

Project Management Plan: Preparing for influenza season

Project Overview

Motivation: 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.

Objective: To assist in preparation of staffing plan in the United States for upcoming influenza season:

- Analyze death trends
- Prioritize states with vulnerable populations

Scope: The agency covers all hospitals in each of the 50 states of the United States, and the project will plan for the upcoming influenza season. Hypothesis If a state has a larger population of those over 55 then the hospitalization rate in those states would be higher due to flu infection increase.

Stakeholder Communication

Stakeholders:

- the staffing agency administrators
- the frontline staff (doctors, nurses and physician assistants)
- influenza patients
- the hospitals and clinics - counterparts of the staffing agency

Meetings will be held via video calls using the google meet platform with all stakeholders.

- Initial Meeting - project beginning with the staffing agency, front-line staff representatives and the Hospitals & Clinics
- Follow-up Meeting - 25%, 50% and 75% of project completion
- Final Meeting - Presentation of deliverables

Written communication:

- Slack – daily communication with the peers, stakeholders' representatives and the project manager
- Email – weekly communication to update stakeholders

Calls will be used on an ad-hoc basis for discussion problems/issues in more detailed basis.

Emergency/Contingency plan:

Unexpected issues or events will be communicated via email and followed up with a call/video meeting within 48 hours.

Schedule and Milestones

Week	Milestone
1	Create a list of the data questions for the analysis. Design data research project. Formulate a research hypothesis. Describe the data sets. Explain the relevance and limitations of each data set. Create a data profile for each data set. Include information on data types, data integrity issues, cleaning, and summary statistics in each profile. Implement additional data quality measures to the data profiles related to completeness, uniqueness, and timeliness.
2	Integrate data from two sources into one cohesive data set using data transformations. Calculate the variance and standard deviation for key variables. Identify variables with a potential relationship and test for a correlation Formulate a statistical hypothesis regarding an outcome of interest around two groups in your data. Conduct hypothesis testing and interpret the results. Create an interim report consolidating the findings of your analysis.
3	Explain how data visualizations can be used in your project. Install Tableau. Create a data visualization design checklist. Explain how the visualizations in a given example can be improved. Connect your project data to Tableau. Create a pie, bar, or column chart, as well as a treemap in Tableau. Use your visualization design checklist to design your charts.
4	Create a time forecast for a variable and display it in Tableau. Use your visualization design checklist to design your chart. Create visualizations that look at the distribution of a variable. Use your visualization design checklist to design your charts. Create visualizations that look at the correlation between variables. Use your visualization design checklist to design your chart.
5	Map a variable and justify your spatial visualization choice (heat, density, or choropleth). Use your visualization design checklist to design your chart. Create a word cloud using qualitative data.

	<p>Use your visualization design checklist to design your chart.</p> <p>Create a narrative to communicate your research findings and insights in relation to your research goals.</p> <p>Publish your analysis as a Tableau Storyboard.</p> <p>Record a video presentation for your stakeholders.</p>
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Project deliverables:

- Written report on findings from analysis
- Video presentation on Tableau storyboard

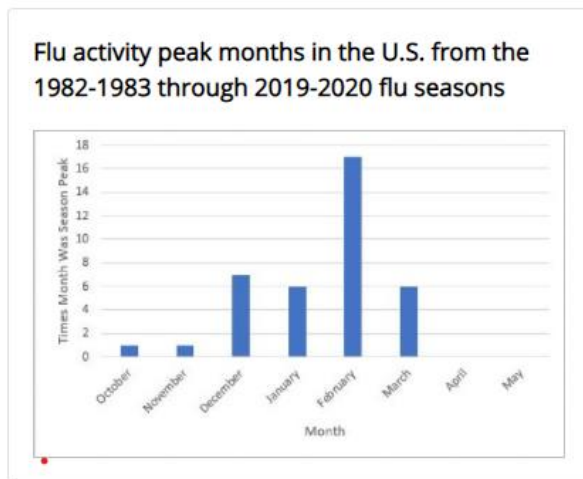
Audience:

- Staffing agency administrators
- Staffing agency frontline staff
- Hospitals and clinics using the staffing agency

Questions

What months are the flu season?

