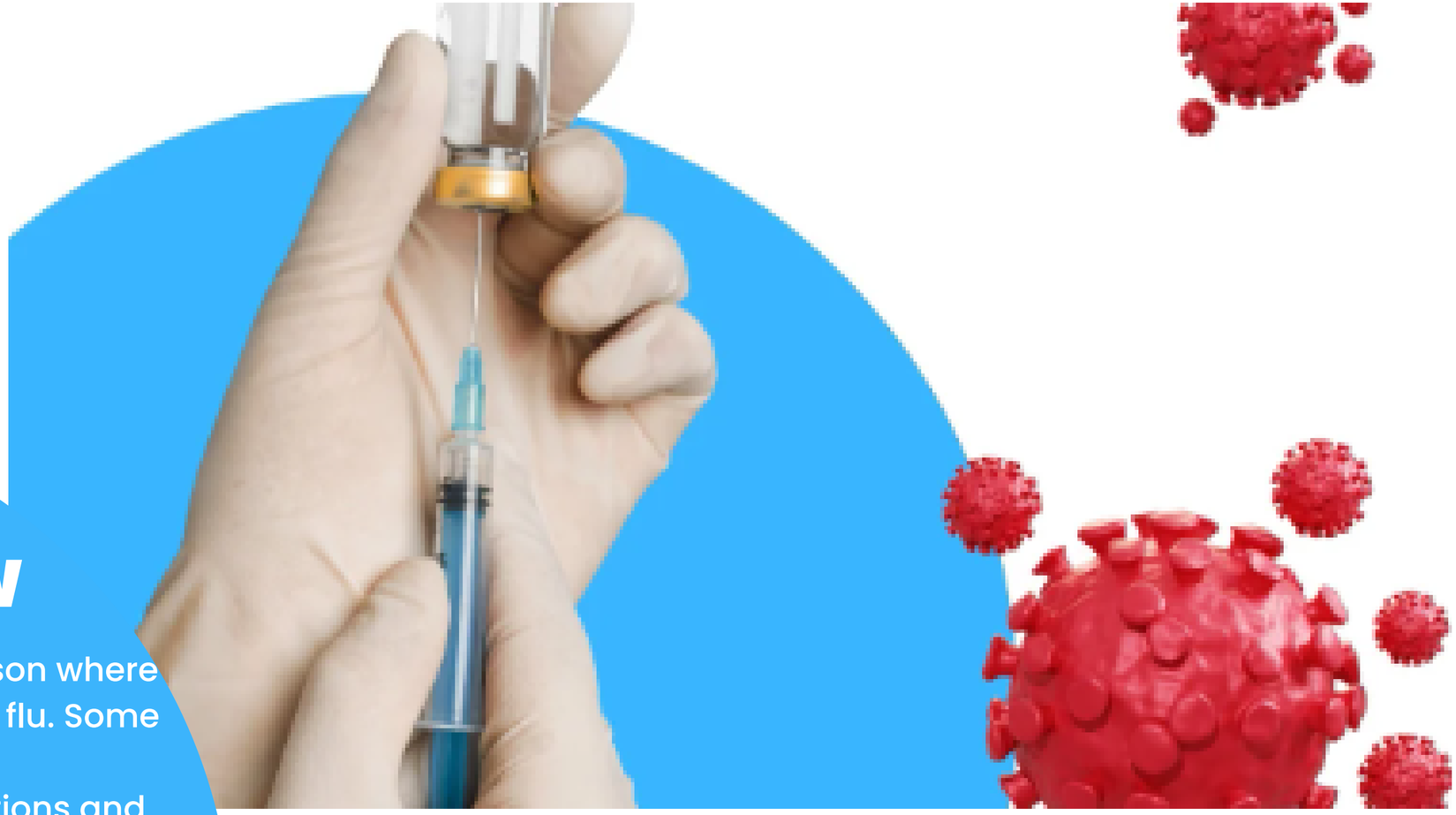
INFLUENZA SEASON



PROJECT OVERVIEW

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

Help a medical staffing agency that provides temporary workers to clinics/hospitals to plan for influenza season when additional staff are in high demand. The results will examine trends in influenza and how they can be used to proactively plan for staffing needs across the country.

DATASET

- Influenza deaths | Source: CDC
- Population data | Source: US Census Bureau
- Influenza Visits data | Source: CDC Fluview
- Vaccination Survey in Children | Source: CDC

TOOLS/SKILL

- Designing a Data Research Project
- Data Profiling & Integrity
- Data Cleaning • Data Transformation & Integration
- Conducting Statistical Analyses & Hypothesis Testing
- Consolidating Analytical Insights
- Creating visualizations & storytelling in Tableau

LIMITATIONS

the influenza data set contained suppressed values for any death count that was less than 10.

