US INFLUENZA PANDEMIC PREPAREDNESS STRATEGY 2024

GOAL

Examine trends in influenza and how they can be used to proactively plan for staffing needs across the country.

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

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

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.
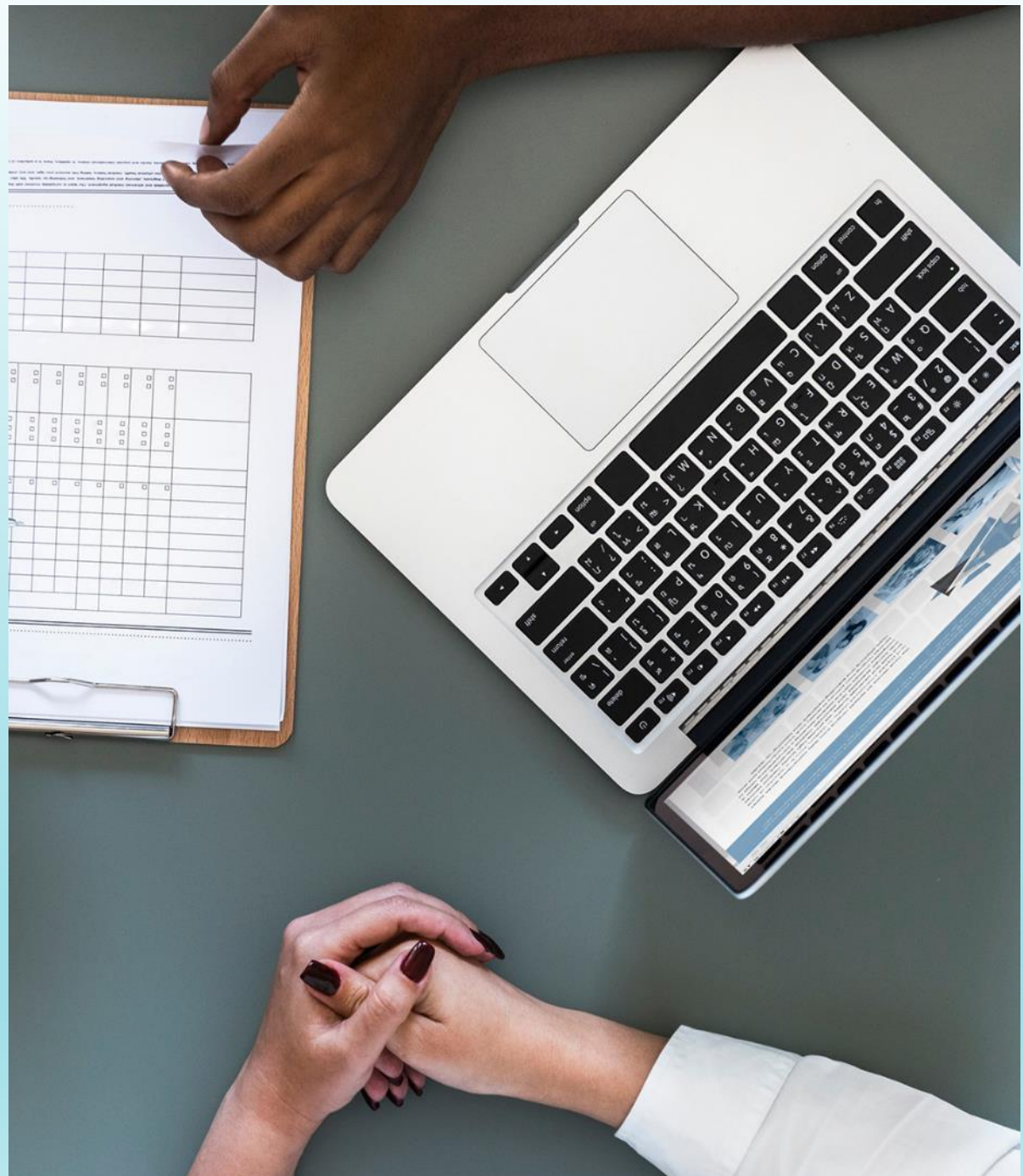
Audience Definition