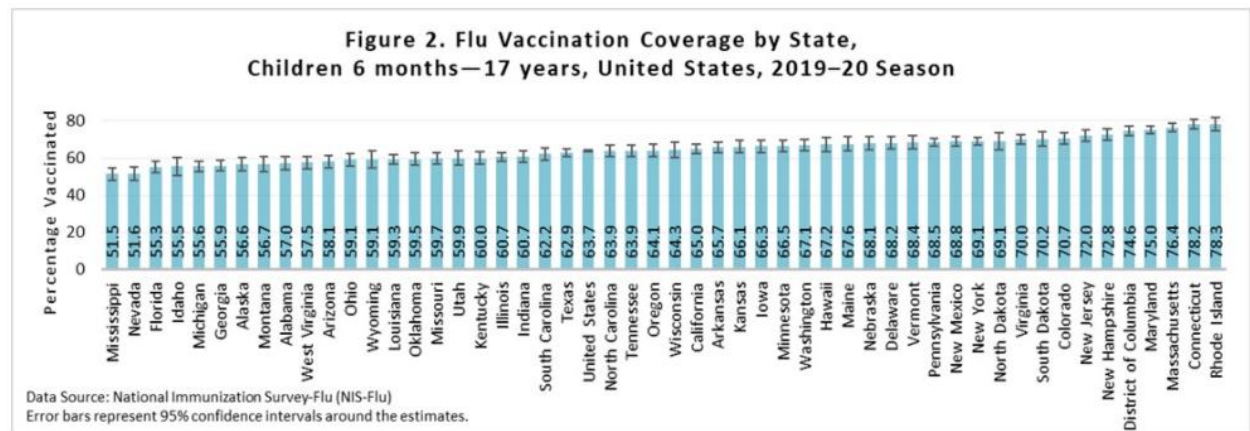
Based on the information from the CDC site “In the United States, flu season occurs in the fall and winter. While influenza viruses spread year-round, most of the time flu activity peaks between December and February, but activity can last as late as May.”



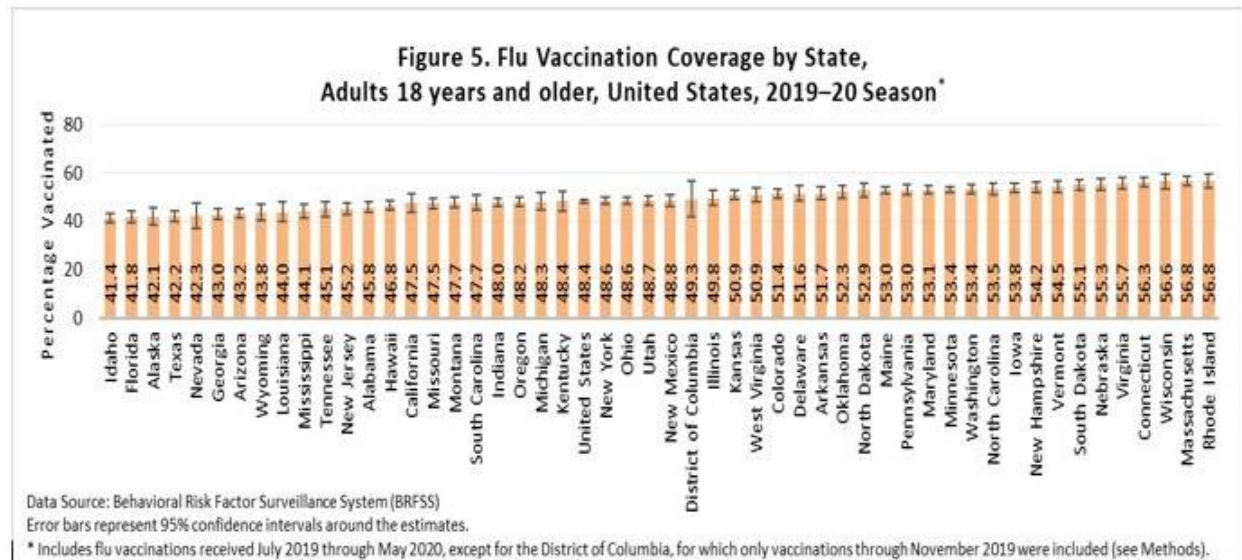
Source : <https://www.cdc.gov/flu/about/season/flu-season.htm#:~:text=In%20the%20United%20States%2C%20flu%20season%20occurs%20in%20the%20fall,last%20as%20late%20as%20May>

What is the rate of the flu shots in different groups?

CDC says that “There was large between-state variability in flu vaccination coverage among children 6 months through 17 years, ranging from 51.5% (Mississippi) to 78.3% (Rhode Island).”



