

Preparing for Influenza Season

Introduction And Overview	Defining Influenza and Who Is at Risk?	Where and Who is at Risk?	When is influenza Season?	Conclusion and Recomendations	Ongoing monitoring and data limitations
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Preparing for Influenza season

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.

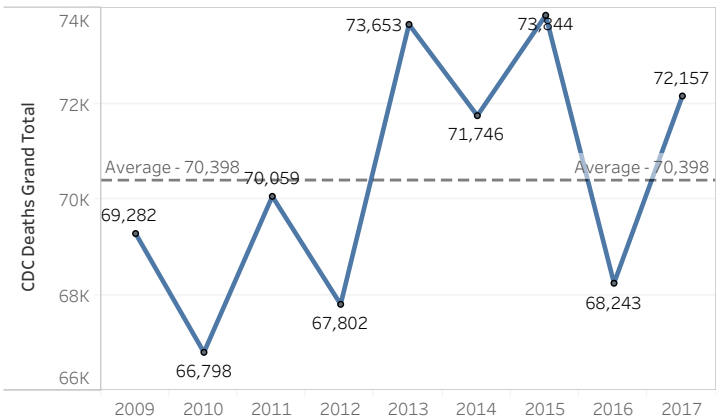
Objective

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

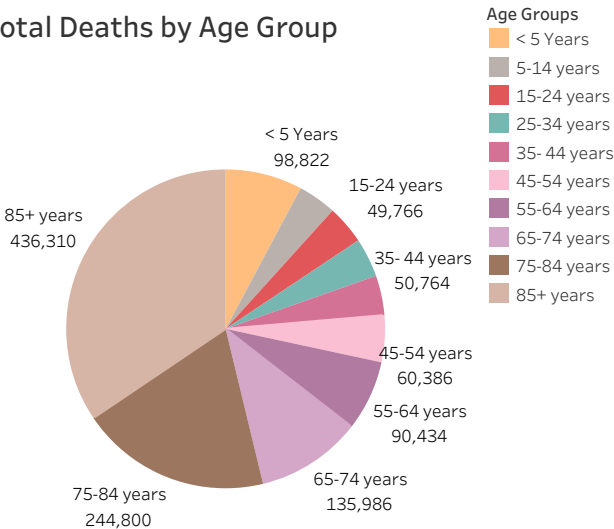
Scope

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.

Annual Influenza Deaths



Total Deaths by Age Group



Preparing for Influenza Season

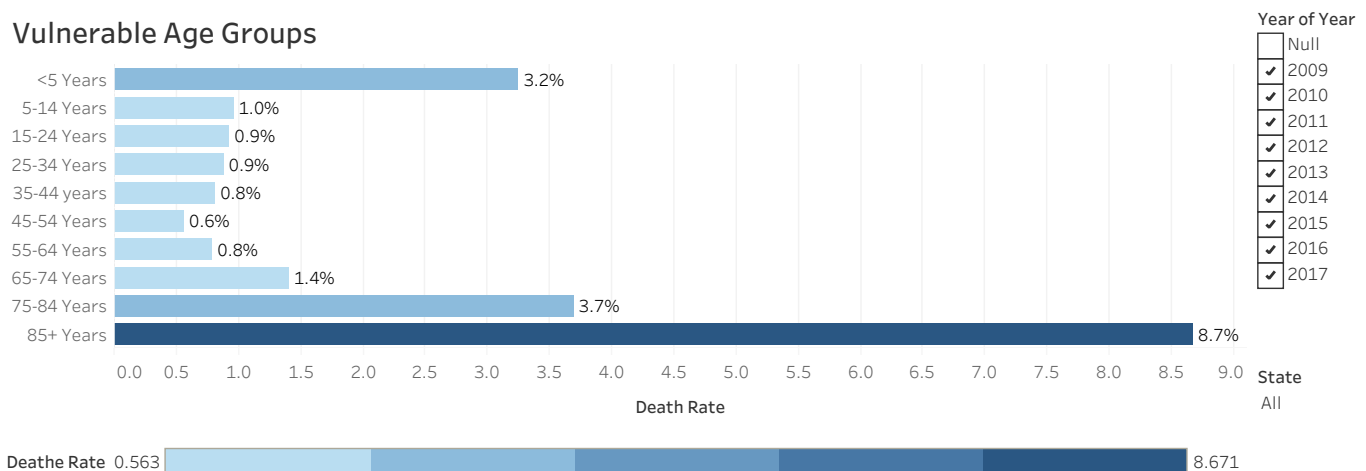
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Vulnerable Groups

Who is at risk?

