

Healthcare Analytics Dashboard

3D Interactive Patient Data
Insights



Dataset Overview & KPIs

1,338

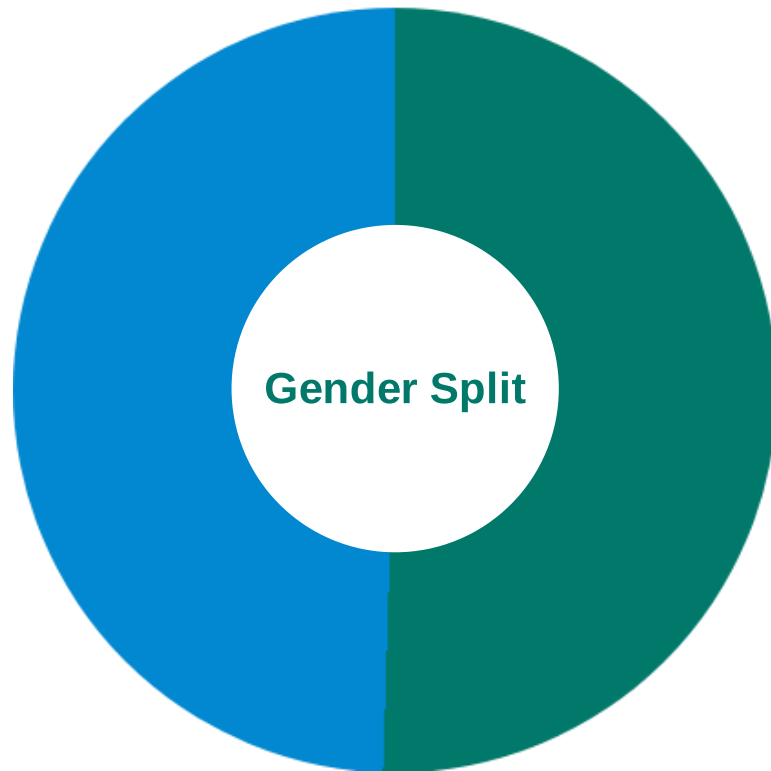
Total Patients Analyzed

\$13,270

Average Annual Charges

Comprehensive analysis of insurance data covering demographics, risk factors, and healthcare costs across four major US regions.

Patient Demographics



👤 ■ Male (50.5%)

👤 ■ Female (49.5%)

👤 👥 Age Range: 18 - 64 Years

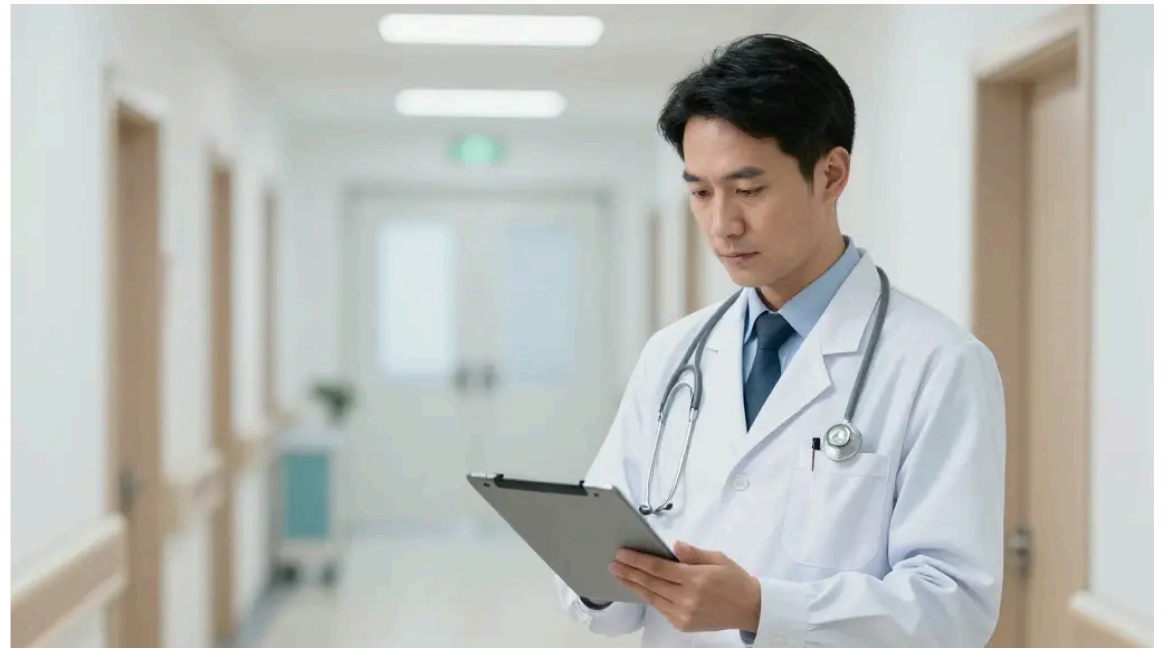
👤 🏠 Avg. Children: 1.1 per Patient

Charges by Region

US Region	Avg. Annual Charge	Patient Count	Smoker %
Southeast	\$14,735	364	25.0%
Northeast	\$13,406	324	20.7%
Northwest	\$12,417	325	17.8%
Southwest	\$12,346	325	17.8%

Smoking Impact on Costs

- 🏥 **Smoker Premium:** Average charges for smokers exceed \$32,000 annually, nearly 4x higher than non-smokers.
- 🏥 **Non-Smoker Baseline:** Average costs remain stable around \$8,400, reflecting lower risk profiles.
- 🏥 **Risk Correlation:** Smoking is the single most significant predictor of high healthcare expenditure.



Age vs. Charges Trends







Linear Progression: Healthcare costs show a steady increase as patients age, with significant jumps after age 40.

Cost Drivers: Chronic condition management and preventive screenings contribute to the upward trend in older cohorts.

Long-term Planning: Data suggests a need for early intervention to mitigate late-stage healthcare expenses.

BMI & Charges Correlation

-  **Obesity Threshold:** BMI over 30 correlates with a sharp increase in medical charges.
-  **Comorbidity Risk:** High BMI often signals underlying cardiovascular or metabolic risks.
-  **Cost Multiplier:** Combined with smoking, high BMI leads to the highest cost tier in the dataset.
-  **Preventive Focus:** Weight management programs offer significant potential for cost reduction.

Interactive Dashboard Features



Dynamic Filters

Real-time filtering by age, region, and smoking status for instant data exploration.



Drill-Down

Deep dive into specific patient cohorts to identify localized health trends.



Live Updates

3D visual effects and responsive charts that update instantly as parameters change.

Key Insights & Recommendations

Finding	Strategic Impact	Action Level
High Smoker Costs	Reduce overall claims by 15%	High Priority
Regional Disparity	Optimize network pricing in SE	Medium
BMI Risk Groups	Long-term preventive savings	Strategic



Implementation Roadmap

*Deploying the 3D Healthcare Dashboard for data-driven
decision making.*