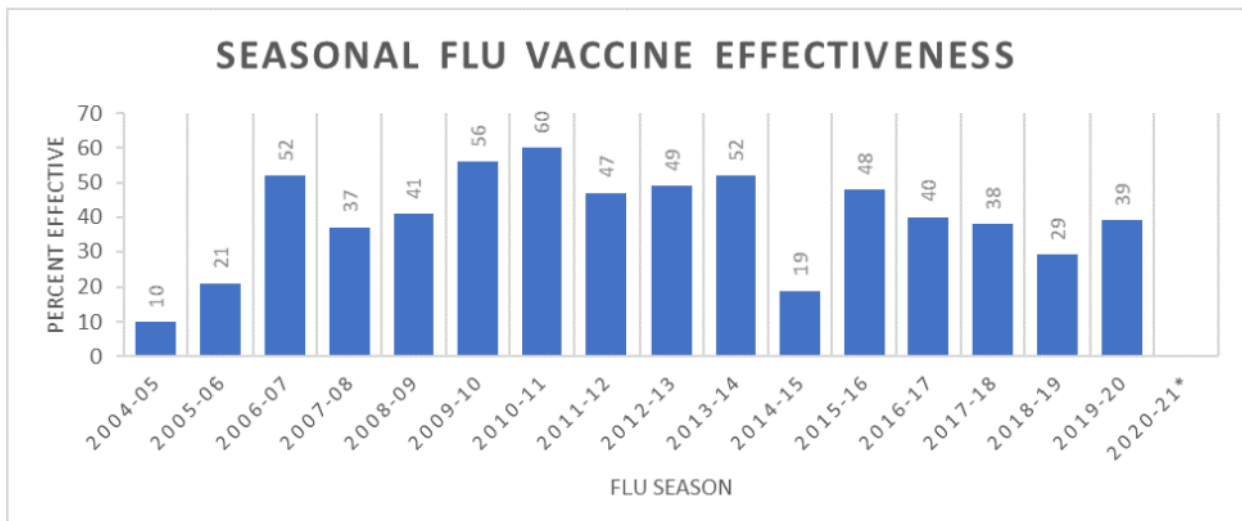
CDC informs that “There was large between-state variability in flu vaccination coverage among adults, ranging from 41.4% in Idaho to 56.8% in Massachusetts and Rhode Island.”



Source : <https://www.cdc.gov/flu/fluview/covage-1920estimates.htm>

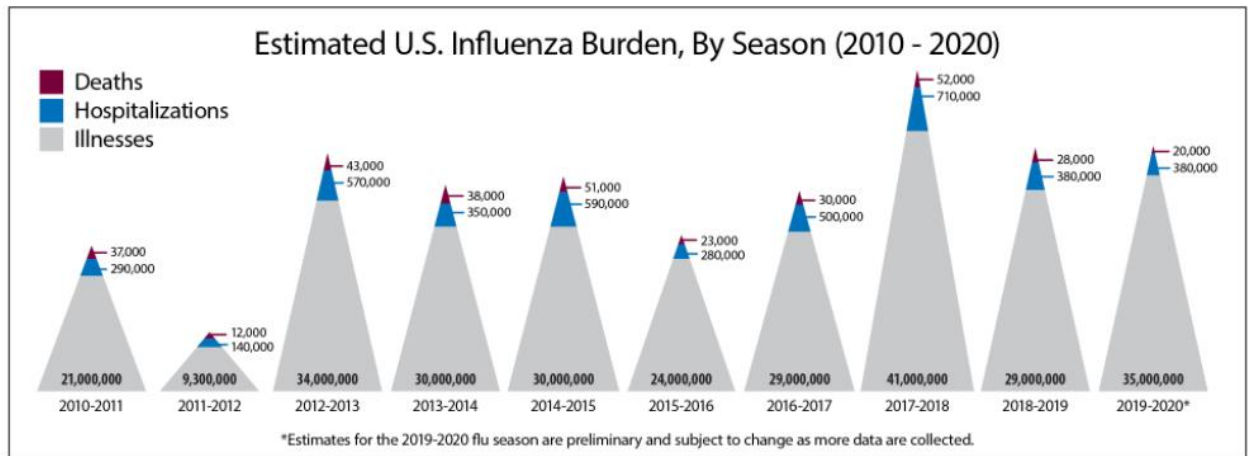
Is there any correlation between the death rate and the flu shot rate?

According to CDC the seasonal flu vaccine effectiveness was the highest 60% in 2010-11 and the lowest in 2004-05



Source : <https://www.cdc.gov/flu/vaccines-work/effectiveness-studies.htm>

CDC shows Estimated US Influenza burden in the graph below:



Source : <https://www.cdc.gov/flu/about/burden/index.html>

What are the most/the least affected group of the population?

According to CDC the following group of people are at higher risk:

- Adults 65+
- Adults with chronic disease (asthma, heart disease, diabetes, chronic kidney disease)
- Children younger than 2 years old
- Pregnant people
- People who live in nursing homes and other long-term care facilities

Source :

<https://www.cdc.gov/flu/highrisk/index.htm#:~:text=complications%20from%20flu%3A-,Adults%2065%20years%20and,younger%20than%202%20years%20old>

Hypothesis

If the flu shot rate increase then the hospitalization and death rates caused by the influenza decrease

Data Wishlist

- Population by states, by age groups in each state, by adults with chronic disease and pregnancy
- Vaccination rate by state and age groups
- Hospitalization and death rate by state and by age group
- Hospital staff by state and required number of staff during the influenza season