

INTERACTIVE DATA DASHBOARD

MAIN LINKS FOR THE DASHBOARD

PUBLIC INTERACTIVE DATA DASHBOARD:

https://public.tableau.com/views/D210_rraneses_dash/KPIforD1?:language=en-US&:sid=&:display_count=n&:origin=viz_share_link

DATA SETS USED FOR THIS DASHBOARD:

NCHS - Leading Causes of Death: United States: <https://catalog.data.gov/dataset/nchs-leading-causes-of-death-united-states> (File attached as: **filtered_deaths.csv**)

Medical Data from WGU: <https://access.wgu.edu/ASP3/aap/content/k8gj49f8sichedufutms.html> (File attached as: **medical_clean.csv**)

STEP-BY-STEP INSTRUCTIONS TO INSTALL DASHBOARD FILE

1. Download Tableau Desktop from the Tableau website.
2. Download or obtain the Tableau Dashboard file. In this case, the name of the file is D210_dashboard_rraneses.twbx
3. Install then launch Tableau Desktop.
4. In Tableau Desktop, click **Open A Workbook**. Navigate to the location where D210_dashboard_rraneses.twbx is. Then, click the workbook file.

HOW TO NAVIGATE THE DASHBOARD

There are 4 dashboards in this tableau workbook. This is a guide to navigating the dashboards:

For the 1st dashboard – KPI for D1

1. Average Total Charges by Gender
 - This visualization displays the average total charges incurred by patients, categorized by gender.
 - To interpret this visualization, look at the table with the values in dollars. It is also color-coded to have dark orange as the highest charge and light blue as the lowest charge.
2. Services Utilization
 - This visualization shows the utilization percentage of different services provided to patients.
 - Each service is represented by a segment of a pie chart. The pie chart shows the specific percentage of utilization of that service.
 - Hover over each segment to show that percentage's specific number of utilizations.
3. Readmission Status by Complication Risk
 - This visualization illustrates the readmission status of patients based on their complication risk level.
 - A distinct color represents the readmission status, with orange as no and dark blue as yes.
 - The user can observe the distribution of readmission status within each complication risk level.
4. Prevalent Medical Conditions

- This visualization ranks the prevalent medical conditions in descending order based on their frequency.
- The height of each bar indicates the frequency of that medical condition.
- The user can identify the most prevalent medical conditions by looking at the highest bar.

For the 2nd dashboard - Doctor's Visit by Gender and Average Age

- This visualization displays the average age of patients categorized by gender, with the number of doctor visits represented across different pages.
- This visualization consists of multiple pages, each representing the number of doctor visits.
- Navigate through the different pages using the buttons, slider, or drop-down choices located in the left part of the dashboard.
- The x-axis represents the gender of the patients. The y-axis represents the average age of patients with each gender category. The user can interpret the visualization by examining the relationship between gender, average age, and the number of doctor visits.

For the 3rd dashboard – KPI for D2

1. Leading Cause of Death
 - This visualization displays the top causes of death, ranked in descending order based on their prevalence.
 - Each cause of death is represented by a bar, and the bar's height indicates the cause's frequency.
 - The user can identify the most common causes of death by examining the top-ranking bars.
2. Leading Causes by State
 - This visualization shows each state's leading cause of death, providing insights into regional variations in mortality patterns.
 - The user can observe how the leading causes of death differ across states and identify common trends or disparities.
 - The cause of death is represented by the different color bars.
 - Hover over the bar to view the total count of the leading cause of that state.
3. Average Age-Adjusted Death Rate per Year
 - This visualization displays the average age-adjusted death rate over time, allowing users to analyze trends in mortality rates.
 - The x-axis represents the years, and the y-axis represents the average age-adjusted death rate.
 - The user can observe how the death rate changes and identify significant fluctuations or patterns.
4. Percentage Change in Death Rate
 - This visualization illustrates the percentage change in the death rate from year to year, providing insights into the rate of change in mortality rate.
 - The x-axis represents the years, and the y-axis represents the percentage change in the death rate.

- The user can analyze the rate of change in mortality rate over time and identify fluctuations or patterns.

