Preparing for Influenza Season

Final Presentation

May 2023

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✳ Influenza Season Project Overview ✳

Objective

To help a medical staffing agency that provides temporary workers to clinics and hospitals on an as-needed basis. The analysis will help plan for influenza season, a time when additional staff are in high demand.

Data Set

The following data sets covering influenza in the United States were used for the project:

1. Influenza deaths by geography and demographics
Source: CDC

2. **Population data by geography**
Source: US Census Bureau

Skills

- Translating business requirements
- Data cleaning
- Data integration
- Data transformation
- Statistical hypothesis testing
- Visual analysis Forecasting
- Storytelling in Tableau
- Presenting results to an audience

Tools

Excel

Tableau

Background and Problem Statement

The United States has an influenza season where more people than usual suffer from the flu. Some people, particularly those in vulnerable populations, develop serious complications and end up in the hospital.

Hospitals and clinics need additional staff to adequately treat these extra patients. The medical staffing agency provides this temporary staff.

Key Questions

1. Does influenza occur seasonally or throughout the entire year. If seasonal, does it start and end at the same time (month) in every state?

2. Which states have a high proportion of vulnerable population?

3. Which states have a high number of total deaths related to Influenza?

Project Assumptions

Vulnerable populations suffer the most-severe impacts from the flu and are the most likely to end up in the hospital.

Flu shots decrease the chance of becoming infected with the flu.

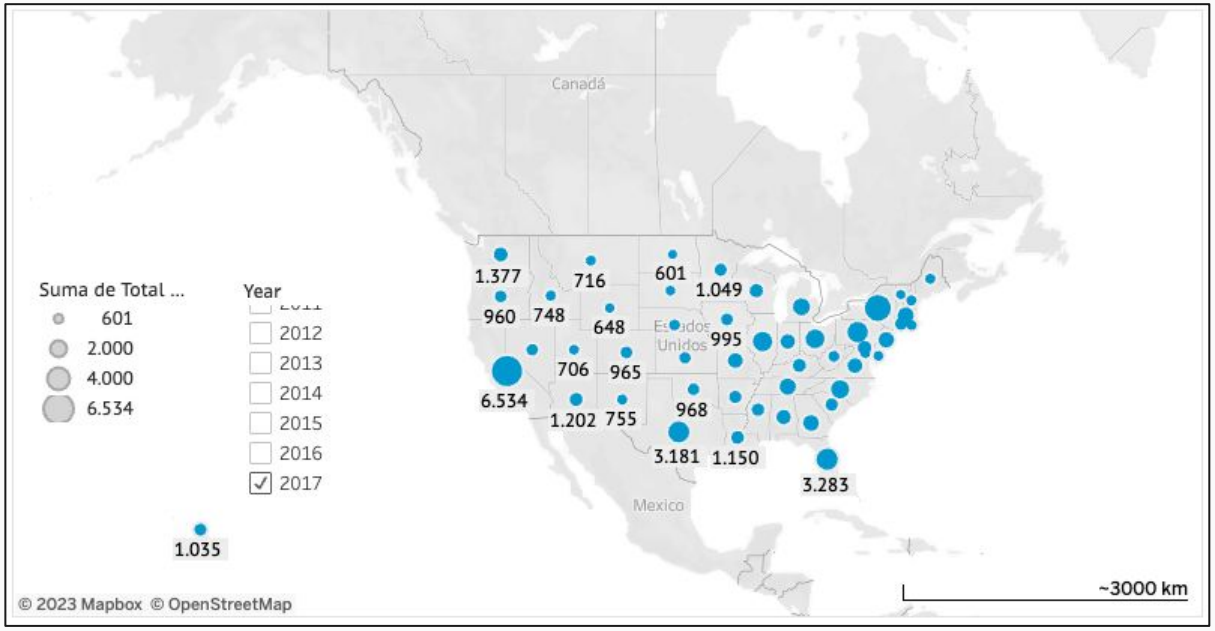
An average of

73,000 americans

die yearly due to influenza

Source: CDC data analysis

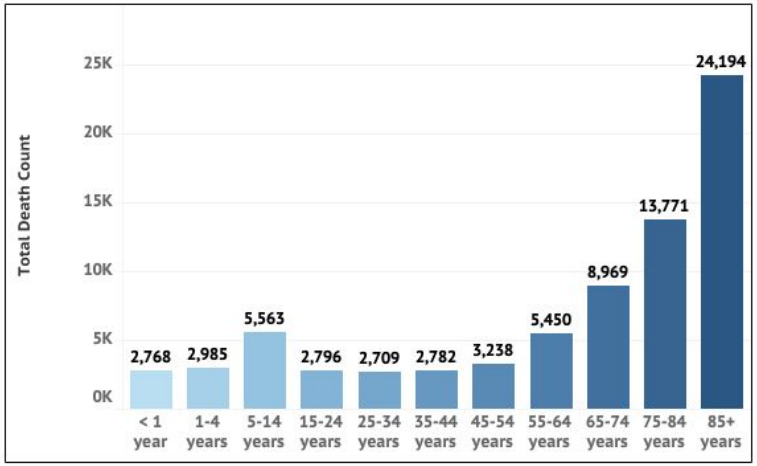
Key Takeaway 1

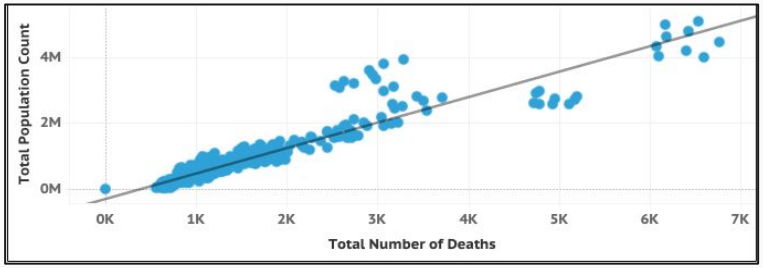


California, New York, Texas, Florida and Pennsylvania have seen the **highest number of deaths** in the last years (2009-2017)

