

Recommendations for Stationing Health Care Professionals to Combat Influenza

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Agenda

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2. Visualizations
3. Recommendations
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Motivation, Objective, Scope and Process

Motivation, Objective and Scope

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: Recommend where to send additional healthcare staff to the three counties in most serious need of assistance.

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.

Process

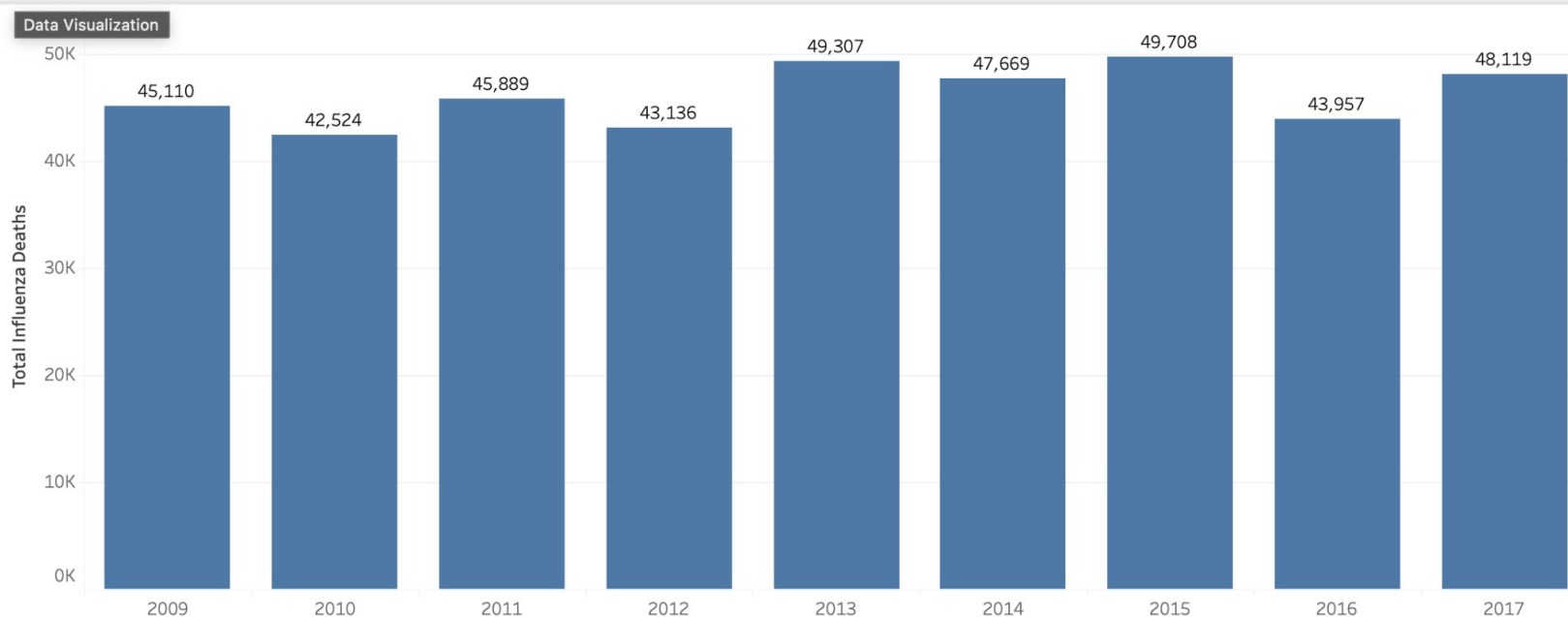
- I used two Excel worksheets, one containing United States census data and a second containing deaths in the United States from influenza.
- Performed exploratory data analysis to understand the data sets.
- Conducted statistical analysis in order to identify and remove outliers and generated a correlation matrix.
- Cleaned data by ensuring consistent naming patterns within columns.
- Combined two Excel data sets using a VLOOKUP statement.
- Imputed missing values.
- Created pivot tables to aggregate values to more easily discover patterns in the data sets.
- Created dashboards in Tableau.

Visualizations

The background of the slide is a solid dark brown color. On the right side, there is a decorative graphic consisting of several concentric, semi-circular arcs in a lighter shade of brown. Scattered across these arcs are numerous small, light brown dots, creating a pattern reminiscent of a fingerprint or a stylized sunburst.

Historical Influenza Data

Number of Influenza Deaths By Year



The average number of deaths from influenza are slowly increasing each year; currently the average per year is 48,128.

