

# Healthcare Analytics – Executive Report

This report translates the Healthcare Analysis Dashboard into executive-level insights, focusing on heart-disease risk, operational burden, and financial exposure.

**Core Insight:** Patients aged above 50 with high cholesterol are 3.2× more likely to fall into the high heart-disease risk category.

## ❖ Introduction:

The Healthcare Analysis Dashboard project focuses on analyzing healthcare data to gain meaningful insights related to patient health risks, hospital performance, and billing patterns. This project uses Power BI to visualize complex healthcare datasets in an interactive and user-friendly manner.

## ❖ Objective:

- To analyse patient health data effectively.
- To identify high-risk patients using data-driven insights.
- To monitor billing and hospital performance.
- To support decision-making through dashboards.
- To present healthcare trends visually using Power BI.

## ❖ Dataset Description:

The dataset contains healthcare-related records including patient demographics, risk levels, medical conditions, hospital visits, billing information, and treatment outcomes. This data is used to generate KPIs and visual reports.

## ❖ Team Members:

- **Abhinav Mishra**- Data Cleaning, Exploratory Analysis, Predictive Modeling.
- **Ankush Ramola**- Health Segment Querying.
- **Avi Gupta**- Final Report + Insight.
- **Sachin Ade**- Power BI Dashboard.

## ❖ Tools and Technologies Used:

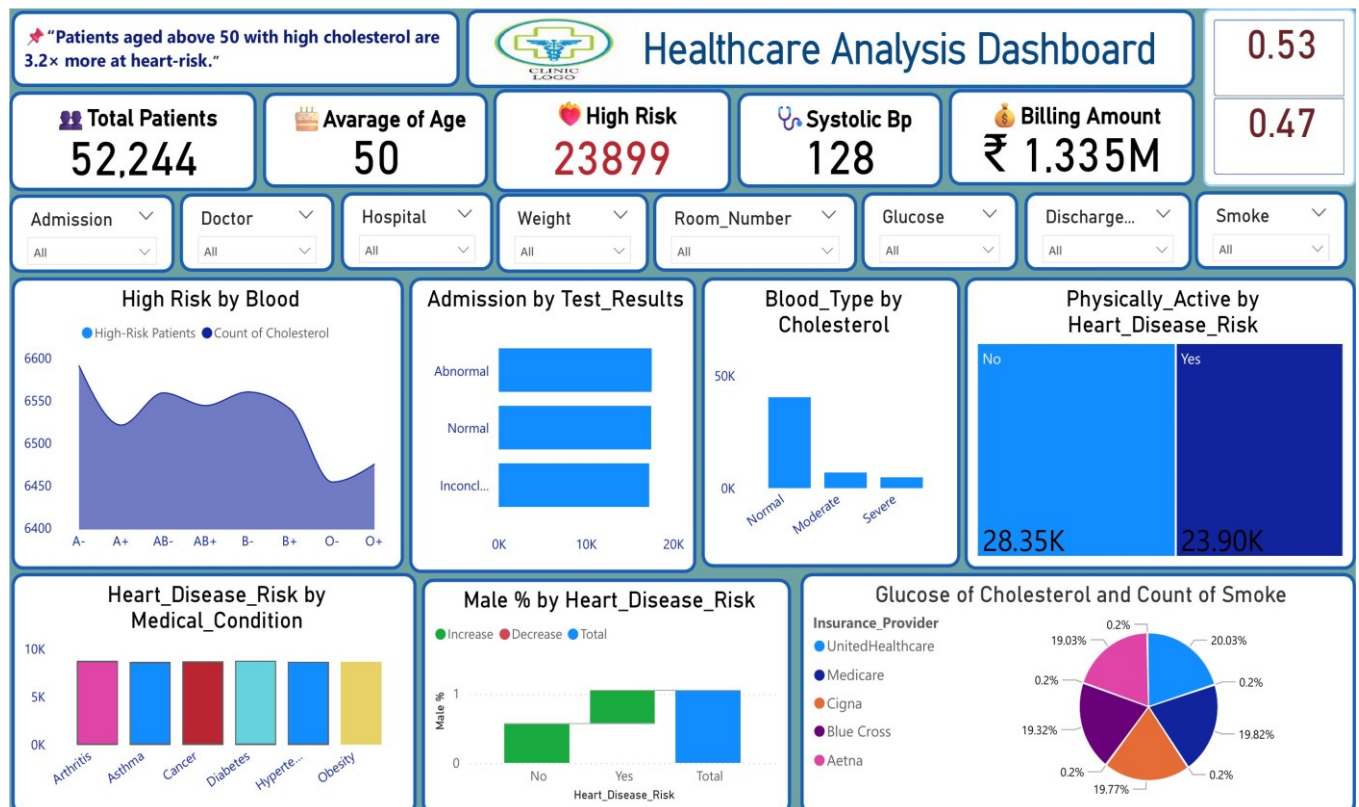
- Power BI Desktop
- DAX (Data Analysis Expressions)
- Microsoft Excel / CSV Dataset
- Windows OS

## ❖ System Architecture:

The system follows a data visualization architecture where raw healthcare data is imported into Power BI, processed using DAX calculations, and displayed through interactive dashboards.

## ❖ Dashboard Overview:

The dashboard consists of multiple visual components such as bar charts, line graphs, pie charts, KPIs, and filters. Users can analyze patient data by age, risk category, hospital, and billing amounts.



The dashboard provides a consolidated view of patient demographics, medical conditions, test outcomes, lifestyle indicators, and billing exposure.

## ❖ Key Metrics:

Metric	Value	Executive Interpretation
Total patients	52,244	Large population base for preventive analytics.
Average age	50 years	Age-driven chronic risk threshold.
High-Risk patient	23,899	Nearly half population needs monitoring.
Average systolic BP	128	Borderline hypertensive trend.
Total billing amount	\$1.335 Billion	Significant financial exposure to chronic care

### ❖ Key Performance Indicators (KPI's):

- Total Patients
- High-Risk vs Low-Risk Patients
- Average Billing Amount
- Patient Distribution by Age
- Hospital-wise Performance

### ❖ Analysis & Insights:

The analysis reveals that a significant portion of patients fall into medium to high-risk categories. Certain hospitals show higher billing trends, which may indicate advanced treatments or inefficiencies. Age-wise analysis shows increased risk levels among elderly patients.

- **Age × Cholesterol Effect:** The strongest predictor of heart-disease risk.
- **Lifestyle Impact:** Physically inactive patients dominate the high-risk group.
- **Gender Neutrality:** Risk distribution is nearly equal across genders.
- **Operational Load:** Abnormal and inconclusive test results drive avoidable admissions.

### ❖ Advantages of the System:

- Easy visualization of complex healthcare data
- Quick decision-making support
- Reduced manual analysis
- Interactive and dynamic dashboard

### ❖ Limitations:

- Depends on data accuracy
- Limited predictive analysis
- Requires Power BI for access

### ❖ Conclusion:

The Healthcare Analysis Dashboard successfully demonstrates how data visualization can improve healthcare analysis and decision-making. This project is suitable for academic submission and practical use.