Preparing for influenza season US 2009-2017

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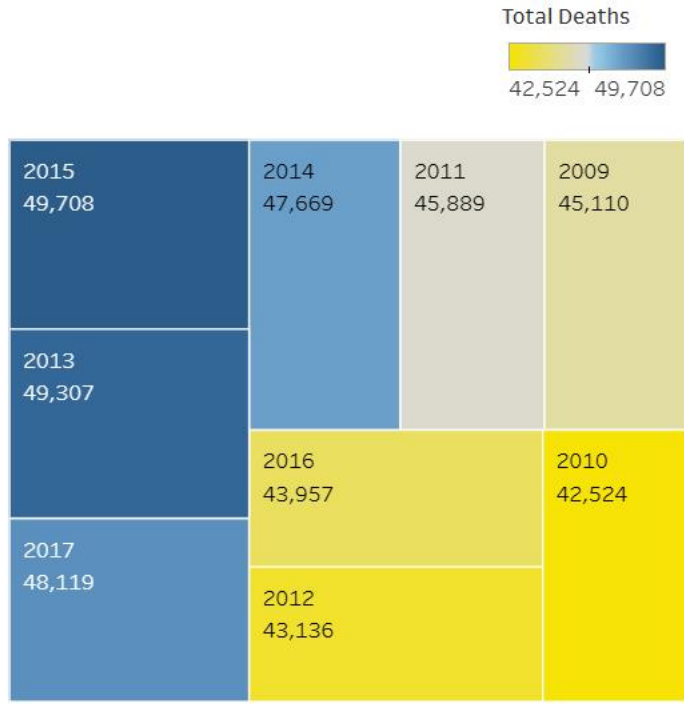
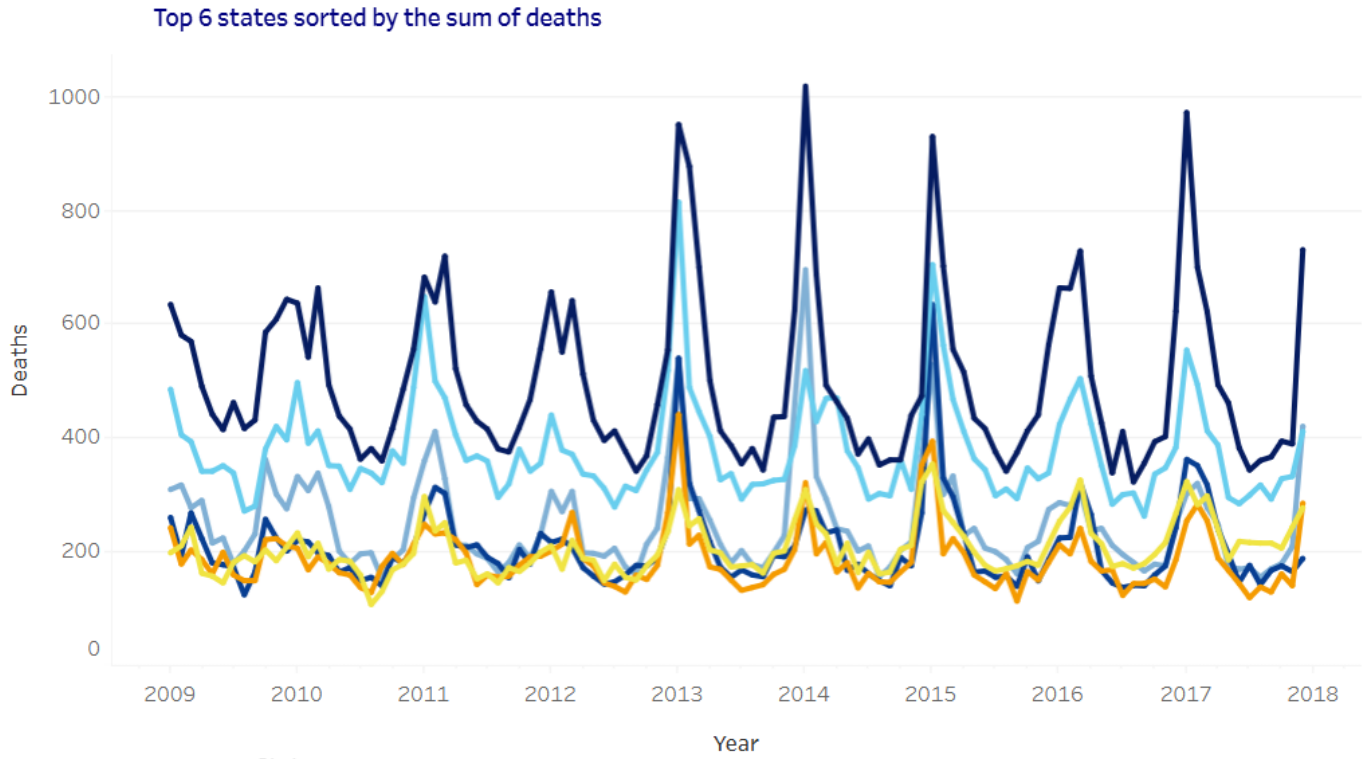
The burden of influenza in the United States varies annually based on the circulating viruses, vaccination rates, and the effectiveness of that year's vaccine.

