Healthcare Analysis
Non-Technical Stakeholder Report
Written by Tolulope Olarewaju
22nd July 2025

Table of Contents

Executive Summary

This report summarizes insights from the Healthcare Analysis Dashboard, designed to help healthcare leaders make informed decisions. The dashboard explores patient demographics, hospital operations, and financial performance. The dashboard enables better resource allocation, treatment strategies, and financial planning by breaking down large volumes of data into clear visuals and actionable insights.

This dashboard empowers data-informed decisions across patient care, resource management, and financial planning.

Project Overview

- **Purpose**: To identify operational inefficiencies, financial drivers, and patient trends that inform strategic decision-making.

- **Data Used**: Hospital records including admissions, treatment durations, test results, insurance claims, and billing details, etc.

- **Time Frame**: Data analyzed spans from 2019 to 2024.

Dashboard Pages

Page 1: Patient Demographics

- **Key Insights**:

    o **Total Admitted Patients**: 55,500

    o **Average Age**: 51.5 years

    o **Gender Distribution**: 50% female, 40% male, 10% binary

    o **Most Common Blood Type**: A+

    o **Least Common Blood Type**: B+

    o **Most Represented Age Group**: 50–59

- o **Least Represented Age Group**: 10–19

- o **Geographical Heatmap**: Indicates higher patient concentration in specific regions

Deep Questions Addressed:

1. **What is the age distribution among patients, and how does it affect health outcomes?**

   ▪ Most patients fall within the 50–59 age group, indicating a need for age-specific care plans and preventive screenings.

2. **Does gender influence the prevalence of certain medical conditions?**

   ▪ A balanced distribution with some overrepresentation of females suggests possible gender-related condition prevalence.

3. **Are there geographical trends in patient demographics that could impact healthcare delivery?**

   ▪ Yes, high-concentration regions could benefit from increased outreach or facility expansion.

Visual Snapshot: Includes bar chart (age groups), stacked bar chart (gender vs medical condition), heatmap (location), pie chart (gender), and card visuals for KPIs.
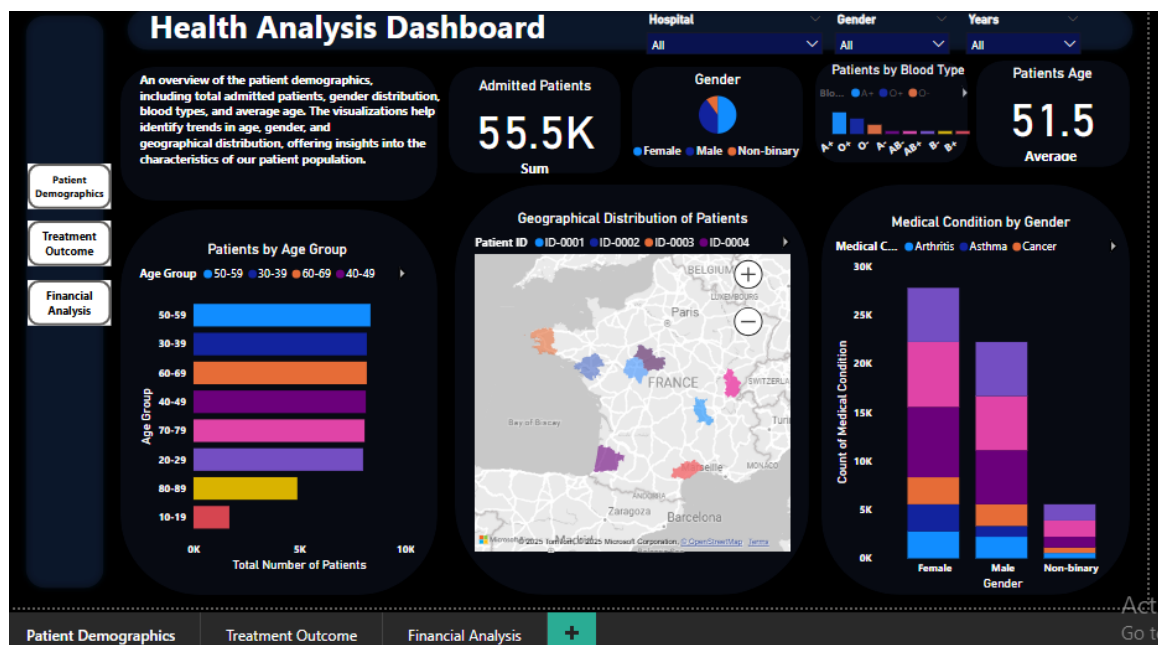
Recommendation:

- o Implement targeted health campaigns for adults aged 50–59.

- o Tailor medical education and awareness initiatives by gender.