The Most vulnerable age groups are Children younger than 5 years old, with a mortality rate of 3.2% and people over the age of 65 years of age with an average mortality rate of 4.6%. 10 year age groups from 65 years see an exponential with 65-74 years olds having a 1.4% mortality rate, 75-84 year olds having a mortality rate of 3.7% and 85+ having a mortality rate of 8.7%

Vulnerable Age Groups

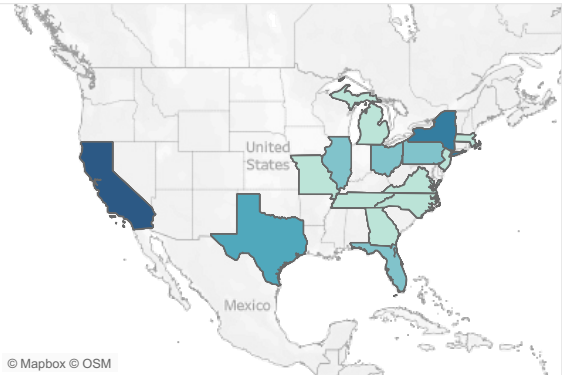


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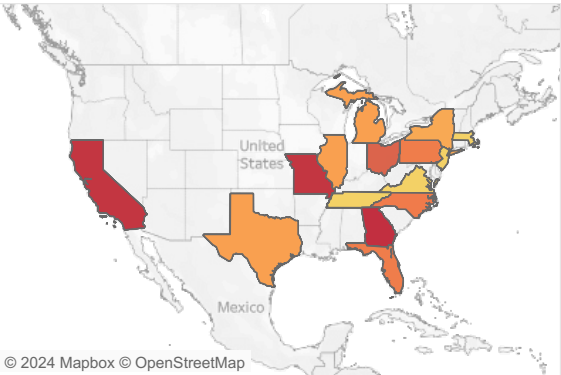
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Wher Are The Highest Regional Risks of Influenza

Regional Deaths Geopgraphically



Population Census

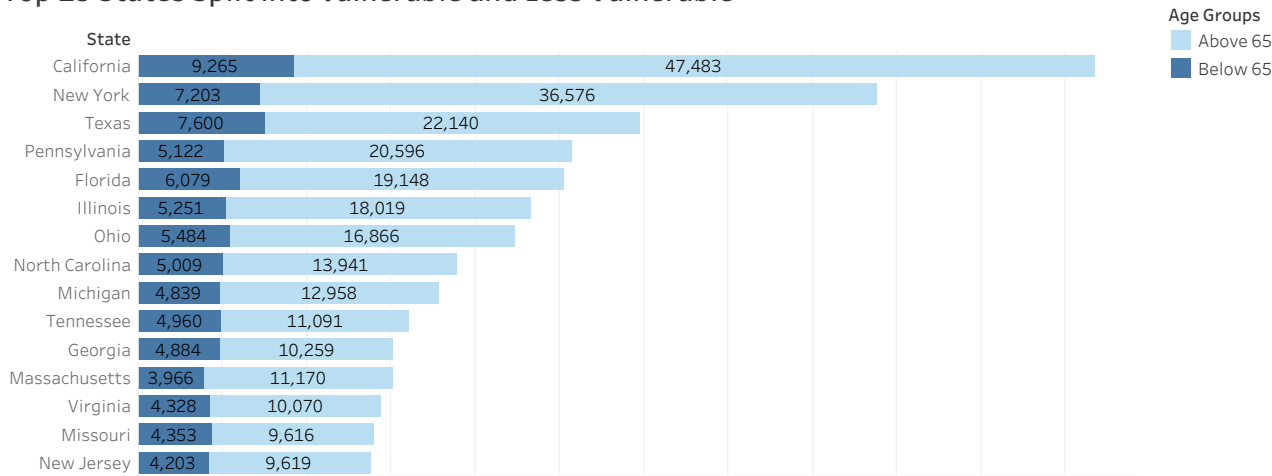


State
All

- Year
- ✓ 2009
 - ✓ 2010
 - ✓ 2011
 - ✓ 2012
 - ✓ 2013
 - ✓ 2014
 - ✓ 2015
 - ✓ 2016
 - ✓ 2017

