D210: Representation and Reporting

Performance Assessment

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D210: Representation and Reporting

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February 3, 2023

Contents

A: Interactive Data Dashboard

The dashboard has data from both the medical data set as well as the smoking data set. I created four different data representations to summarize the data, which include a horizontal bar chart of the top smoking states, a stacked bar chart showing complication risk vs. readmission, a scatterplot showing each state's percent of people who smoke everyday vs. percent of people who have never smoked, and finally, a table showing readmission vs. gender. I included a slider that allows the user to adjust the horizontal bar chart to change which ranks are shown. I also included a list that allows the user to choose the marital status of the patients in the medical data representation. The two computations that I included for my data representations are rank of smoking states in the smoking data set, and percent of males, females, and nonbinary that are readmitted in the medical data set.

A1: Data Sets

Data sets are included in the submission.

A2: Installation Instructions

Top smoking states worksheet

1. Drag smoke everyday to columns and use the sum
2. Drag state to rows
3. Drag smoke everyday to labels and use the sum
4. Click on label and change alignment to center
5. Create a calculated field for rank of state for percent who smoke everyday using the following function: RANK(SUM([Smoke everyday]),'desc').
6. Change rank to a discrete measure
7. Drag rank to rows and place it in front of state
8. Drag state to filters and deselect District of Columbia, Guam, the two nationwide categories, and Puerto Rico
9. Drag rank to filters, change that rank to continuous, and select range of values
10. Click the arrow on rank in filters and select show filter
11. Click color and change the color to the middle gray on the right.
12. Click on the arrow for sum(re admis) in marks, then click format. Click on numbers under default and select number (custom). Change decimal places to 1 and set suffix to %.
13. Change sheet name to "Top Smoking States"

Complication Risk vs. Readmission

1. Drag complication risk to columns
2. Drag re admis to rows and change measure to count
3. Drag re admis to color
4. Click the arrow on cnt(re admis) in rows and perform a quick table calculation of the percent of total
5. On the graph, click and drag high to the right side of the graph
6. Drag re admis to label, change the measure to count

7. With re admis in marks, perform a quick table calculation for percent of total, then compute using table down.
8. Click on label, then alignment, then under direction click up.
9. Change sheet name to "Complication Risk vs. Readmission

Smoke Everyday vs. Never Smoked

1. Drag smoke everyday to columns and use the sum
2. Drag never smoked to rows and use the sum
3. Drag state to detail
4. Right click on the x-axis and select edit axis, select independent axis ranges for each row or column and deselect include zero
5. Right click on the y-axis and select edit axis, select independent axis ranges for each row or column and deselect include zero
6. Drag state to filters and deselect District of Columbia, Guam, the two nationwide categories, and Puerto Rico
7. Click on shape and select the asterisk
8. Change sheet name to "Smoke Everyday vs. Never Smoked

Readmission vs. Gender

1. Drag gender to columns
2. Drag re admis to rows
3. Drag re admis to text
4. Click on the arrow for re admis in marks and change measure to count
5. Click the same arrow for re admis and create a quick table calculation of the percent of total
6. Click the same arrow for re admis and compute using table down
7. Right click on a number in the table and select format. Click fields in the upper right and select % of Total CNT(Re Admis). Click on numbers under default, click percentage, and lower the decimal places to 0.
8. In the table, click and drag 'yes' so it is on the top of the table
9. Drag marital to filters and select all
10. Click the arrow for marital in filters and click show filter
11. Change the sheet name to "Readmission vs. Gender

Smoking and Readmission Dashboard

1. Drag the 'Top Smoking States' sheet into the dashboard
2. Drag 'Complication Risk vs. Readmission' to the left side of the dashboard
3. Drag 'Smoke Everyday vs. Never Smoked' to the bottom left of the dashboard
4. Drag 'Readmission vs. Gender' to the bottom right
5. Resize 'Readmission vs. Gender' to reduce the white space on the right side.

6. Click on 'Readmission vs. Gender' and change the fit to fit width.
7. Click on 'Top Smoking States' and change the fit to fit height
8. On the marital filter, click the arrow and under apply to worksheets select all using this data source.

A3: Navigation Instructions

The top left shows the readmission percent of each complication risk category. This can also be changed by marital status using the marital filter on the right. The top right shows the top smoking states in the US. This visualization can be adjusted using the rank slider found on the right of the dashboard. The bottom left shows a scatter plot of smoke everyday percent vs. never smoked percent by state. This cannot be controlled by a filter. The bottom right shows a table for each gender and the percent that specific gender is readmitted. This can be changed by marital status using the marital filter on the right.

