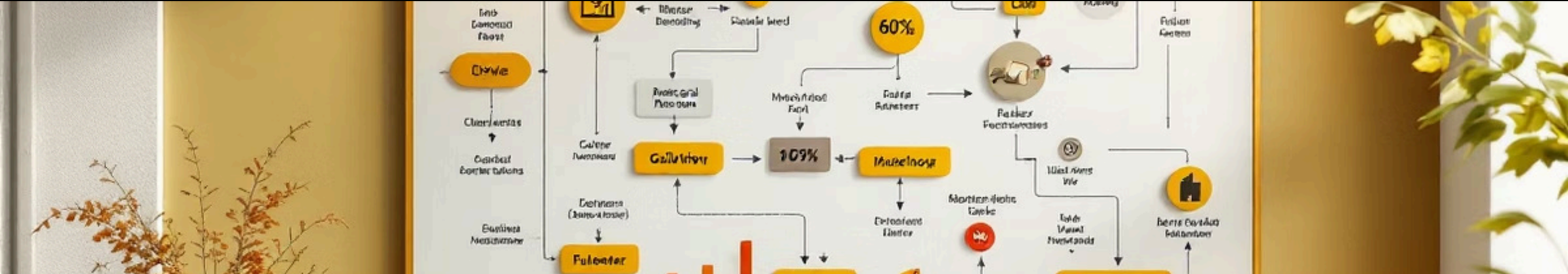




# Healthcare Insurance Analytics Dashboard

## Data Analysis & Tableau Visualization Project

Transforming complex insurance claims data into actionable business intelligence through advanced analytics and interactive dashboard design.



# Project Objectives

## Claims Data Analysis

Deep dive into healthcare insurance claims to uncover hidden patterns and cost inefficiencies.

## Cost Driver Identification

Pinpoint high-impact factors driving insurance expenditures across specialties and regions.

## Trend Analysis

Comprehensive monthly and quarterly trend evaluation to forecast future claim patterns.

## Dashboard Development

Build interactive Tableau dashboards enabling real-time insights for stakeholders.

# Dataset Overview

## Data Source

**ABC Healthcare Company** comprehensive claims database containing multi-year historical records for robust analysis.

## Key Data Fields

- Claim ID & Patient State
- Product Line Classification
- Provider Specialty
- Insurance Paid Amounts
- Patient Deductible



Data spans multiple years with varying availability by region, providing comprehensive coverage for trend analysis and predictive modeling.