- o Allocate more resources to high-density regions.

Page 2: Hospitalization and Treatment Outcomes

- **Key Insights**:

  - o **Total Patients**: 55,500

  - o **Average Length of Stay**: 15.5 days (consistent from 2019 to 2024)

  - o **Total Rooms**: 400

  - o **Number of Doctors**: 40,000

  - o **Test Result Distribution**:

    - Abnormal: 55%

    - Inconclusive: 35%

    - Normal: 10%

  - o **Admission Types**:

    - Elective: 33.61%

    - Emergency: 32.91%

    - Urgent: 33.41%

Deep Questions Addressed:

7. **What percentage of patients have abnormal test results, and how might this impact treatment protocols?**

    - Over 50% of abnormal results indicate a need for advanced diagnostic tools and follow-up care.

8. **How has the average length of stay changed over the years?**

   - Remains steady, suggesting current treatment processes are stable but may lack optimization.

9. **How does the distribution of admission types affect resources?**

- Balanced admission types require adaptive staffing models and room allocations.

10. **Are there correlations between doctor availability and outcomes?**

- High doctor count supports manageable patient loads, though efficiency may vary.

Visual Snapshot: Pie chart (test results), donut chart (admission types), line chart (length of stay), card visuals (doctors, rooms, etc.).
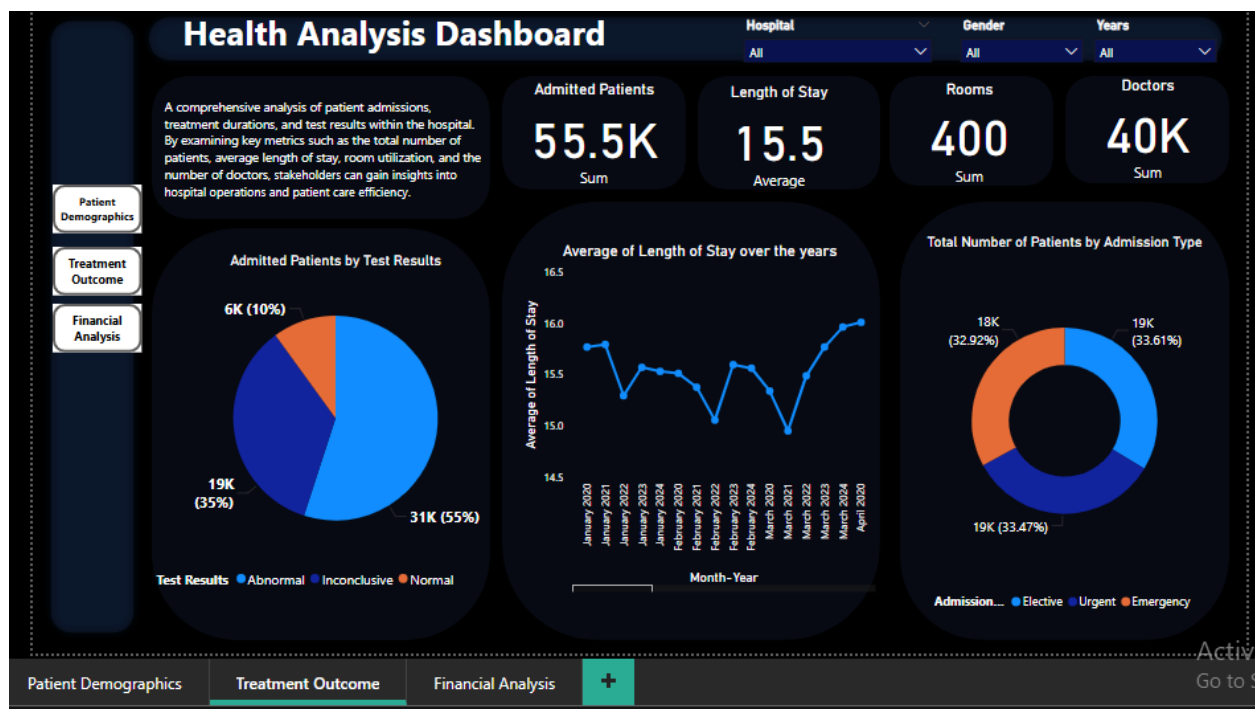
Recommendation:

- o Increase support for diagnostic testing to reduce inconclusive results.

- o Consider predictive staffing models based on real-time admission types.

- o Analyze room utilization trends to uncover optimization opportunities.

