Presenting Findings to Stakeholders
Scripting by Mary Kane

Link to video recording https://www.youtube.com/watch?v=z-_bV5O6LNE&t=307s

Link to Tableau storyboard.
https://public.tableau.com/views/2_9_MedicalStaffingPlan/2_9PreparingforFluSeason?:language=en-US&:sid=&:redirect=auth&:display_count=n&:origin=viz_share_link

Project Type: Healthcare Project. Medical Staffing Plan for Flu Season 2018. Target Audience: Medical Staff (RN, PA, MD), Hospitals and clinics using staff services, Influenza patients, and Staffing administrators.
Direction notes: Comfortable, calm speaking pace, slower when explaining facts and figures. Use a friendly, conversational manner.
Presentation Length: 15:00
Presentation Script Outline:
Dialogue Script:

Introduction – 2.30 minutes

Intro. (Friendly, welcoming tone) "Good morning, and thank you for being here today. My name is Mary Kane, and I am here today to walk you through the analysis for this project.
Where a Medical Staffing Agency
needs to
Allocate personnel during the upcoming flu season.

Purpose. The Medical Staffing Agency will provide temporary workers to hospitals and clinics nationwide.
To allocate personnel efficiently, we will analyze the impact of the influenza virus on the population across the country.
Before continuing, I would like to share with you our primary data sources: **U.S. Census Bureau** provides population data, including location and demographics.
CDC: Centers for Disease Control and Prevention
Official Public Records Portal: Death certificates
These sources offer tools with up-to-date information for the 50 states we are analyzing today.

How are we measuring the impact?
Through the count of death certificates per State.
All the death certificates that include influenza as the cause/contributor of death.
Contributor to death is used especially when complications like pneumonia develop.

We want to ensure that the right medical professionals
are available where and when they are needed most.
We want to prioritize those states with the highest count of influenza deaths.

Overview. We will cover four critical Topics:

1. **Historical flu mortality trends in USA.**

The analysis includes data from 2009 to 2017
We will locate the distribution of those flu deaths geographically.
And will identify trends through time.

2. **The most vulnerable population**.
Once we have identified geographically the flu-death concentration areas,
We want to know who is most susceptible to the virus.

Some people may say that males are more susceptible — mostly because they turn into drama kings at the first sneeze. My husband once asked me to prepare his will after two days with a mild cold. I mean, he had a stuffy nose, not a terminal illness! Let's be honest: men don't mind being a little *extra* when it means they get all the attention.

To avoid any bias, the population was analyzed in 10-year age groups.
Should we focus on pregnant women and children?
Or on the oldest populations?
We will answer this question shortly.

3. **The States in High-risk.**
How many Flu fatalities were reported in each state per year?
How many deaths are in the most vulnerable population?
What professionals are in higher demand during the peak season?
What areas in the country are the most affected?

4. **Seasonality.**
What months present the peak of the flu season?
While viruses circulate year-round,
There are usually a few months when deaths are triggered.
The most common flu outbreaks
Occur during the fall and winter months.
We will analyze the flu activity per state.
And the most recent trends.

Let's take a closer look.
Data Analysis– 6 minutes

1. Flu Mortality Trends in the U.S. (2009 - 2017)

Between 2009 and 2017, flu-related deaths in the U.S. averaged between **40,000 and 45,000 per year**. This count comes from death certificates that list the **influenza virus** as a contributing factor.

In this **heat map**, the states are color-coded by their annual Flu death counts.
Red indicates the states with the highest death counts,
Orange states
Are those with a medium-high death count
and those states with the lowest flu death count
colored **Yellow**,

Notice how the differences between years are minimal,
(Filter one year at a time)
Between 2009 and 2011,
Pennsylvania is the only state that presented significant ups and downs
In 2014, we noticed a flu death increase on the East Side of the country,
Adding Virginia, Tennessee, and Georgia to the 2nd Tier.
We can say that the flu death count presents a stable trend.

We can identify consistency in the death counts for
California and New York,
which show the highest numbers of flu deaths.

Identifying the states with higher mortality opens a door with so many questions: What is the hospital capacity for a city like New York with more than 8 million residents? How many people use public transportation?
What about preventive education and accessibility?

Quick question for you: - What state do you think ranks third in flu deaths?
(Pause for audience engagement) According to our map,
Florida would rank 3rd for the highest count of flu deaths in 2017

Who is the most vulnerable population?

2. Mortality by Age Group

To help identify which parts of the population are most vulnerable,
I used a line chart where we are visualizing flu-related deaths
across 10-year age groups.

Notice how the red line represents
The deaths in the population 85 years and over

There is consistency over the years. There are no dramatic changes with any of the age groups.
The oldest population presents the highest flu-related Death count.

The following high-risk groups
include people aged 75 to 84 years old and 65 to 74 years old.

This highlights the vulnerability of the broader elderly population.

We will refer to people 85 years and older as the most vulnerable population.
You might be wondering: *What about the children?*
Are there no deaths reported for children?

The truth is that CDC excludes data for groups with fewer than 10 cases
The reason is to protect the patient's privacy.

While this means we have limited data for the youngest population,
It's important to remember that they, too,
remain at risk.

We have the total number of flu-related deaths per state.
We have identified our most vulnerable population.