# Key Performance Indicators

**\$2.1M**

**Total Insurance Paid**

Aggregate annual claims  
processed

**\$850**

**Average Claim Value**

Mean payment per  
processed claim

**2.5K**

**Monthly Claims**

Average claims volume  
processed

**12%**

**Denial Rate**

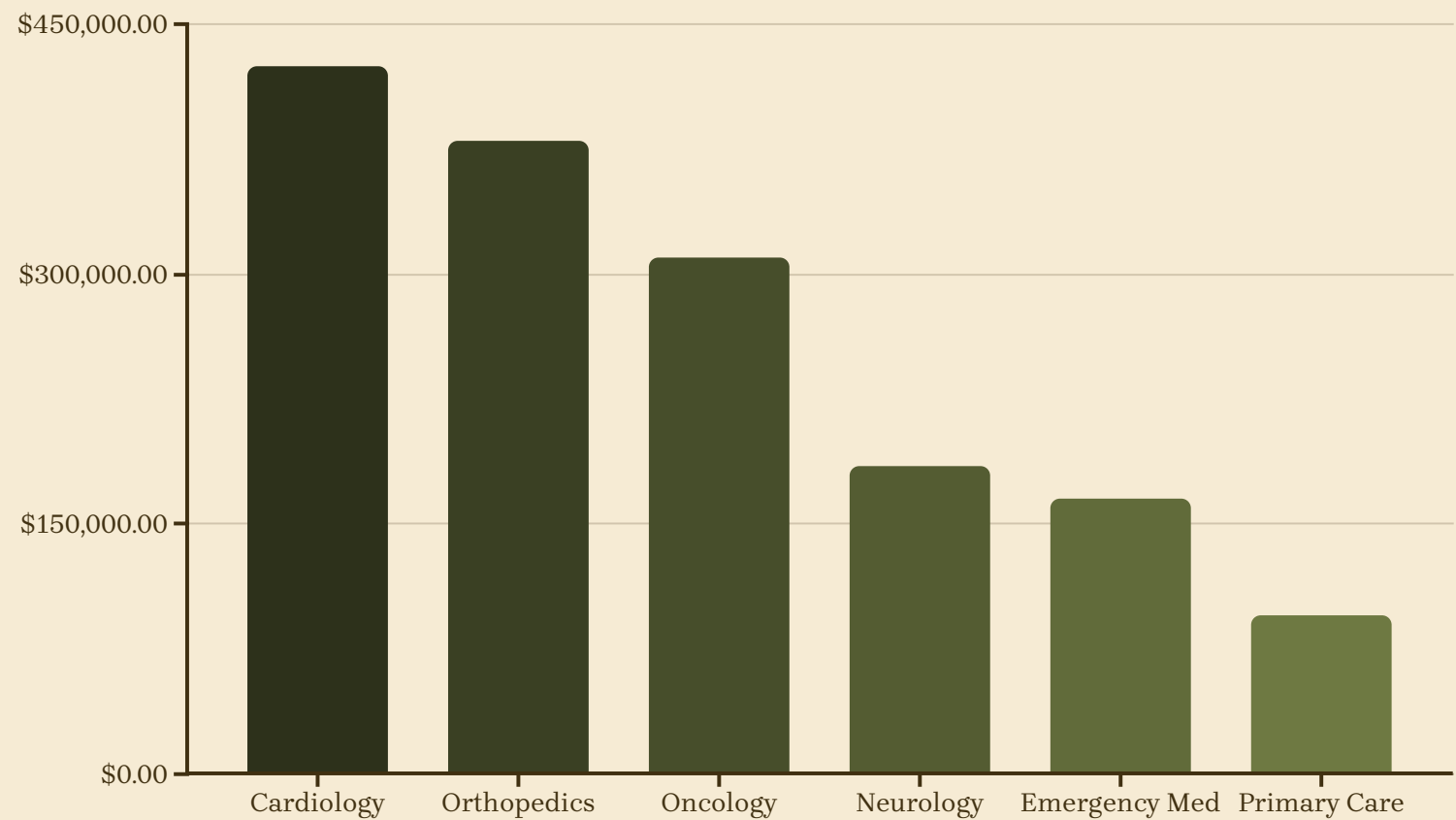
Percentage of claims  
rejected

These core metrics provide executive-level visibility into operational performance and financial health across the insurance portfolio.



# Provider Specialty Analysis

Total Insurance Payments by Medical Specialty



**Key Finding:** Cardiology and Orthopedics represent the top two cost drivers, accounting for over 50% of total specialty-based insurance payments.

# Product Line Performance Trends

## Commercial Insurance

Steady growth pattern with seasonal peaks in Q1 and Q4, driven by employer benefit cycles and deductible resets.

## Medicare Advantage

More consistent monthly utilization with gradual upward trend, reflecting aging population demographics.

Monthly trend analysis reveals distinct utilization patterns between product lines, enabling targeted resource allocation and budget forecasting.

# Deductible Impact Analysis

## Correlation: Insurance Payments vs Patient Deductibles

### Analysis Parameters

- Filtered for deductibles  $\leq$  \$2,000
- Positive correlation identified
- $R^2 = 0.73$  statistical significance

### Key Insight

**Higher deductibles correlate with increased insurance payouts**, suggesting members with higher deductibles tend to delay care until more serious conditions develop.

