INFLUENZA STAFFING SEASON CASE STUDY

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PROJECT TOOLS AND RESOURCES

- Project duration: Eight weeks

- Project resources

  - US Census Bureau – website containing estimate population counts by state, county, year, gender, and age group

  - CDC Wonder – website containing all death reports in the U.S. for a specific time frame. Allows you to create a custom dataset based on certain factors (in this case, deaths by state, gender, number of influenza deaths by age group)

- Tools Utilized

  - Microsoft Office: Word for project summary, data description, final report; Excel for data analysis, cleaning, integration, and visualizations and final report

  - Tableau Public: creation of visualizations and final story board presentation

PROJECT REFERENCES AND DATA SOURCES

- [Dataset 1](#), Influenza Deaths, 2009 – 2017

- [Dataset 2](#), U.S. Census Population Estimate, 2009 – 2017

- Final Report available on [GitHub](#)

- Final [Tableau Storyboard](#)

- [Tableau Visualizations](#)

  - Please note, not all visualizations created were used in the final project
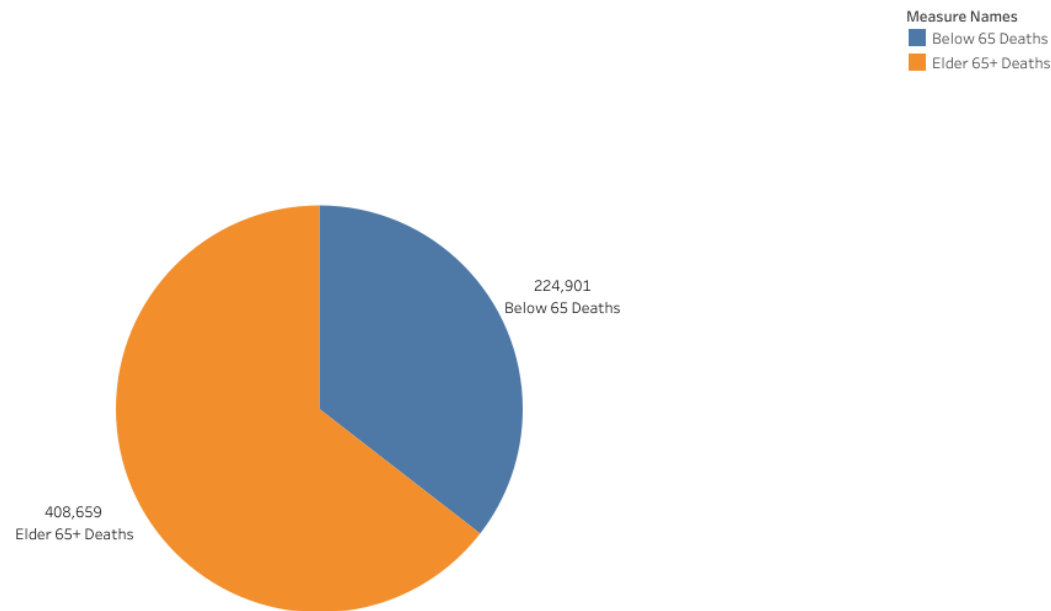
WHAT IS THE INFLUENZA STAFFING PROJECT?

- Immersive project adopting new tools using only Excel to clean and analyze data

- The aim of the project was to help a fictious medical staffing agency prepare staff distribution for the upcoming 2018 flu season

  - Past data provided is census estimate populations and reported influenza deaths between 2009 and 2017

  - Project objective is to help the agency understand where to send staff

    - Analyze data to gain insights on which states have highest reported deaths and which age group is "vulnerable" and has the most reported deaths

PROJECT CHALLENGES

- Project success was contingent on preparing a final report to determine when to send staff and how many to each state

  - Number of staff at this company was not provided; created challenge in providing a complete report of how many staff to send to each state

- Public health data can be unreliable

  - reports of deaths can go unreported due to number of reasons, including but not limited to: socioeconomic restrictions, human error (forgotten or mislabeled death report), privacy of victim, private hospitals not obligated to report

- Influenza is an unpredictable illness

  - Infection season can last longer or shorter each year, causing a varied report of deaths

  - Influenza symptoms can be misdiagnosed or death by another illness could be counted instead of influenza, skewing the numbers

# PROJECT INSIGHTS: IDENTIFYING AND STUDYING THE HYPOTHESIS

Influenza Deaths, Above & Below 65 Years of Age (in Thousands)

Measure Names
- Below 65 Deaths
- Elder 65+ Deaths

224,901
Below 65 Deaths

408,659
Elder 65+ Deaths

- Identified the vulnerable population to be those over 65 years of age

- Hypothesized that states with larger populations will have larger reported deaths in the vulnerable age group

- Studied first if this group is in fact at risk and has more reported deaths

  - Results determined more than half of reported deaths to be those 65 years or older