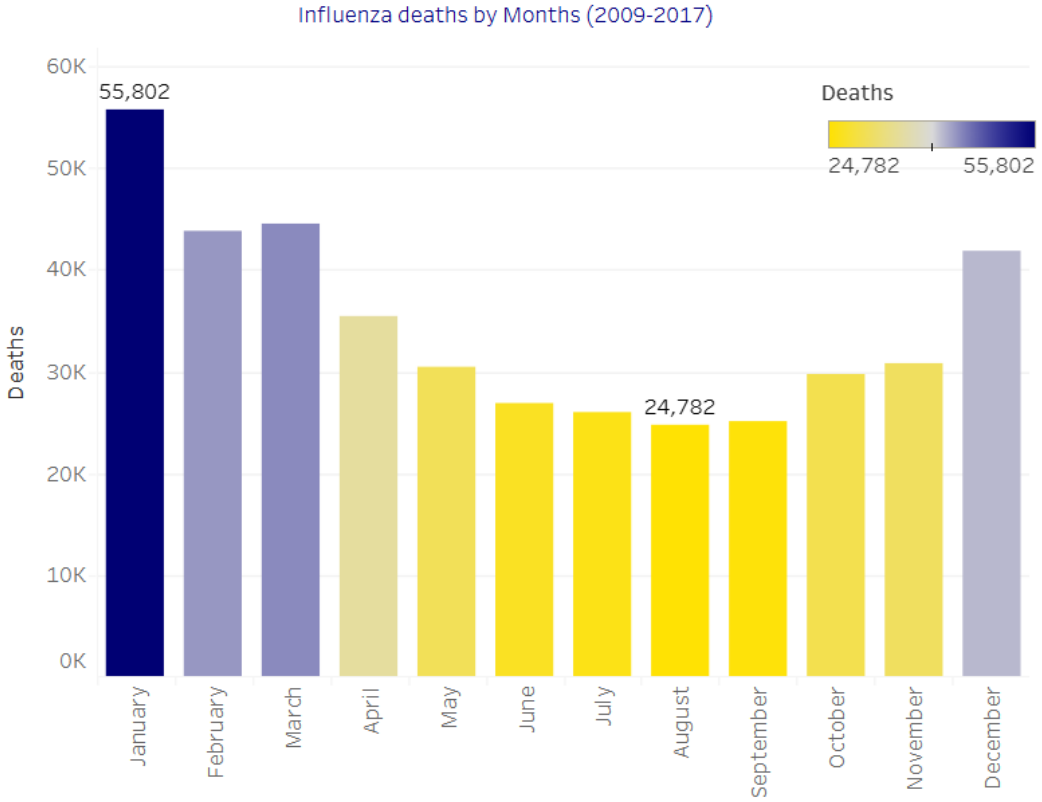
Being informed about influenza enables us to allocate limited medical staff more efficiently to the times and places where they are most needed.

