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DATA IMMERSION

Exercise 2.9 Story Telling

https://public.tableau.com/views/2_9_MedicalStaffingPlan/2_9PreparingforFluSeason?:language=en-US&:sid=&:redirect=auth&:display_count=n&:origin=viz_share_link

Medical Staffing Plan for Upcoming Flu Season

1. Project Outline

1.1. Context

- a. A Medical Staffing Agency that provides temporary support to clinics and hospitals in the U.S needs data-driven analysis to identify the high demand for personnel during Flu Season.
- b. Understanding the difficulties that each state faces during flu season and identifying geographic trends can help coordinate the allocation of personnel efficiently.

1.2. Motivation

Provide the necessary medical staffing support in the United States during the influenza season, prioritizing states with a higher flu death count, and utilizing all available resources.

1.3. Objective

Determine when to send staff, and how many to each state.

What we know:

- a. We will analyze historical data (2009 - 2017)
- b. The CDC monitors seasonal influenza activity, including variations in circulating strains and their impact on hospitalization rates. This will be our primary resource.
- c. In the United States, the influenza (flu) season typically starts in October and can last through May. While flu viruses circulate year-round, the most common flu outbreaks and activity occur during the fall and winter months.
- d. The peak of flu season, with the highest number of cases, usually occurs between December and February.

2. The Flu Deaths in the U.S. from 2009 to 2017

2.1. Analysis

- a. Analysed the total death counts related to the flu virus by State.
 - i. Used the scatterplot to identify those states with a higher count of Flu deaths from 2009 to 2017
- b. Analysed the count of deaths related to the flu virus by age groups, in the U.S., identifying the elderly population as the most vulnerable (85+ years) to the virus.
 - i. Used a line chart to visualize the flu deaths over time by ten-year age groups from 2009 to 2017.
 - ii. Use the Treemap to compare the number of deaths of 85+ between states, and the pie chart to illustrate the volume of fatalities per state, where we are comparing the Vulnerable and non-vulnerable population.
- c. Analysed the flu deaths per state and the deaths of their population 85+, to identify the states at most risk and the spatial distribution where the medical staff is needed.
 - i. The combo map was used to differentiate the total flu deaths per state and the flu deaths that affected only the 85+ population.
 - ii. I used a Bar Chart to visualize the number of monthly flu deaths. Applying the year filter and the state from the combined map, it's possible to visualize detailed information to differentiate the report of flu deaths over time between states.

3. The Plan

3.1 Insights

- a. Categorize each state based on its vulnerable population count. (High, medium, and low)
- b. Deploy medical staff early in high-risk states, particularly from October to February.
- c. Expand the vulnerable population to include all individuals 65+, not just 85+.
- d. Train your staff to work with high-risk elderly people.
- e. Expand Data sources, including hospital admissions and emergency visits records, to enhance decision making.
- f. Refine future responses by analyzing the most recent data (2013 - 2017) and running predictive modeling.
- g. Continue monitoring flu activity and adjust staffing levels in real time (CDC)
- h. Identify vaccination policies and care capacity per region.
- i. Coordinate with local healthcare facilities to validate staffing needs and confirm capacity constraints.