- **Key Insights**:

  - **Total Billing**: $1.4 billion

  - **Average Billing per Patient**: $25,500

  - **Highest Billing Blood Type**: A+ (likely due to volume, not cost per case)

  - **Lowest Billing Blood Type**: AB-

  - **Billing by Medical Condition**:

    - Highest: Hypertension, Diabetes, Obesity

    - Lower: Cancer, Arthritis, Asthma

  - **Insurance Billing**:

    - Medicare: $707M

    - United Healthcare: $426M

    - Cigna: $142M

    - Aetna: $99M

  - **Average Billing Trend**: Slight decrease from $25,700 (2019) to $25,300 (2024)

Deep Questions Addressed:

8. **Which conditions generate the most billing?**

   - Chronic conditions such as hypertension and diabetes.

9. **How does insurance coverage impact costs?**

   - Medicare and United Healthcare dominate spending, influencing negotiation leverage.

10. **What are the billing trends over time?**

    - Minimal decline, indicating stable pricing with potential for cost reductions.

Visual Snapshot: Column charts (insurance and blood type billing), bar chart (billing by condition), line chart (billing trend), and KPI cards.
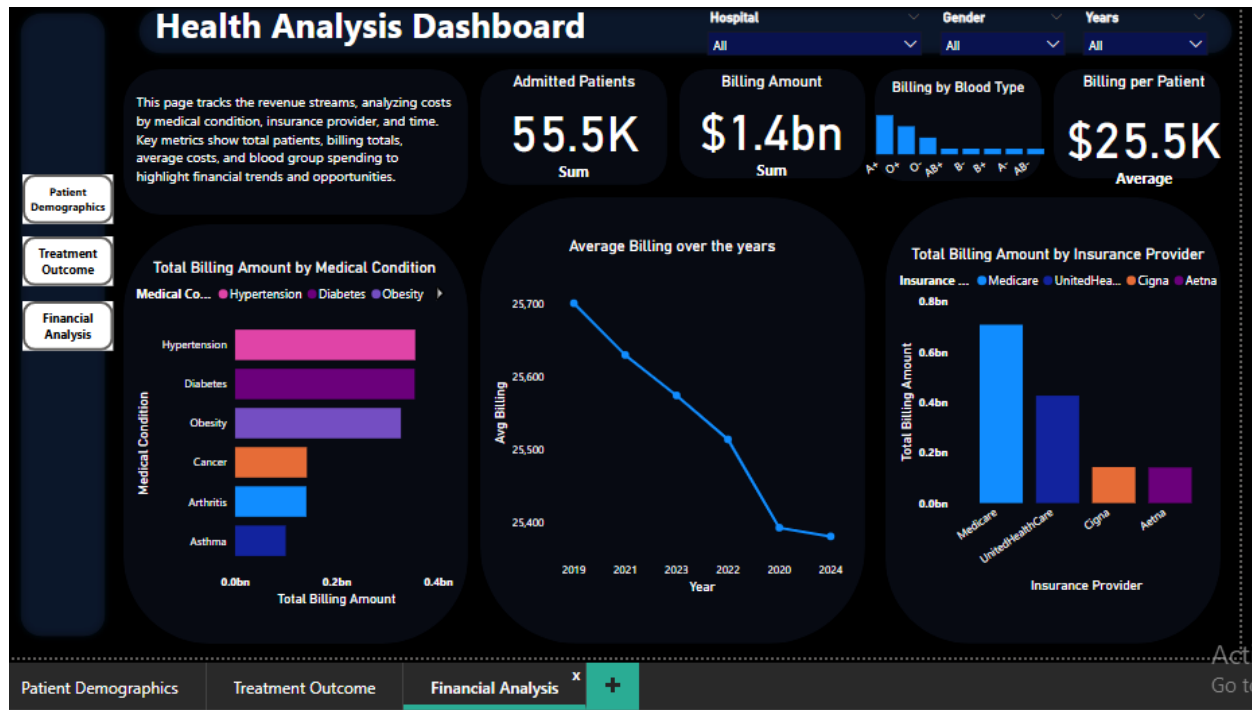
Recommendation:

- o Review reimbursement structures for chronic conditions.

- o Strengthen partnerships with major insurers.

- o Monitor billing trends by blood type for unexpected anomalies.

Summary of Strategic Opportunities

- **Opportunities**:

  1. Create programs for dominant age and gender groups (e.g., people aged 50–59).

  2. Enhance diagnostic support to reduce high abnormal and inconclusive test result rates.

  3. Revisit chronic care and insurance billing policies for cost savings.

- **Immediate Action Points**:
  - o Present this analysis in quarterly board reviews.
  - o Launch pilot wellness initiatives for high-burden conditions.
  - o Engage billing and finance teams in contract reviews with insurers.
- **Next Steps**:
  - o Perform department-level analysis on chronic conditions.
  - o Establish monthly KPI monitoring for admissions and billing.
  - o Use insights to guide next year's budget and care optimization planning.

End of Report