PROJECT INSIGHTS: RESOURCE ALLOCATION

Influenza Deaths of Elder Populations [65+ Years] by State, 2017
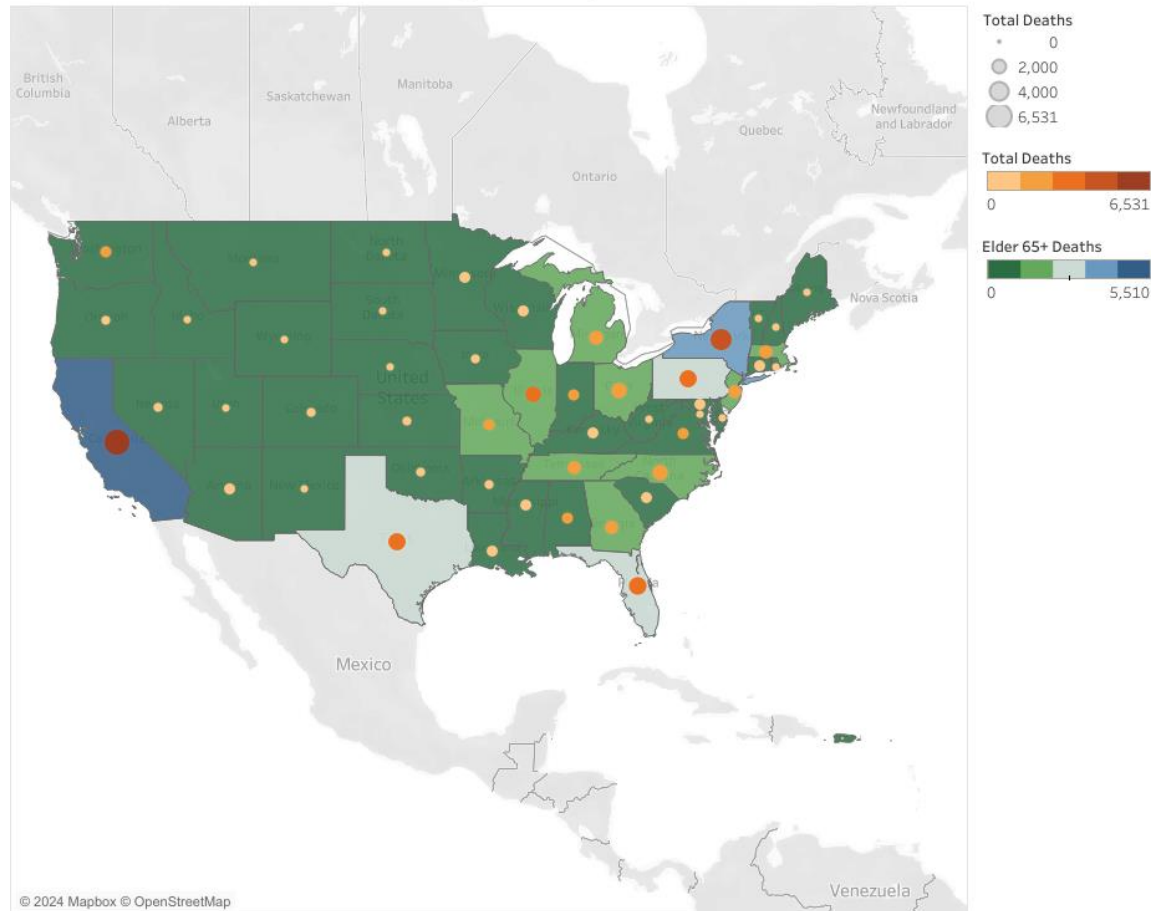
- Determined states with higher populations had higher reported total deaths and vulnerable population deaths
  - California had over 6,531 total deaths reported, of which 5,510 were individuals 65y+ between 2009 and 2017
- Without staff numbers, created an interactive map using this map shown
  - Map classified states in high, medium, and low priority of staff need based on reported deaths in relationship to the total population
  - California, Texas, Florida, Pennsylvania, and New York were classified High Priority, for example

PROJECT CONCLUSIONS AND REMARKS

- Project & Analysis Challenges

    - Number of staff was not provided, posing a challenge in presenting a precise allocation recommendation

    - Dataset provided on influenza deaths is largely suppressed (54,000 variables out of 66,000), meaning the reports for deaths are equal or less than nine, impacting the accuracy of the study

    - Suppressed values were randomized (b/w 0 and 9) for practical study, but do not accurately represent the number of deaths

    - Datasets for this study are at least seven years old, and total death reports, total population counts, and collection methods may have changed which can impact the results of a study

- Analysis Development

    - Identified company need for development of flexible staffing model to adapt to changes in sudden need for increased or decreased staff

    - Recommend internal data collection to determine if staffing recommendation changes were positive, neutral, or negative to make necessary adjustments

    - Identified better need of data collection and reporting process for deaths related to influenza

THANK YOU