Can we compare the population aged 85 and older, between states?
To answer this question, we are using a pie chart and a treemap.

3. Flu Deaths in the Elderly (85+) Population

The pie chart enables a comparison of the number of flu deaths between the population 85 years and older and the deaths in the population aged 84 years and younger.
With the treemap below, we can identify the states with the highest mortality rate in the most vulnerable population.
The higher the death count, the bigger the square; these squares are sorted from largest to smallest, which can guide staffing decisions to serve older adults.
We can also filter by year and by state.
Let's see the flu deaths in **Pennsylvania**, for example.
We can filter the most recent years **(2015 to 2017*).***
Click on the square for Pennsylvania and present the comparison in the pie chart.
Notice how the percentage of deaths among people 85 years and older
is almost equal to the number of deaths in the rest of the population,
which includes all the people 84 years and younger in the state
Let's locate on the map our most vulnerable population.

4. Geographic Risk Classification

Using this combo map, we are visualizing
The states with the highest total flu death count
and the concentration of fatalities in people 85 years and older.
Do you see a relationship between these two variables?

The Circle size and color
represent the number of flu deaths among the elderly.
For example, California and New York display large dark circles,
indicating significant clusters of mortality.
What if I ask you, which state between Montana and Colorado presents **the highest count** of flu deaths in people 85 years and older?
smaller circles,
suggest lower risk.
So, you are correct, Colorado presents more flu deaths in the vulnerable population
than Montana

Or compare Alaska and Hawaii

This visualization helps to identify the states with the highest need for medical staff support.

One last question, when should we have the medical personnel ready to deploy?

5. Flu Activity by Month

We know that Flu season typically runs during the coldest seasons
(Fall and winter- between October and March)
However, mortality peaks between December and March.
Each state presents its own triggers
The weather, the population volume, overcrowded areas,
internal vaccination policies, education, etc.
In this bar chart, we will visualize
The monthly flu deaths by state and year.

(Compare some states using data from 2015 and 2016 only)

For example, these states reported **flu deaths all year-round and presented a peak** in January.

This allows us to forecast staffing needs by time and place.

Conclusions 2.30 minutes

- Flu Mortality is concentrated in older populations,
  especially on people 65+, with 85+ being most at risk.
- Certain states consistently experience higher death rates each season.
  This indicates a need to prioritize staffing in these areas of the country.
- Flu deaths peak between December and March.

Recommendations 4.0 minutes

1. Expand the definition of "vulnerable population"
   to include all individuals 65 years and older, not just those 85 years and older.
2. Train your staff to work with
   high-risk elderly populations and long-term care facilities.
3. Utilize predictive modeling
   based on trends from recent years (2015-2017)
   to forecast needs more accurately.
   Ensuring that the right medical professionals are available
   where and when they are needed most.
4. Classify states into High, medium, and low tiers
   for better resource planning.
5. Pre-deploy staff to high-risk areas before the flu season peaks,
   ideally starting in October.
6. Incorporate additional data sources,

including hospital admissions,
Emergency Room visits and vaccination rates.

7. Coordinate directly with local medical facilities
   to confirm staffing gaps and tailor the support to allocate.
8. Keep monitoring the flu activity in real time
   using updated CDC alerts and surveillance tools.

Closing. Wrap up 2.30 minutes.

To conclude:

- Flu Deaths in the U.S. follow predictable trends.
  (Related to Age, geography, and seasonality).
- Understanding the challenges
  That each state faces during flu seasons
  can help coordinate the allocation of personnel
  where and when they are needed.

I hope this information is of value to your management decision team.
If you'd like to explore the interactive board, review the raw data, or have any questions, please send an email to marykane.col99@gmail.com, I will be happy to share more information with you.

Thank you for your time.

Appendix

The CDC uses statistical modeling, hospitalization rates, and death certificate data to estimate flu mortality.

Death-certificates_source https://www.reviewpublicrecords.com/records/death-records

https://voice123.com/blog/voice-over-scripts/presentation-script/

Loom for Video recording.
Project Data Limitations:

1. The CDC excludes data for groups with fewer than 10 cases
The reason is to protect the patient's privacy.
We have limited data for the youngest population. It's important to remember that they, too, remain at risk.

2. For future analysis, we could incorporate additional data sources, including:

i) Hospital admissions,

ii) Emergency Room Visits
iii) Vaccination rates per state
iv) Directory of local medical facilities

3. Did your data have any limitations that may have affected your results? Consider this in terms of data quality and data bias.

i) Many flu-related deaths involve complications, such as pneumonia, which can lead to underreporting of these cases.

4. How might you monitor the impact of the staffing changes you recommended?

ii) Based on the patient's feedback and medical visits due to flu virus symptoms.
iii) The number of flu fatalities in the elderly population in 2018.
iv) And the total count of dead certificates that include influenza as a cause of death per state.

5. Is there a metric that could be used for monitoring this impact?

Yes, as mentioned earlier, we are using death certificates as a metric to measure the impact of the virus on the population.

6. Link to your video recording https://www.youtube.com/watch?v=z-_bV5O6LNE&t=307s

7. Link to Tableau storyboard.
https://public.tableau.com/views/2_9_MedicalStaffingPlan/2_9PreparingforFluSeason?:language=en-US&:sid=&:redirect=auth&:display_count=n&:origin=viz_share_link