B: Panopto Storytelling with Data

The Panopto video is included in the submission and can also be found using the link below.

https://wgu.hosted.panopto.com/Panopto/Pages/Viewer.aspx?id=1f3faaaf-525c-4cb8-9600-afa00123fe27

C1: Dashboard Alignment

The needs of the company are to reduce the readmission of patients to the hospital. My dashboard aligns with that because I have two visualizations that show readmission percent based on gender and on complication risk. This will allow us to see who is most likely to be readmitted.

C2: Additional Data Set Insights

I also have visualizations about states and their smoking data. This will allow us to see which states have the highest percent of smokers, which is well documented to be very unhealthy. By seeing which states have the highest smokers, we can predict which states will have more smoking related illnesses, which can help us reduce our readmissions.

C3: Decision Making Support

Executive leaders can use the complication risk vs. readmission to determine which category of complication risk is likely to lead to readmission. This will allow decision makers to determine if a different course of action should be taken for patients with a high complication risk vs. patients with a medium or low complication risk. Executive leaders can use the top smoking states visualization to determine which states have the highest percent of smokers. This can help decision makers to target certain states with anti-smoking campaigns to lower the percent of people who partake in this very unhealthy activity, which will hopefully lead to less patient readmissions.

C4: Interactive Controls

The first interactive control is the rank slider. This will allow the user to change which states are shown on the top smoking states visualization. This will allow the user to look at the top smoking states, bottom smoking states, or the smoking states that are in between. I also have a filter that lets the user see the data for specific patients based on marital status. This will modify the complication risk vs. readmission and readmission vs. gender visualizations.

C5: Colorblindness

I built my dashboard to be accessible for individuals with colorblindness by trying to minimize how many colors I used in each visualization. The only visualization with multiple colors is the complication risk vs. readmission visualization. I used blue and orange for my colors, with black text in the orange and white text in the blue, which can be easily distinguishable for people who are colorblind.

C6: Data Representations

 I wanted to tell the story of readmission statistics and how smoking statistics can be related to that. The complication risk vs. readmission visualization helps support my story because it shows the statistics of how many people are readmitted based on their complication risk. Complication risk is something that we assign to each patient after their initial admission, so it should be something that can be a predictor of readmission. Another data representation that supports my story is the smoke everyday vs. never smoked visualization. This shows the percent of people in each state that smoke everyday and the percent of people that have never smoked. This helps support my story because it allows us to see which states might have more complications due to smoking, thus raising the odds of readmission.

C7: Audience Analysis

Based on the analysis of my audience, I need to provide initiatives that improve patient outcomes. I know this because the SVP of Hospital Operations is "responsible for developing new initiatives to improve patient outcomes based on observed trends." The primary responsibility of the VP of Research is "to oversee research initiatives to identify patterns in patient care and drive improvements in patient outcomes through strategic initiatives." This tells me that the takeaway from my presentation should be a way to improve patient outcomes. I show this in my presentation by stating that the way we assess complication risk right now is not working. Whether a patient is classified as low risk or high risk has no bearing on their chance for readmission. The first initiative to put into place is to redesign how we label the complication risk of patients. We need to look at the causes of readmission and create a new complication risk system which will help us to better predict which patients are most likely to be readmitted. The second initiative is geared towards the panel of Regional VPs. They are responsible for their specific area of the country. My smoking data is geared towards them. By looking at the data, I noticed that the states with the highest percentage of smokers tend to be in the Mid-Atlantic region and the Southeast region. My recommendation to the Regional VPs of those areas is to begin anti-smoking initiatives that will hopefully reduce the percentage of smokers in those regions.

C8: Universal Access

I made the dashboard accessible to everyone, regardless of device. I initially made the dashboard easily viewable to the members of the audience who are using a desktop. I did this by changing the size to

automatic. I also put the top smoking states visualization on top of the readmission vs. gender table. The table does not require much space, and the top smoking states chart is more impactful with more space. I minimized the amount of space the table took up by changing it's size, which gave me more room for the top smoking states chart. I also made this accessible to people using a phone or tablet. I didn't have to do anything to make the tablet look good. For the phone, I got rid of the titles of the visualizations. This was the only way I could keep the actual visualizations and make them all fit.

C9: Effective Storytelling

The first thing I will do to engage my audience is to introduce myself and provide some background as to why I am giving this presentation. This helps engage the audience because it humanizes me and makes the audience feel like they know me. If the audience feels a connection with me, they will be more likely to be engaged with what I am saying and implement the recommendations that I make. The next storytelling element that I implemented is the use of basic visualizations that do not confuse the audience. I chose basic bar charts, a scatter plot, and a table for my visualizations. These are easy enough to read that even someone without a technical data analysis background can find some takeaways in the visualizations.

D: Sources

I did not have any sources to cite in this performance assessment.