For the 4th dashboard – Yearly Death Count per State

- This visualization features a map of the United States, with each state represented on the map. Within each state, the user can find the state name and the sum of the death count for that state.
- The color of each state on the map indicates the sum of the death count, with dark blue representing the lowest death count and dark orange representing the highest death count.
- The user can quickly identify states with higher death counts based on the intensity of the color.
- The dashboard consists of multiple pages, each corresponding to a specific year. Start by navigating the different pages using the provided slider, buttons, or drop-down menu.
- As the user navigates through the different pages or years, observe how the color intensity of states changes. Analyze any trend or patterns in the distribution of death counts across states over time.

REFLECTION PAPER

DASHBOARD ALIGNMENT

Based on the needs outlined to address the readmission problem in hospitals and provide a tool for executive leaders to understand key metrics related to readmission rates, here is how each dashboard aligns with the identified needs.

Firstly, the dashboard with Readmission Status by Complication Risk aims to analyze the readmission status of patients based on their complication risk level. It helps understand the relationship between complication risk and the likelihood of readmission. Another dashboard with service utilization in percentage helps in understanding the utilization of different services provided to patients, which can indirectly impact readmission rates. Furthermore, the dashboard with the leading cause of death and mortality trends provides insights into mortality trends and leading causes of death and indicators of potential readmission factors. Lastly, the dashboard with the geographic distribution of death counts offers a geographic perspective on the mortality rate, allowing for identifying regions with a higher readmission rate.

ADDITIONAL DATA SET INSIGHTS

The additional data set has five variables that enhance the insights from the provided data sets.

1. Year – this variable allows for temporal analysis, enabling the examination of trends and changes in various factors over time, such as mortality rates and disease prevalence.
2. Cause Name – this variable provides detailed information on the specific causes of death, enabling a more granular analysis of mortality patterns and identifying leading causes of death with readmission risks.
3. State – this variable facilitates geographic analysis, identifying regional variation in readmission rates, mortality rates, and disease prevalence.

4. Deaths – this variable quantifies the number of deaths attributed to each cause, state, or year, providing a measure of severity and impact associated with different factors.
5. Age-adjusted Death Rate – this variable provides a standardized measure of mortality that accounts for differences in age distributions. It allows for comparison of mortality rates between different groups or over time.

These additional variables complement the provided data set by providing more comprehensive insights into mortality patterns, disease prevalence, and geographic variations.

DECISION-MAKING SUPPORT

In the dashboard with the readmission status by complication risk, executive leaders can first explore how different complication risk levels (low, medium, high) correlate with readmission status. By identifying distribution, leaders can prioritize interventions and allocate resources to mitigate readmission risks for patients with specific complication profiles.

In the dashboard with the leading cause of death and mortality trends, executive leaders can use this dashboard to identify common causes of death and mortality trends over time. Hospitals can develop targeted interventions to reduce readmission associated with these conditions by understanding the underlying health conditions contributing to mortality.

INTERACTIVE CONTROLS

Dashboard 1: Doctor's Visit by Gender and Average Age

The user can navigate through different pages, each representing a specific number of doctor visits. This feature enables users to analyze how the relationship between gender and average age varies based on the frequency of doctor visits. They can identify trends or patterns that may emerge as doctor visits increase.

This dashboard includes interactive elements such as drop-down menus, forward and backward buttons, and sliders. The user can interact with these elements to refine the data displayed on the dashboard. The user can choose the number of doctor visits to show the average age and gender. This interactivity empowers users to customize the view according to their analytical needs.

Dashboard 2: Yearly Death Count by State

The user can navigate through different pages, each representing a specific year. For example, they can view the sum of death counts for each state in the United States for the year 2000, then switch to view data for 2001, and so on. This feature allows users to analyze how the distribution of death counts across states has changed over time. They can identify trends or fluctuations in mortality rates.

States on the map are color-coded based on the sum of death counts, ranging from dark blue for the lowest death count to dark orange for the highest death count. The user can easily interpret the severity of mortality rates across states by observing the color intensity.

