

MEMBER TASK

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Generate weekly statistics:

As part of the member task, I chose the state of Virginia (VA) and analyzed its weekly statistics on the number of new cases and deaths reported weekly. We determined the mean, median, and mode of cases and deaths per week in Virginia.

Compare the data against other states:

The statistical findings for Virginia are compared to those for five other states: North Carolina (NC), Florida (FL), New York (NY), Texas (TX), and California (CA). To make these comparisons, I estimated the number of cases and deaths per day to determine the number of cases and deaths per week for each of the six states. The data is normalized by the population because the population in each state is different.

Below figure shows the plot of the cases for the 6 states:

	State	mean	median		State	mean	median
0	CA	18.719062	8.251696	0	CA	0.293663	0.178968
1	FL	23.279632	16.492160	1	FL	0.300467	0.266721
2	NC	20.085264	14.507621	2	NC	0.239236	0.178434
3	NY	19.591146	9.408487	3	NY	0.477150	0.182119
4	TX	22.876173	14.380860	4	TX	0.319708	0.199536
5	VA	15.399213	10.570953	5	VA	0.243873	0.184105

Fig1: The mean and median of the covid cases and deaths after normalizing

From the above data, I observed that the Weekly mean number of cases for Florida is the highest and the weekly mean number of cases for Virginia is the lowest among the 6 states. And also, Weekly Median number of cases is the highest for Florida and lowest for California.

Weekly mean number of deaths for New York is the highest and the weekly mean number of deaths for NC is the lowest among the 6 states. Weekly Median number of deaths is the highest for Florida and lowest for New York

Weekly cases trend of 6 states

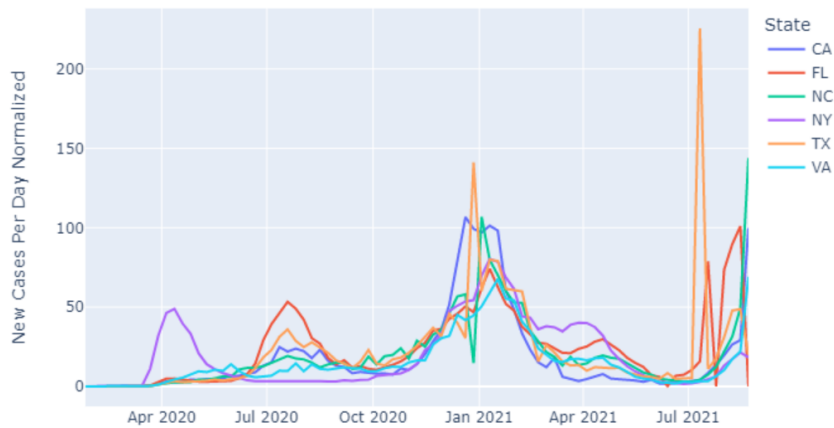


Fig2: shows the plot of the deaths for the 6 states

From the above figure, I observed that though Texas state has less Weekly mean number of cases than Florida, at some point, the rise in cases is very high than in Florida. And remaining states follow the same pattern though the numbers are different.