From 2009-2017, influenza killed an average of 46,600 people yearly in the USA. While most recover without medical care, it can be deadly for vulnerable individuals and those with weakened immune systems or chronic illnesses.



Influenza Season in the US





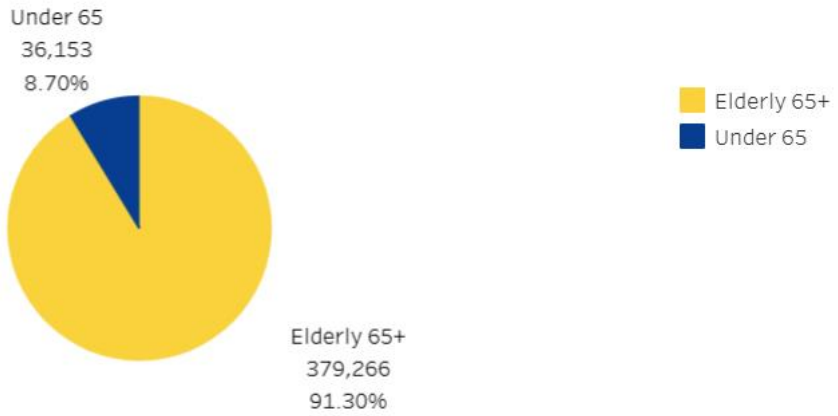
Year
(All)

State
- California
- Florida
- Illinois
- New York
- Pennsylvania
- Texas

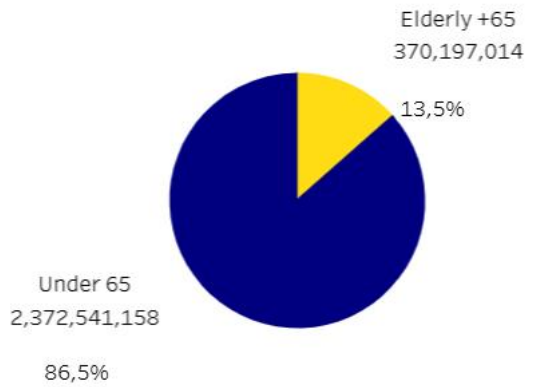
Insights : The charts demonstrate a clear seasonal pattern in influenza deaths, with the highest mortality occuring in the winter months and the lowest in the summer.
This information is crucial for public health planning and vaccination campains, emphasizing the need for increased vigilance and preventive measures during the winter season.

Who is the most affected?

