Timothy O’Hara

Healthcare Outcomes Analysis: Optimizing Patient Care Through SQL Data Analytics

https://github.com/timothyo7/Healthcare-Outcomes-Analysis

Position: Healthcare Data Analyst at Molina Healthcare requiring SQL expertise for analyzing healthcare datasets, identifying trends, and preparing regulatory reports.

Problem: Inefficient patient care management leads to poor outcomes and increased costs. This project analyzes correlations between social determinants of health (SDOH), medication adherence, and hospital readmission rates to identify high-risk patients and develop targeted interventions.

Relevance: Directly aligns with job requirements for analyzing healthcare datasets to make data-driven decisions. Demonstrates SQL ability to query multiple datasets, calculate statistics, identify patterns, and create data pipelines.

Data Sources:

Healthcare.gov Open Data API (JSON): hospital info, demographics, quality metrics

Web scraping from Medicare.gov Hospital Compare: readmission rates, patient satisfaction

Solution Pipeline:

Extract API data and scrape web data → Unify datasets → Apply SQL analytics → Segment patients by risk → Develop predictive model

SQL Analysis: JOINs for data combination, aggregation functions (COUNT/AVG/SUM), window functions for trends, CTEs for complex analyses, statistical correlation queries

Visualizations: Interactive dashboards of readmission rates by demographics, time-series outcome trends, hospital performance comparisons, risk stratification models

Impact: Better identification of at-risk patients, targeted interventions, improved outcomes, reduced costs