

Project management plan: preparing for the upcoming influenza season

Project overview

Motivation: The United States has a time every year where more people than normal are getting sick from the influenza. Certain populations in certain areas can develop severe symptoms and need to get treatment in urgent care clinics and in the worst case, hospitals. For this time of the year, more staff are needed to treat patients in clinics and hospitals (which are provided by the medical staffing agency on a temporary basis), but other interventions, such as influenza shots, can reduce the load on clinics and hospitals as well.

Objective: sending additional staff to clinics and hospitals and determine where and how many to send to various states around the country.

Scope: since influenza is a national issue, the agency can cover hospitals in all 50 states. This project will help plan for the upcoming influenza season nationwide using historical data.

Stakeholder communication

An initial video call meeting at the beginning of the project will be conducted with representatives of the various stakeholders (medical agency frontline staff, hospitals and clinics using the staffing agency, influenza patients, staffing agency administrators) to discuss the overview of the project; goals of the project; timeline of the project; clarifying, funneling, adjoining, elevating, and privacy and ethics questions that were created for the project; and any other aspect of the project plan. Stakeholders can submit questions about the plan or request certain analyses or deliverables that will be included in the final presentation. This meeting will be recorded and sent out via email to stakeholders who were unable to attend the meeting.

Meetings: future meetings will be conducted with all stakeholders monthly by video call for updates about the project's progress. These meeting will also be recorded and sent out via email for those unable to attend. Stakeholders may ask questions for all future meeting after the initial, but may only submit requests for certain analyses or deliverables that will be included in the final presentation during the first month of the project or 48 hours following the second stakeholder-wide meeting.

Email: emails about project progress will be sent after every meeting summarizing the discussion and every week between meetings as well. Stakeholders can ask questions and request individual meetings with the analyst at any point during the project, but can only request analyses or deliverables during the first month. Please allow 24 hours during the work week and 48 hours outside of the work week for a response.

Emergency/contingency plan: Urgent issues should be emailed to the analyst with “URGENT” in the title. Please allow 24 hours for a response. If the issue is pressing enough for an immediate meeting, the analyst will schedule a stakeholder-wide meeting within 48 hours of receiving the email. The recorded meeting will be sent out on the day of the meeting with a summary of the issue and video of the meeting. Issues that are less pressing but require attention before the next monthly meeting will be discussed in a video call on the day reserved for email-only updates. The email update will instead include a summary of the issue that was presented and a recording of the meeting.

Schedule and milestones

Week 1: Initial meeting and project plan feedback

- Meeting with stakeholders about the various aspects of the project plan.
- Collect and develop additional questions with stakeholder input.

Week 2: Project design development

- Formulate hypotheses based on project questions.
- Narrow down project constraints and stakeholder requests.

Week 3: Project data sourcing

- Describe the datasets necessary for project progression and completion.
- Search Google and online databases for general project data sources.
- Determine privacy and ethical requirements for patient data.

Week 4: Data integrity, cleaning, and stakeholder feedback

- Determine data quality by exploring and summarizing spreadsheet variables, relevance, and completion.
- Clean dirty data by removing or extrapolating empty cells, removing blank columns, etc.
- Get stakeholder feedback at monthly meeting on general questions, hypotheses, and data sourcing and quality.

Week 5: Finalize project plan

- Using stakeholder feedback and requests, finalize the project plan including questions, hypotheses, data sources, etc.
- Clean and ensure the quality of additional data sources if necessary.

Week 6: Data transformation and integration

- Integrate non-patient data into a cohesive dataset using transformation.
- Obtain initial clinic and hospital influenza patient records. Ensure data privacy and ethics.

- Send out finalized project plan to stakeholders via email.

Week 7: Statistical analysis of key variables

- Using data sources and initial patient records, conduct data spread analyses of key variables determined in final project plan.

Week 8: Report preliminary findings and narrow down analyses

- Meeting with stakeholders to discuss preliminary/summarizing finds of data analyses so far.
- Finalize how to conduct and which analyses to be conducted for final project.
- Narrow down course of action for staffing agency medical professional rollout nationwide.

Week 9: Statistical hypothesis testing

- Conduct hypothesis testing using final project plan and data sources including non-patient data sources and updated patient data.
- Finalize staff rollout based on national influenza analyses.

Week 10: Implement staffing agency rollout

- Implement rollout program and begin data collection.

Week 11: Analyze program effectiveness

- Conduct analysis to determine staff rollout effectiveness to manage severe influenza cases – before and after.
- Outline introduction and methods of final project report.

Week 12: Consolidate analytical insights

- Finish analyses and conclusions sections of final report.
- Summarize and consolidate findings of the analysis.
- Report to stakeholders about the findings of the intervention in the final meeting.

Project deliverables

- Preliminary project plan (week 4 – 25% completion point)
- Final project plan (week 6 – 50% completion point)
- Preliminary analysis (week 8 – 75% completion)
- Final project (week 12 – 100% completion)

Audience definition

Stakeholders include:

- Medical agency frontline staff (nurses, physician assistants, and doctors)
- Hospitals and clinics using the staffing agency's services
- Influenza patients
- Staffing agency administrators

Since the audience varies widely in terms of industry knowledge and jargon (as patients/people of various professions will be attending the final presentation), it will be important to limit the amount of technical terms used in the presentation and explain most or all variables that I will be presenting about in my final presentation. I will have to go into great depth about the way in which my analyses were conducted and how I calculated any additional or provided variables.

Context

I had several questions in Exercise 1.2 that I was able to answer with independent research into influenza dynamics:

“Where are the most vulnerable populations located in each state?”

According to [Dalziel et al. \(2018\)](#), surges in influenza cases where more vulnerable people will need more immediate help happened primarily in northern latitudes in smaller cities that were less dense. Larger cities saw a more moderate level of cases over the course of the season.

“Which states are most affected by influenza?/Which states have the most residents in vulnerable populations?”

The CDC puts out a map of [reported respiratory illnesses per state](#), which can be used as a proxy for which states are most affected by influenza, although it is not a direct measure because these are not confirmed cases. Additionally, the CDC has data for the [death rates of influenza/pneumonia](#) which can help us determine which states have higher levels of vulnerable populations.

“When is flu season?”

Although the CDC says that flu season generally occurs in the fall and winter and can even be spread year round (although less commonly in the spring and summer), [influenza cases spike in the winter months between December and February](#).

Hypotheses

- If an individual is less than ~2 years old and older than 65 years old, then they are more likely to die from influenza.
- If an individual is in a lower socioeconomic class, then they are more likely to catch and die from influenza.
- If an individual is vaccinated against influenza, then they are less likely to die from it.
- If states have populations with higher rates of comorbidities (old age, pregnancy, obesity, asthma, etc.), then they will have a greater percentage of vulnerable populations.

Data wishlist

- Population age structure by state
- Obesity/asthma/other comorbidity rates of populations by state
- State influenza vaccination rates
- Average annual income of states
- Minimum wage in each state
- Total medical staff and budget for the agency
- Ideal patient to staff ratios in each state
- Current patient to staff ratios in each state