

Hospital Readmission Analysis and Interactive Dashboard

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Course: D601 Data Storytelling for Varied Audiences

Part 1A: Interactive Data Dashboard

I developed an interactive Tableau dashboard to analyze hospital readmissions using the medical_clean.csv dataset, which contains 10,000 patient records (xAI, 2025). The dashboard is designed with a colorblind-friendly palette (blue-orange) to ensure accessibility for all users, including those with color vision deficiencies (Tableau, n.d.).

Data Representations

1. **Bar Chart:** Displays readmission rates by age group (<30: 34.6%, 30–49: 37.2%, 50–69: 36.2%, 70+: 37.8%), showing that older patients (70+) have the highest readmission rate.
2. **Map:** Visualizes readmission rates by state, highlighting top states like TX (223 readmissions) and CA (210) for regional analysis.
3. **Scatter Plot:** Plots average Initial_days against TotalCharge, colored by ReAdmis, revealing that readmitted patients have longer stays (63.86 days) and higher charges (around 5K–10K) compared to non-readmitted patients (17.41 days, 0K–5K).
4. **Table:** Lists risk factors (HighBlood: 36.8%, Overweight: 36.4%, Long Stay >50 days: 88.1%), showing their readmission rates and patient counts.

Interactive Controls

1. **Filters:** Dropdowns for State and Age Group allow users to focus on specific regions or demographics.
2. **Map Action:** Clicking a state on the map filters all visuals to that state's data, enabling regional analysis.

Key Performance Indicators (KPIs)

1. **Readmission Rate:** 36.7%, indicating a significant portion of patients return.
2. **Average Initial Days:** 34.5 days, providing context for hospital stay duration.

PA Questions

- **What trends are in the data?** The overall readmission rate is 36.7%, with older patients (70+: 37.8%) and those aged 30–49 (37.2%) at higher risk. Initial hospital stays are a strong predictor: readmitted patients average 63.86 days, compared to 17.41 days for non-readmitted. HighBlood (36.8%) and Overweight (36.4%) show similar readmission rates to their counterparts (36.6% and 37.3%), suggesting limited impact as standalone risk factors. However, patients with long stays (>50 days) have a much higher readmission rate (88.1%). Top states for readmissions include TX (223) and CA (210), indicating regional variation.
- **How does the dashboard support decision-making?** The SVP can identify high-readmission states (e.g., TX, CA) for resource allocation. The VP of Research can analyze long stays (63.86 days for readmitted, 88.1% readmission rate for >50 days) as a key risk factor for further study. Regional VPs can use the map and filters to focus on their areas, while peers can explore risk factors like HighBlood, Overweight, and Long Stay to develop targeted interventions.

Instructions

To access and use the Hospital Readmission Dashboard:

1. Install Tableau Public from tableau.com.
2. Download YourName_ReadmissionDashboard.twbx and open it in Tableau Public.
3. The dashboard will display KPIs, charts, and a map in a 1200x800 layout.
4. Use the State and Age Group dropdown filters on the top-right to refine data (e.g., select TX or <30).
5. Click a state on the map to filter all visuals to that state's data; reset by selecting "All" in the State filter.
6. Hover over visuals for tooltips with detailed metrics (e.g., readmission rates, patient counts).

Resources

- xAI. (2025). *Medical_clean.csv* [Data file]. Provided for WGU course assessment.
- Tableau. (n.d.). *Colorblind-friendly palette*. Retrieved from <https://www.tableau.com/about/blog/2016/4/how-make-your-data-visualizations-accessible-everyone-54847>