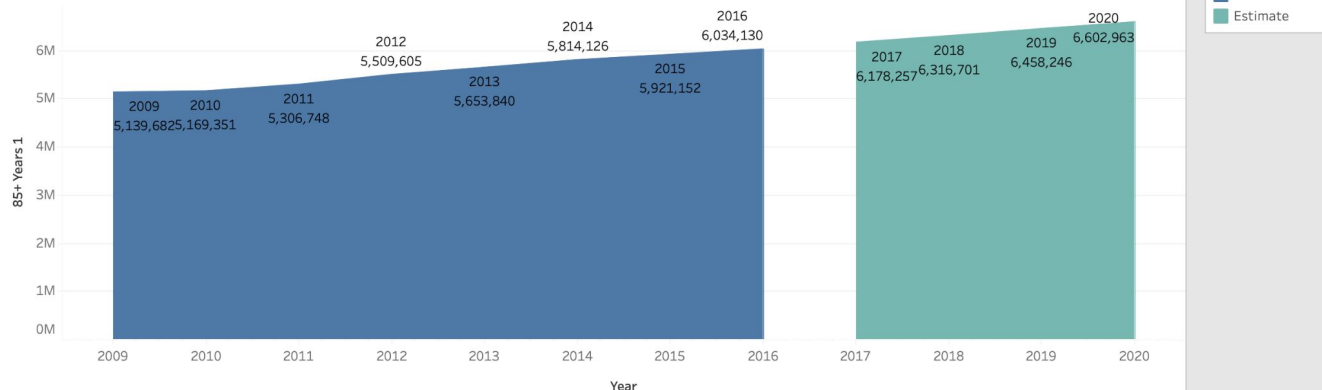
Correlation and Future Outlook

Correlation Matrix Between Age and Influenza Deaths

	5-14 years	15-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75-84 years	85+ years	Total Influenza Deaths
5-14 years	1									
15-24 years	0.796083526	1								
25-34 years	0.666643432	0.796083526	1							
35-44 years	0.370887028	0.370887028	0.632538083	1						
45-54 years	0.173768102	0.173768102	0.397156131	0.600552681	1					
55-64 years	0.164939718	0.164939718	0.329616599	0.534650327	0.84547001	1				
65-74 years	0.213301486	0.213301486	0.370239715	0.553417453	0.858745107	0.93902363	1			
75-84 years	0.204473555	0.204473555	0.337774952	0.513617269	0.826124738	0.905365226	0.93100122	1		
85+ years	0.218362229	0.218362229	0.379823679	0.566520432	0.871714348	0.951166017	0.969548309	0.988924179	1	
Total Influenza Deaths	0.218362229	0.218362229	0.379823679	0.566520432	0.871714348	0.951166017	0.969548309	0.988924179	0.99418139	1

The matrix shows a high correlation between old age and death from influenza.

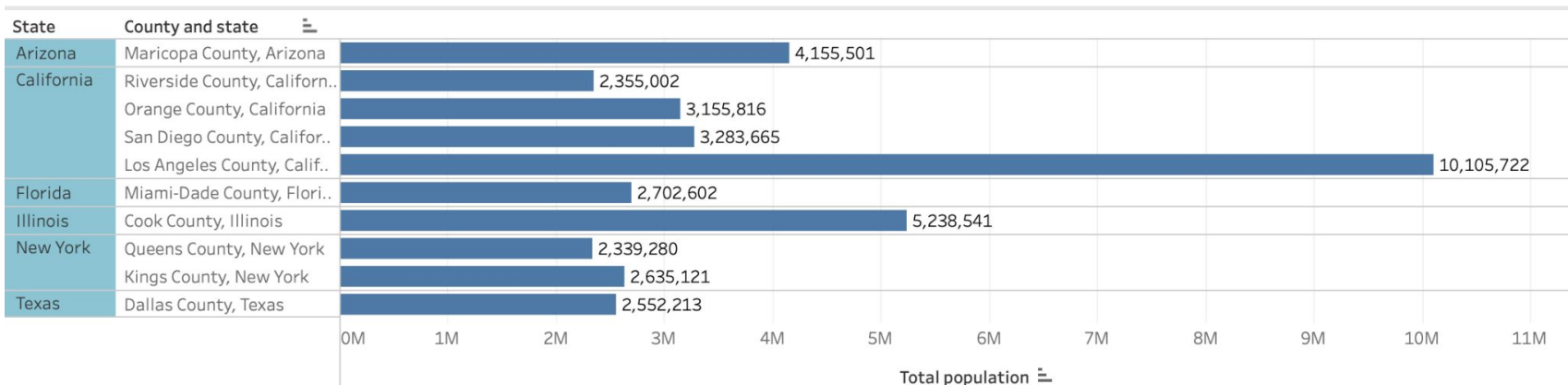
Total Number of 85+ Year-Old Citizens with 4-Year Forecast



The number of deaths of people 85 year-olds and older from influenza is predicted to increase.