The dashboard includes interactive controls such as the drop-down menu, sliders, and forward and backward buttons. Use the drop-down menu to select a year specifically. Use the slider to view the progress linearly. Use the fast forward and backward buttons to show an animation throughout the years. This interactivity enhances the user experience by providing detailed insights into specific data

points without cluttering the visualization. The user can more effectively explore data for particular states or years and gain deeper insights into mortality trends.

ACCESSIBILITY FOR INDIVIDUALS WITH COLOR BLINDNESS

Building a dashboard accessible to individuals with color blindness involves utilizing color palettes designed explicitly for color blindness, such as Tableau's Color Blind palette. Ensuring sufficient contrast between background and foreground elements is also essential to improve readability. Additionally, adjust the brightness or intensity of colors to enhance visibility.

DATA REPRESENTATIONS

The 2 data representations in the presentation that support my analysis of the organization's need to prioritize initiatives aimed at prevention, early detection, and effective management of cardiovascular conditions are the Prevalent Medical Conditions visualization and Leading Causes of Death visualization.

Firstly, the Prevalent Medical Conditions visualization highlights the prevalence of cardiovascular such as overweight, high blood and diabetes within the patient population. By showcasing the high prevalence of these conditions, the organization can emphasize the urgent need to address cardiovascular health. Additionally, this visualization can underscore the importance of early detection and management of these risk factors to mitigate the development of cardiovascular diseases.

Another visualization is the Leading Cause of Death. This visualization identified heart disease as the leading cause of death within the patient population. By highlighting heart disease as a significant contributor to mortality, the organization can emphasize the critical need to prioritize initiatives aimed at the effective management or prevention of cardiovascular diseases. This visualization can serve as a call to action that prompts the organization to allocate resources to address cardiovascular disease.

AUDIENCE ANALYSIS

It is essential to keep in mind the audience when telling a story. For this presentation, I want to ensure that the presentation is tailored to the needs and perspectives of each stakeholder group.

Firstly, the Senior Vice President of Hospital Operations needs high-level insights and trends relevant to hospital operations. I presented broad categorizations of patient conditions, highlighting the most significant figure among the variables. Furthermore, I emphasized the implications of these figures for developing new initiatives to improve patient outcomes.

Additionally, the Vice President of Research needs to highlight the research findings and patterns identified through data analysis. For this stakeholder, it is essential to showcase how the data can be leveraged to inform research initiatives.

For the panel of Regional Vice Presidents, it is crucial to tailor the presentation to address each regional VP's specific concerns and priorities. For them, provide insights into regional variation in patient care outcomes through segmenting each state.

Lastly, for the data analytic peers, there is a need to dive into the technical details of the process. It is ideal to discuss how the findings can be translated into actionable insights and recommendations.

UNIVERSAL ACCESS

Multiple decisions were made for this presentation to be universally accessible.

Firstly, visuals such as charts and graphs are designed to be accessible to all audience members using high-contrast colors, clear fonts, and simple layouts. There are also interactive elements that encourage audience engagement. These features are accessible to all individuals, including those using assistive technologies. Furthermore, the presentation is organized logically and structured, with clear headings and subheadings to guide the audience through the context. Charts and graphs have a title to make it easier to understand immediately. Lastly, clear and concise language that is easily understandable by all audience members is used throughout the presentation. No jargon or technical terms were used that may be unfamiliar to some individuals.

EFFECTIVE STORYTELLING

The two elements used for compelling storytelling in this presentation are Visualization and Conflict and Resolution.

The most critical and relevant storytelling element is visualization. This element involves creating charts and graphs to make complicated data more understandable and unveil trends and irregularities. Data visualization can also emphasize the key insights to assess past and current performance to guide decision-making. At the same time, visualizations helped support the overarching narrative and critical takeaways about cardiovascular disease.

Conflict and resolution are other elements that engage the audience. This element can create tension and suspense, thus keeping the audience connected. This can be shown by identifying a significant obstacle to cardiovascular health, such as a high mortality rate or prevalent risk factors. It is essential to present the insights that illustrate the severity of the issue and then highlight the need for action, which leads to finally introducing strategic initiatives to be implemented by the organization.