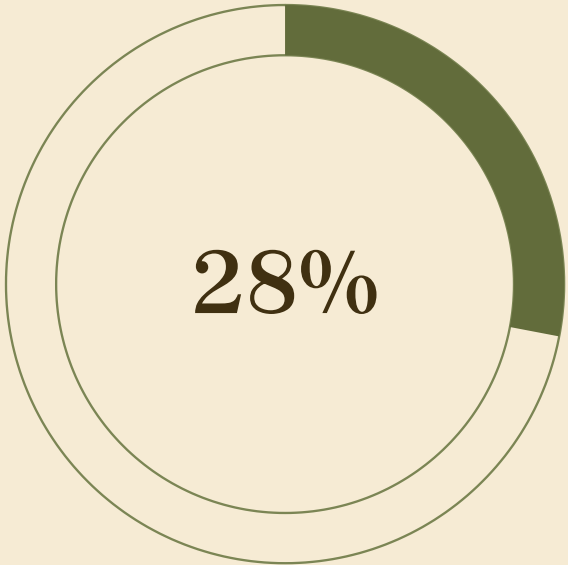
Insurance Payments of Patients

Deductibles



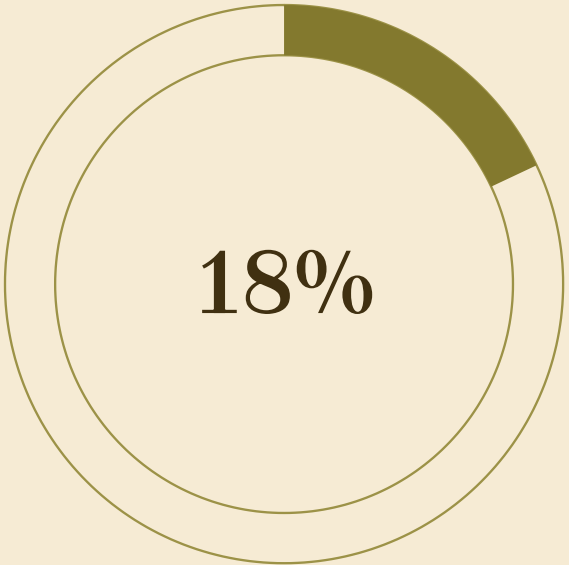
# Geographic Spend Distribution

## Quarterly Insurance Spend by State



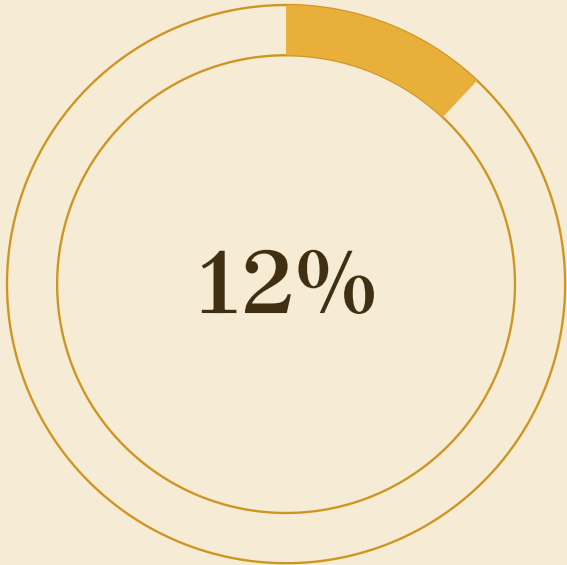
California

Highest state spend concentration



Texas

Second largest market share



Florida

Growing elderly population driver

The top 5 states account for **68% of total quarterly spend**, highlighting geographic concentration opportunities for targeted interventions.





# Interactive Tableau Dashboards



## Executive KPIs Overview

High-level performance metrics with drill-down capabilities for C-suite decision making.



## Claims & Cost Drivers

Detailed cost breakdown by specialty, geography, and member demographics.



## Denials & Workflow

Claims processing efficiency tracking with denial reason analysis and workflow optimization.



## Member Segmentation

Risk stratification and utilization patterns by member demographics and health status.



# Strategic Insights & Recommendations

01

## Cost Concentration

Top specialties and states drive 70% of spend—focus optimization efforts on high-impact areas for maximum ROI.

02

## Seasonal Planning

Distinct Commercial vs Medicare utilization patterns enable proactive resource allocation and budget planning.

03

## Deductible Strategy

Higher deductibles correlate with delayed care—implement preventive care incentives to reduce downstream costs.

04

## Data-Driven Decisions

Interactive dashboards empower stakeholders with real-time insights for agile policy adjustments and member engagement.

- ☐ **Next Steps:** Implement targeted cost management programs in high-spend specialties and states while enhancing member segmentation strategies through predictive analytics.