Weekly deaths trend of 6 states

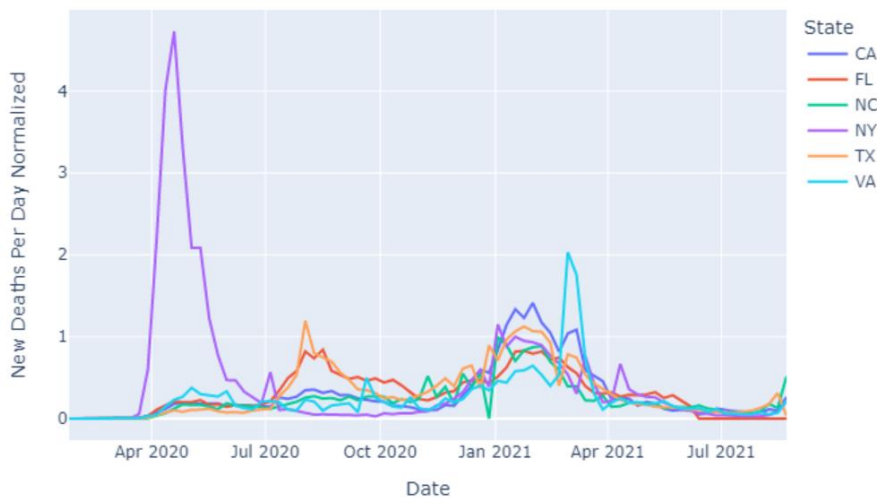


Fig3: shows the plot of the deaths for the 6 states

But in the plot of deaths among the six states, I have observed that New York state has highest number of death rates followed by Texas when we compared to the other states. While the rest four states follow the similar pattern among which almost have their highest peak of deaths in between January and April.

Do they compare with the US pattern?

When we compare the above plots with the US plots, it can be said that the cases follow a similar pattern, where both have the highest peak point in January, and after that, there is a fall in the graph, and again from June, the cases increased slightly.

In the plots of the deaths, both figures follow the almost same pattern, where the number of deaths is high in May and later in January of the following year.

Identify five counties within a state of your choice with high cases and death rates:

In this task, to find five counties within a state with high cases and deaths I did the county level assessment. The population of the counties is normalized. The top five counties within Virginia state with the highest number of cases are City of Galax, City of Lexington, City of Franklin, Richmond County and City of Buena Vista. The top five counties within Virginia state with the highest number of deaths are City of Galax, City of Emporia, City of Martinsville, City of Lexington and City of Franklin.

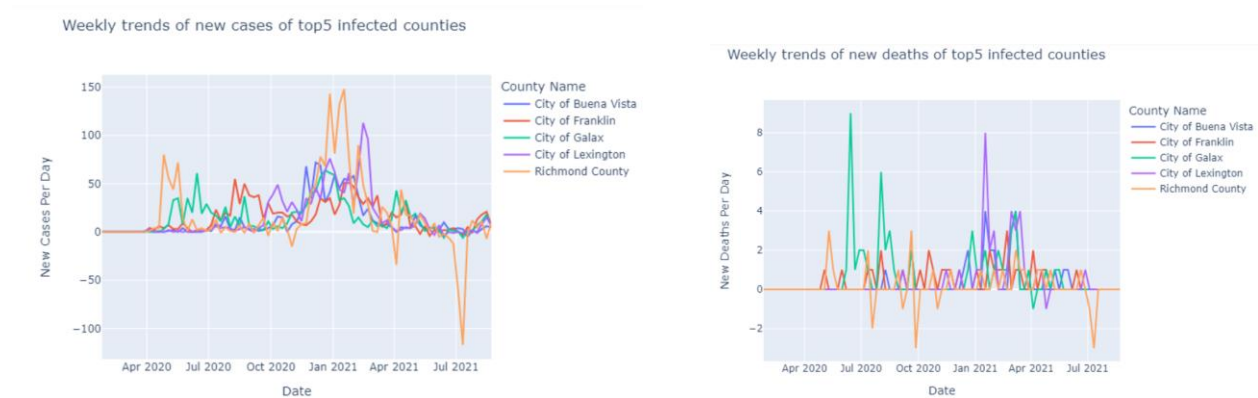


Fig4: weekly trends of top five infected counties(cases and deaths)



Fig5: log normalized weekly trends of top five infected counties(cases and deaths)

The above plots show the top five counties with a high number of cases and deaths. After normalization by population, it can be observed that Richmond county has been highly affected in some points. This may be due to the greater population density compared with other counties. And also, we can say that the deaths in the City of Galax have a peak point; maybe this is due to the lack of medical facilities in the initial days of the Pandemic. Here, all the counties follow almost a similar pattern of state pattern in the number of cases and deaths except at some points.