Percentage of Influenza deaths by age groups

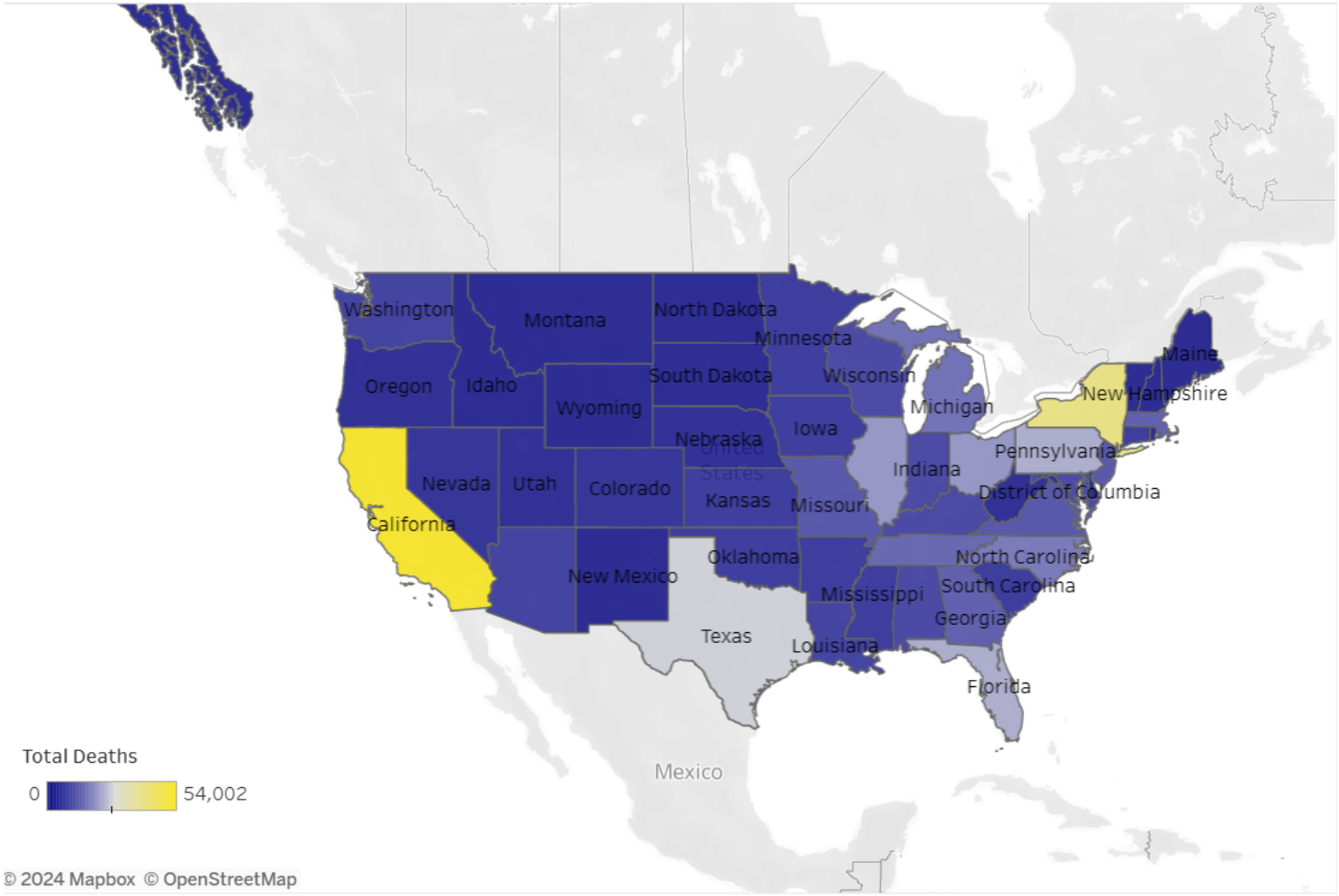


Percentage of the population by age groups



The data reveals a critical insight:
While the Elderly (65+ years) makes up a smaller portion of the overall population, they suffer the majority of influenza-related deaths.
This emphasizes the heightened vulnerability of the elderly to influenza and underscores the importance of targeted health interventions and resource priotization for this demographic.