Medical agency frontline staff (nurses, physician assistants, and doctors)

Hospitals and clinics using the staffing agency's services

Influenza patients

Staffing agency administrators

Stakeholder communication

Meetings (with all stakeholders):

A meeting with the relevant stakeholders listed on the requirements document—Medical agency frontline staff .During the meeting, business requirements will be discussed.

During the analysis phase, hold weekly calls to update stakeholders on the status of the project and answer any questions they have (or ask more from our side).

Written Communication:

After half of the time there will be a written interims report to consolidate the status and findings of the initial analysis. Every updates will be communicated in writing through emails.

Emergency/Contingency Plan:

Any urgent issues are communicated via email with a follow-up call scheduled within specified time

Schedule and milestones

WEEK	ACTIVITY	MILESTONE
Week 1	Starting with Requirements Designing a Data Research Project	• Create a list of the data questions that need to answer for our analysis. Design our data research project. • Formulate a research hypothesis.
Week 2	Sourcing the Right Data Data Profiling & Integrity	• Describe the data sets we have access to for our project. • Explain the relevance and limitations of each data set to our project. • Create a data profile for each of the data sets in our analysis. • Include information on data types, data integrity issues (accuracy and consistency), any cleaning you conducted, as well as summary statistics in each profile.
Week 3	Data Quality Measures Data Transformation & Integration	• Implement additional data quality measures to our data profiles related to completeness, uniqueness, and timeliness. • Integrate data from two sources into one cohesive data set using data transformations.
Week 4	Conducting Statistical Analyses Statistical Hypothesis Testing	• 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.

WEEK	ACTIVITY	MILESTONE
Week 5	Visual Design Basics & Tableau Composition & Comparison Charts	• Create a data visualization design checklist. • Explain how the visualizations in a given example can be improved. • Connect the project data to Tableau.
Week 6	Temporal Visualizations & Forecasting Statistical Visualizations: Histograms & Box Plots	• Create a time forecast for a variable and display it in Tableau. • Use the visualization design checklist to design our chart. • Create visualizations that look at the distribution of a variable. • Use the visualization design checklist to design the charts.
Week 7	Statistical Visualizations: Scatter Plots & Bubble Charts Spatial Analysis	• Create visualizations that look at the correlation between variables. • Use the visualization design checklist to design our chart. • Map a variable and justify our spatial visualization choice (heat, density, or choropleth).
Week 8	Textual Analysis	• Create a word cloud using qualitative data. • Use the visualization design checklist to design our chart.
Week 9	Storytelling with Data Presentations Presenting Findings to Stakeholders	• Create a narrative to communicate your research findings and insights in relation to our research goals. • Publish the analysis as a Tableau Storyboard. • Record a video presentation for our stakeholders.

Project Deliverables

Provide information to support a staffing plan, detailing what data can help inform the timing and spatial distribution of medical personnel throughout the United States.

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

Prioritize states with large vulnerable populations. Consider categorizing each state as low-,medium-, or high-need based on its vulnerable population count.

Assess data limitations that may prevent you from conducting our desired analyses.

HYPOTHESIS

If the population in the region has higher 65+ age group , the mortality rate in that region will be higher.

If the rate of vaccination increases,the spread of influenza among the population also decreases

If there is higher spread of influenza flu,the medical facilities will be inadequate and there will be shortage of medical staff.

Data Wishlist

Data of the vulnerable population above 60 age group and population with severe medical condtions .

Data about number of medical facilities and medical staff in the region

If there is higher spread of influenza flu,the medical facilities will be inadequate and there will be shortage of medical staff.

Data about available medications and vaccines.