HYPOTHESIS

Null Hypothesis :
There is no difference in the Influenza flu Mortality rate between Vulnerable population (65 Year Above) and Non Vulnerable population (5 - 64 years) Age grouping

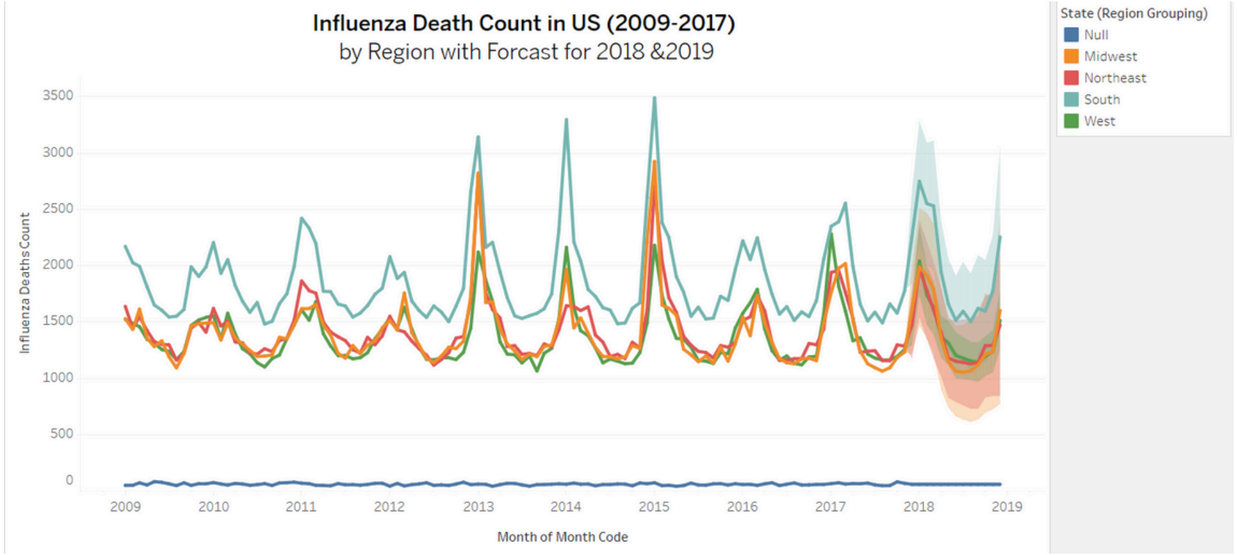
Alternative Hypothesis :
The patient with age 65 above if infected with influenza flu have significant higher risk mortality than those Non Vulnerable population (5 - 64 years)

t-Test: Two-Sample Assuming Unequal Variances		
	Vulnerable Influenza Death 65 Above	*Influenza Death non-vulnerable (5 - 64 years)*
Mean	895.4539474	385.3004386
Variance	955142.7363	15682.25459
Observations	456	456
Hypothesized M	0	
df	470	
t Stat	11.05637666	
P(T<=t) one-tail	1.02148E-25	
t Critical one-tail	1.648102128	
P(T<=t) two-tail	2.04296E-25	
t Critical two-tail	1.965024172	

P-value (one-tailed):
The P(T<=t) one-tail value is 1.02148086405311E-25, the P-value is below the significance level of 0.05, which means we can reject the null hypothesis with a 95% confidence level. the interpretation is that there is a significant difference in the influenza flu mortality rates of the two age group, the influenza flu mortality rate in the Vulnerable Population (65 above) and is significant higher than the Non Vulnerable population (5 - 64 years)

Results of test:
We have proven that Vulnerable Population (65 above) have a higher chance of dying from the influenza flu than Non Vulnerable population (5 - 64 years).

FINDINGS



There are still months with higher number of influenza deaths than the average, so December, January, February and March can be considered the peak months of the influenza season.

The highlighted states are states that are highly vulnerable to influenza flu during the influenza season and require urgent/priority frontline staff requirement.
The map detailed two levels of vulnerability with different color shading as follows:

- **High(top) risk states with dark orange color.**
- **Medium risk states with a light orange color.**

CONCLUSION AND RECOMMENDATIONS

Conclusion

The highlighted states are highly vulnerable to influenza flu during the influenza season and require urgent/priority frontline staff requirement.

The map detailed two levels of vulnerability with different color shading as follows:
High(top) risk state with dark orange color
Medium Risk state with a light orange color

Recommendation

The High(top) risk state with dark orange color should be give higher priority and more frontline staff allocated during next influenza and

follow by Medium Risk state with light orange color.

Next Step

Conduct an investigation to determine underlying risk factor for the high mortality rate for age group 65 above
create a plan that prioritizes the vaccination of Vulnerable Population (65 above)

DELIVERABLES:

Interim Report

Video presentation

Visit my Tabeleau page :