Regions most affected by Influenza



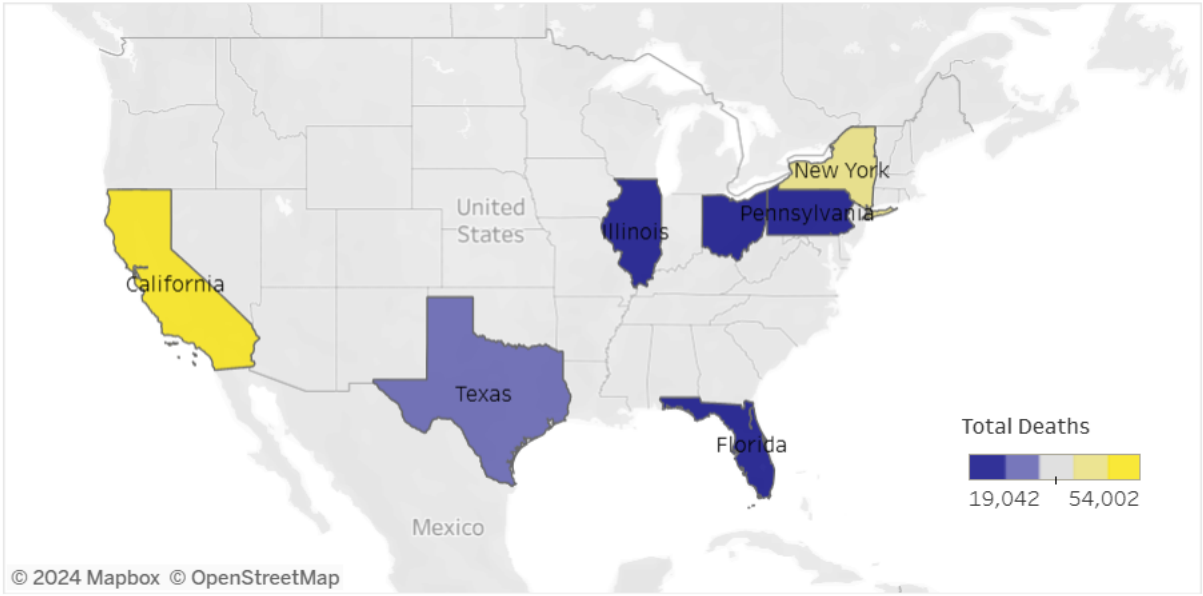
Total deaths and Elderly population by state

State	Elderly +65	Total Deaths
California	40,325,137	54,002
New York	24,370,039	40,875
Texas	24,174,324	26,759
Pennsylvania	17,980,640	22,334
Florida	30,729,315	22,129
Illinois	14,686,106	20,004
Ohio	14,769,101	19,042
North Carolina	11,336,473	15,597
Michigan	12,391,052	14,270
Tennessee	7,687,424	12,442

Insights: California, New York, Texas, Pennsylvania and Florida are critical states with high-density populations of vulnerable groups and significant death rates. Other states like Illinois and Ohio have medium priority levels and require additional medical efforts.
=> Increasing medical resources in those states whose vulnerable populations are more susceptible to the flu will likely have the greatest impact towards reducing flu deaths.