Key Takeaway 2

Who is more affected during Influenza season?

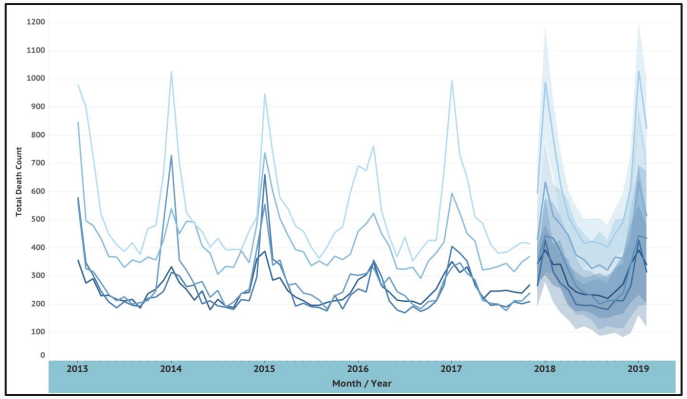




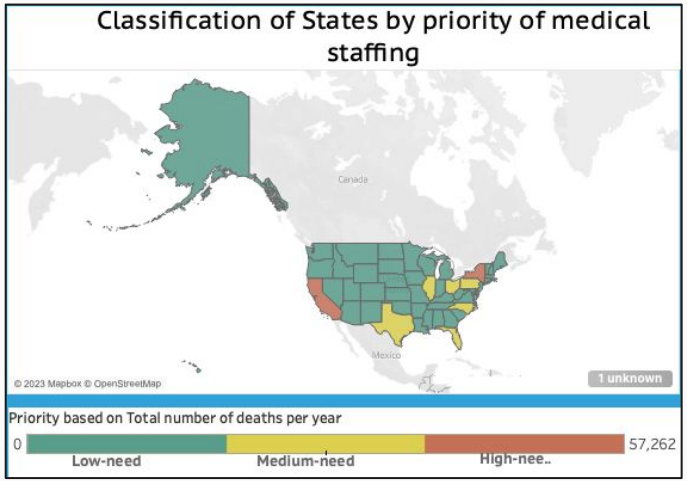
- The **highest number of influenza deaths** is recorded in individuals over **65 years** of age

- There is a **strong positive correlation** between the **number of Influenza-attributed deaths** and **population** above **65 years old**

Key Takeaway 3

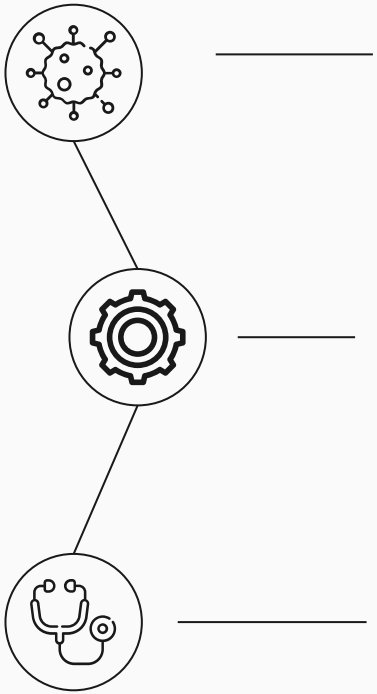


- **Influenza season spans between** the months of **December through March.** Forecast of Influenza-related deaths in the **next 15 months show similar trends as in past years**



- **California** and **New York** were categorised as **states with high-need of medical staffing** based in the number of deaths and the proportion of population above 65 years observed in these states.

Recommendations



High and medium-need states should be mostly **supported** in terms of medical staff within the months of **December, January, February and March** as forecast analysis indicates that similar death rates can be expected for 2018.

Additional information about pre-existing medical conditions like HIV/AIDS, diabetes, stroke, etc. would be required to fine-tune analysis

Is crucial to calculate current average staff-to patient ratio per state to be able a) determine states that are either under or over staffed; b) provide exact numbers of staff required per month, particular during Influenza season.

Challenges

- Vulnerable groups were categorised using only age as parameter. Additional information about pre-existing medical conditions lie HIV/AIDS, diabetes, stroke, etc. would be required to fine-tune the results of the analysis.

- Another piece of data that made the analysis difficult was the lack of information regarding current average staff-to-patient ratio per state. This would make possible to:
    a) Determine states that are either under or over staffed;
    b) Provide exact numbers of staff required per month, particularly during influenza season

Project Deliverables

Project Brief

Final Report

Project Presentation

Thanks!

Do you have any questions?

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