Where Older Americans Live

11 Most Populous Counties in the United States, All Ages - 2017

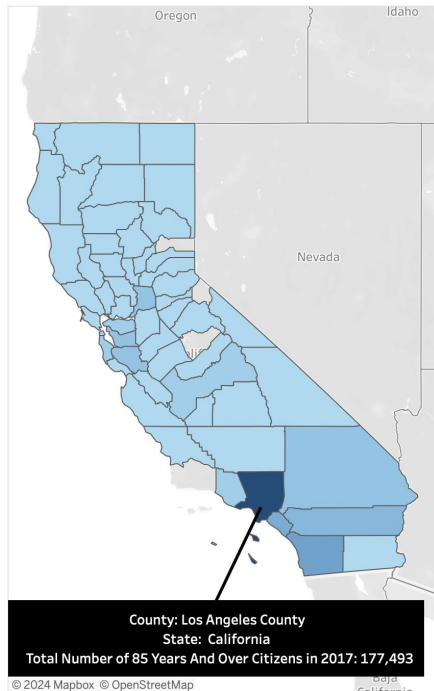


View an interactive dashboard at:
<https://public.tableau.com/app/profile/david.carpenter5643/viz/WheretStationHealthCareProfessionalstoCombatInfluenza/Story1>

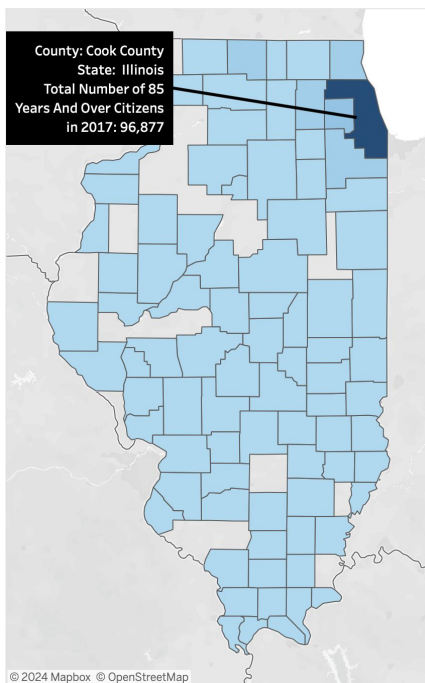
Recommendations

Where to Station Healthcare Staff

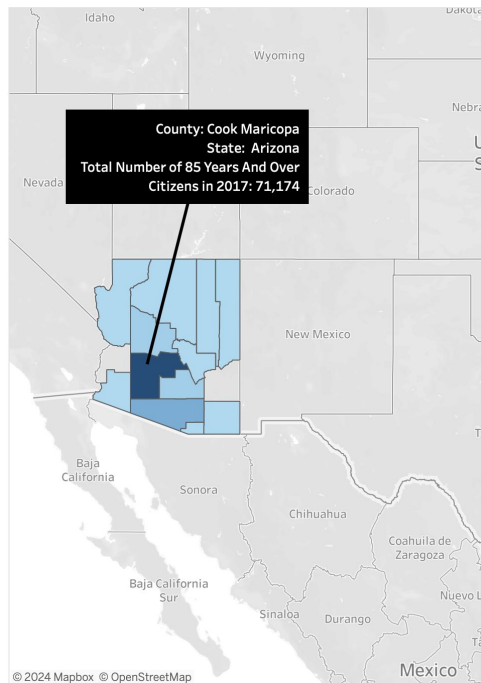
Density of 85+ Year-Old Californian Citizens in 2017



Density of 85+ Year-Old Illinois Citizens in 2017



Density of 85+ Year-Old Arizona Citizens in 2017



The top 3 counties where additional health care assistance is needed.

Link to Tableau Story

<https://public.tableau.com/app/profile/david.carpenter5643/viz/WheretostationHealthCareProfessionalstoCombatInfluenza/Story1>

Thank You

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