Project Management Plan

Stakeholder Identification / 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

- Will happen in person or virtual (depending on the location and participants)
- A first initial meeting will be held with representation from the different stakeholder groups to clarify any questions and help outline the project plan.
- A meeting with key stakeholders (*representation from the different stakeholder groups*) as needed to give important updates or inquire about important information/ answer questions from stakeholders (this may in some circumstances be a call).
- Meetings with key stakeholders upon finishing the interim report and when the project is complete.

Calls

- Calls with key stakeholders to update on the progress and clarify any questions.
- Scheduled calls every 2 weeks/after important milestones to provide a more in-depth insight into project progress and clarify any existing questions that may arise in between milestones.

Emails

- Weekly emails with updates and additional information will be sent to all stakeholder groups.

Contingency Plan

- In case of unexpected delays or problems, an email will be sent out to stakeholders, informing them about any issues, followed by the scheduling of a meeting to discuss contingency plans or any impacts the delay will have on the remainder of the project.

Schedule & Milestones

Week 1:

Starting with Requirements

- Create a list of the data questions you need to answer for your analysis.

Designing a Data Research Project

- Design your data research project.
- Formulate a research hypothesis.

Sourcing the Right Data

- Describe the data sets you have access to for your project.
- Explain the relevance and limitations of each data set to your project.

Week 2:

Data Profiling & Integrity

- Create a data profile for each of the data sets in your analysis.
- Include information on data types, data integrity issues (accuracy and consistency), any
- cleaning you conducted, as well as summary statistics in each profile.

Data Quality Measures

- Implement additional data quality measures to your data profiles related to completeness, uniqueness, and timeliness.

Data Transformation & Integration

- Integrate data from two sources into one cohesive data set using data transformations.

Conducting Statistical Analyses

- Calculate the variance and standard deviation for key variables.
- Identify variables with a potential relationship and test for a correlation.

Week 3:

Statistical Hypothesis Testing

- Formulate a statistical hypothesis regarding an outcome of interest around two groups in your data.
- Conduct hypothesis testing and interpret the results.

Consolidating Analytical Insights

- Create an interim report consolidating the findings of your analysis.

Data Visualization & Storytelling

Intro to Data Visualization

- Explain how data visualizations can be used in your project.
- Install Tableau.

Visual Design Basics & Tableau

- Create a data visualization design checklist.
- Explain how the visualizations in a given example can be improved.
- Connect your project data to Tableau.

Week 4:

Composition & Comparison Charts

- Create a pie, bar, or column chart, as well as a treemap in Tableau.
- Use your visualization design checklist to design your charts.

Temporal Visualizations & Forecasting

- Create a time forecast for a variable and display it in Tableau.
- Use your visualization design checklist to design your chart.

Statistical Visualizations: Histograms & Box Plots

- Create visualizations that look at the distribution of a variable.
- Use your visualization design checklist to design your charts.

Statistical Visualizations: Scatter Plots & Bubble Charts

- Create visualizations that look at the correlation between variables.
- Use your visualization design checklist to design your chart.

Week 5:

Spatial Analysis

- Map a variable and justify your spatial visualization choice (heat, density, or choropleth).
- Use your visualization design checklist to design your chart.

Textual Analysis

- Create a word cloud using qualitative data.
- Use your visualization design checklist to design your chart.

Storytelling with Data Presentations

- Create a narrative to communicate your research findings and insights in relation to your research goals.
- Publish your analysis as a Tableau Storyboard.

Presenting Findings to Stakeholders

- Record a video presentation for your stakeholders.

Project Deliverables

- An interim report containing the details of the progress.
- A video presentation and Tableau storyboard.

Context

Which state was historically most affected by influenza?

During the flu season 2021/2022 Georgia and Washington, D.C. seem to be impacted the most.
Source: *CDC, Weekly U.S. Influenza Surveillance Report*

When are the most cases of influenza recorded?/When is flu season?
"While seasonal influenza (flu) viruses are detected year-round in the United States, flu viruses typically circulate during the **fall and winter during what's known as the flu season**. The exact timing and duration of flu seasons varies, but flu activity often begins to increase in October. Most of the time flu activity **peaks between December and February,** although **significant activity can last as late as May.** " Source: *CDC, Flu Season*
Which states had the highest/lowest mortality rates?
In the year 2020, the state of California had the highest number of deaths (6,062 deaths) and Alaska had the lowest number (52). But the mortality rates look different: Mississippi has the highest mortality rate (25.1) and Vermont has the lowest (6.2). Source: *CDC, Influenza/Pneumonia Mortality by State*

Hypotheses

- If the patient is elderly, then the risk of mortality is higher.
- If more elderlies (or citizens of vulnerable populations in general) receive their flu vaccination, then the mortality rate will be lower.
- If states with a higher number of patients of vulnerable populations receive more hospital/clinic staff, then the mortality rate will be lower.

Data Wishlist

- Vaccination rate by state and by age group
- Mortality rate by state, by age (group) with vaccination status
- Hospital admissions for ILI per state, per age group
- Current number of available staff for hospitals/clinics by state
- Historical data about hospital/clinic staffing by state

Resources

https://www.cdc.gov/flu/weekly/index.htm
Weekly U.S. Influenza Surveillance Report
https://www.cdc.gov/flu/about/season/flu-season.htm
Flu Season
https://www.cdc.gov/nchs/pressroom/sosmap/flu_pneumonia_mortality/flu_pneumonia.htm
Influenza/Pneumonia Mortality by State