

Problem Statement: Hospital General Information Dashboard

Objective

Build an interactive Power BI dashboard using the Hospital General Information dataset to enable healthcare administrators, policymakers, and analysts to:

- Assess hospital performance across multiple dimensions (overall ratings, mortality, safety, readmissions, patient experience, timeliness of care)
- Compare hospitals by geography, type, and ownership
- Identify strengths and gaps in quality metrics
- Enable ad hoc exploration of “What-If” scenarios (e.g., shifting more hospitals into better-performing categories)

Key Requirements

Data Ingestion & Cleaning

- Connect Power BI to the CSV file and import all 38 columns accurately.
- Standardize missing or non-numerical values in “Hospital overall rating” and measure-count columns.
- Parse categorical fields (e.g., “Hospital Type,” “Hospital Ownership,” “Emergency Services”) into consistent labels.
- Validate ZIP codes, state abbreviations, and “Meets criteria for birthing friendly designation.”

Data Modeling

- Create a star schema with a central “Hospital” table (Facility ID as primary key) and lookup tables for State, County/Parish, Hospital Type, and Ownership.
- Derive aggregated metrics—e.g., count of hospitals by overall rating (1–5) and birthing-friendly designation, percentages of measures “Better,” “No Different,” “Worse” within each performance group (MORT, Safety, READM, Pt Exp, TE).

“What-If” Scenario Analysis

- Implement Power BI “What-If” parameters to simulate “Rating Threshold” (e.g., treat 4 and 5 as “High-Performing,” 1–3 as “Low-Performing”) and “Measure Improvement” parameter (percentage shift of “Worse” to “No Different/Better” categories).
- Build DAX measures that use these parameters to recalculate counts/percentages in real time.

Visualization & UX

- Page 1: Overview – KPI cards (Total Hospitals, % High-Performing, Average % “Better” across Safety & Readmissions, % Birthing-Friendly), slicers (State, Hospital Type, Ownership, “Rating Threshold,” “Measure Improvement”).
- Page 2: Geographic Analysis – Choropleth map of states or counties, bar chart of top 10 states by average rating.

- Page 3: Performance Measure Details – Clustered bar chart comparing counts of “Better”/“No Different”/“Worse” measures for each domain, matrix visual showing hospital name × type with ratings and “Worse” counts, drill-through to detailed hospital view.
- Page 4: Scenario Insights – Line chart of projected % “Better” safety measures as improvement parameter changes, scatter plot of overall rating vs. “Worse” readmission measures colored by ownership, card for projected number of “High-Performing” hospitals.

Testing & Optimization

- Validate DAX measures against manual Power Query aggregations for a sample of hospitals.
- Spot-check “What-If” recalculations to ensure correct percentage shifts.
- Optimize the data model by removing unused columns and grouping rare categories.
- Ensure dashboard refresh completes within acceptable time (~2–3 minutes for ~5,000 rows).

Documentation & Deployment

- User Guide: One-page PDF explaining data refresh, slicers, KPIs, and “What-If” sliders.
- Technical Document: ERD from Power BI, list of DAX formulas, Power Query steps, instructions for adding new performance domains.
- Publish to Power BI Service: Upload .pbix, configure permissions, schedule refresh, share link with stakeholders.