the patient stayed in hospital, including surgery and recovery time.
total_costs	Total cost for the stay.

Dataset explanatory attributes

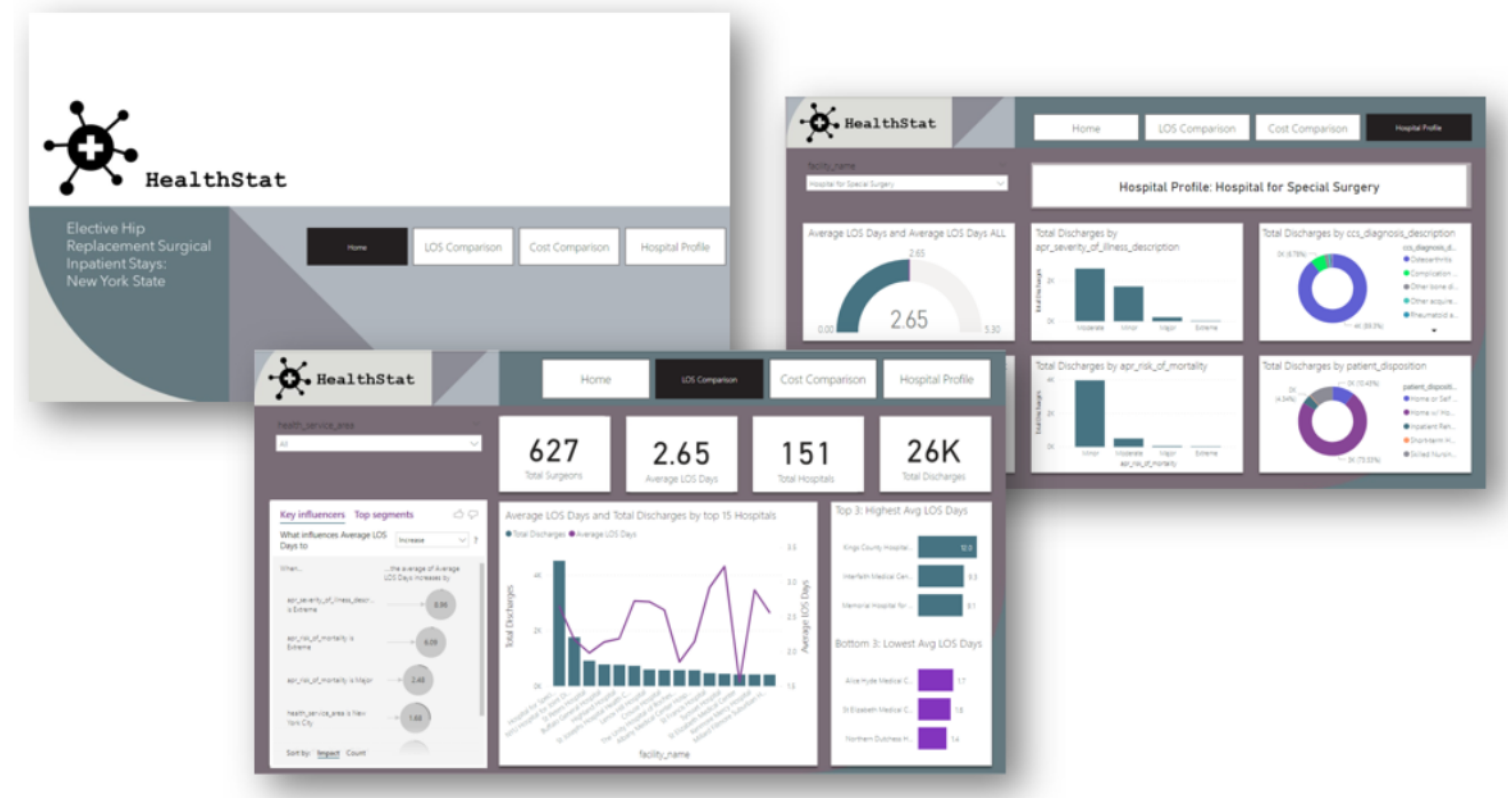
Key attributes of interest for the case study

Column name	Description
facility_id	A unique id that identifies each distinct hospital.
age_group	Age of patient at the time of discharge.
patient_disposition	The patient's destination status upon discharge.
ccs_diagnosis_description	Most responsible diagnosis code associated with the hospital stay.
apr_severity_of_illness_description	Illness severity level assigned standard score on scale from 1 (Minor) to 4 (Extreme).
apr_risk_of_mortality	Mortality risk assigned standard score on scale from 1 (Minor) to 4 (Extreme).

Your final deliverable

Create a dashboard that enables your stakeholders to:

- Progress through key insights in a logical flow.
- View informative, concise visuals.
- Get data to make business decisions to improve efficiency.



Let's start analyzing!

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