Anual Deat.. 1,000 7,000 Total Census 1,000 45,000,000

Top 15 States Split into vulnerable and Less Vulnerable

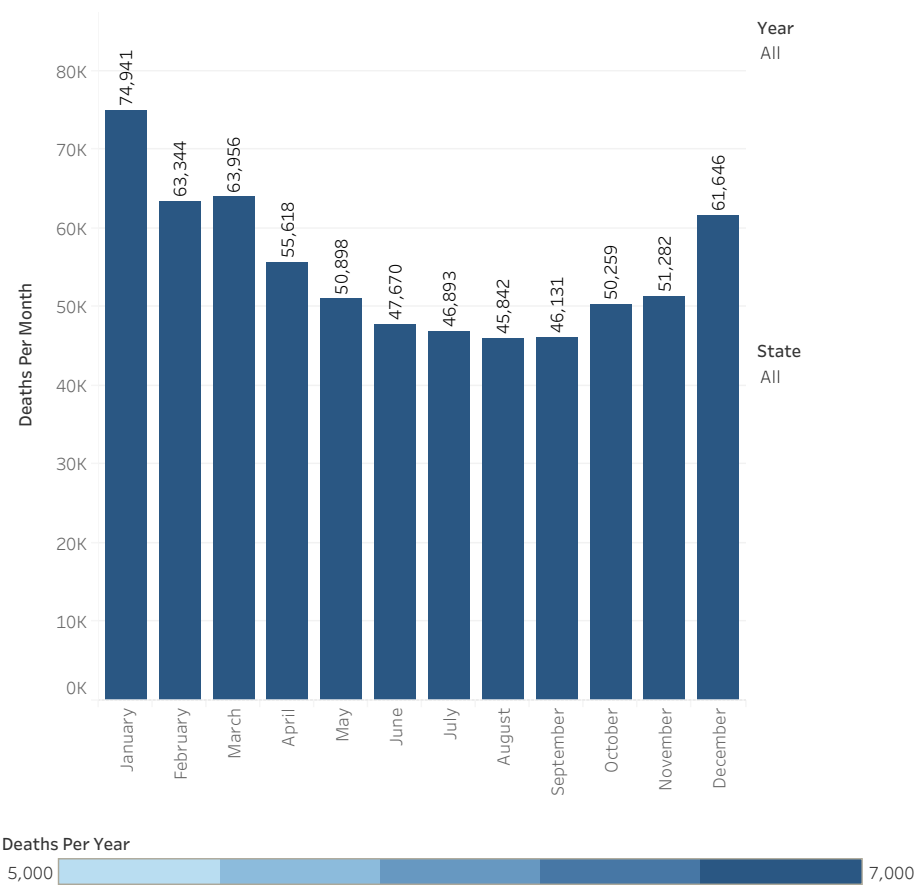


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When Is Influenza Season?

Total Seasonal Influenza Deaths by Month



Influenza Season

Influenza season seems to start in **December**, Peak in **January** and drop off in in **March**.

These are the colder months of the year.

California, New York and **texas** have the highest number of deaths, considering they are the most densly populated and have th largest populations this is no surprise.

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Staffing Needs For each State

Conclusion

we can see from the age group death rates, Geographical data and seasonality that their are groups of people and places that need resources to be allocated more than others.

Recommendations

Age groups of **5 Years and under** as well as **65 Years and over** should receive priority care and resources as the mortality rate is relatively high.

Seasonality heavily affects deaths and staffing should be particularly prepared for the winter season from **December to March**.

Given the Constraints we need to consider that priority states such as **California, New York, Texas, Pennsylvania and Florida** receive a majority of the resources. The remaining 10 states should receive moderate resources.

Further analysis

Additional data in the form of vaccine data, standard of living, nutritional information and illicit substance use could also greatly help understand the spread and survivability of individuals.



Average Deaths for the Top 15 States

California 6,305	Texas 3,304	Illinois 2,586	Michigan 1,977	Tennessee 1,783	Georgia 1,683
New York 4,864	Pennsylvania 2,858	Ohio 2,483	Massachusetts 1,682	Missouri 1,552	New Jersey 1,536
	Florida 2,803	North Carolina 2,106	Virginia 1,600		

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Ongoing monitoring and data limitations

Continue monitoring deaths rates.

Include vaccine death rate vs unvaccinated death rates.

Compare against other the top causes of death.

Data limitation, knowing general levels of health, fitness, diet, and hereditary factors.

Assessment of high population density states with low death rates to see what they are doing right.