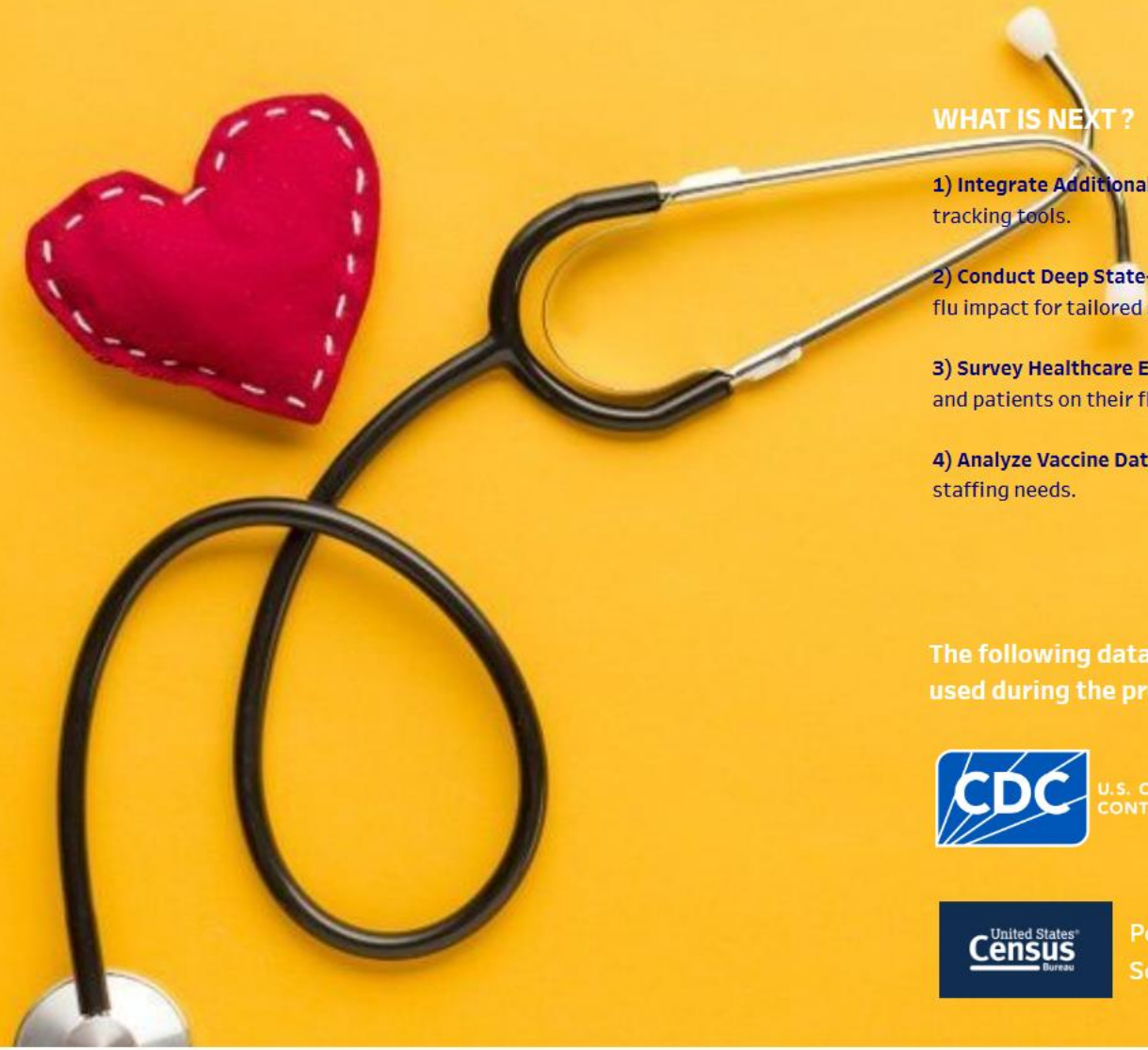
Conclusion

The seasonal pattern in influenza deaths, with the highest mortality in winter, underscores the necessity for heightened vigilance and preventive measures during this season, such as timely vaccination campaigns.



The disproportionate impact of influenza on the elderly population, despite their smaller overall numbers, highlights the need for targeted health interventions and resource allocation to protect this vulnerable group.

States like California, New York, Texas, Pennsylvania, and Florida, with high-density populations and significant death rates, require prioritized medical resources.
States with medium priority levels, such as Illinois and Ohio, also need enhanced medical efforts to manage influenza effectively.
Focusing resources on these critical and medium-priority states will more effectively reduce influenza deaths among vulnerable populations.



WHAT IS NEXT ?

1) Integrate Additional Data Sources: electronic health records, and real-time flu tracking tools.

2) Conduct Deep State-Level Analysis: Examine local healthcare capacity and historical flu impact for tailored staffing.

3) Survey Healthcare Employees and Patients: Collect insights from healthcare workers and patients on their flu season experiences.

4) Analyze Vaccine Data: Assess vaccination rates and their impact on flu cases and staffing needs.

The following data sets covering influenza in the United States were used during the project:

CDC U.S. CENTERS FOR DISEASE CONTROL AND PREVENTION — Influenza deaths by geography
Source: CDC;

United States Census Bureau — Population data by geography, time, age, and gender
Source: US Census Bureau