

COVID-19

USA – Data Analysis
2020 - 2021

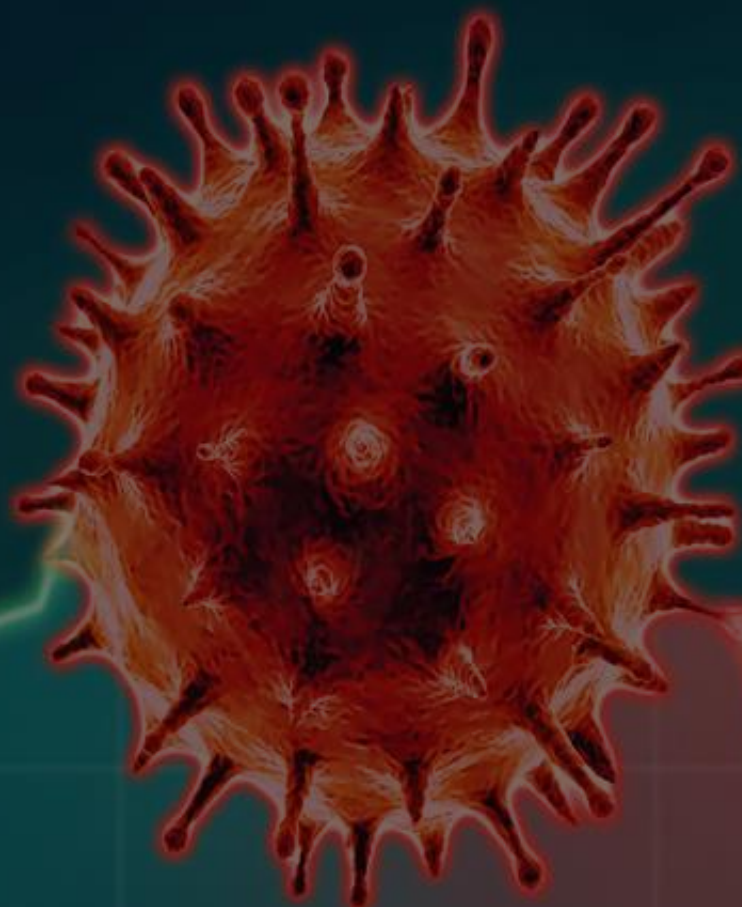
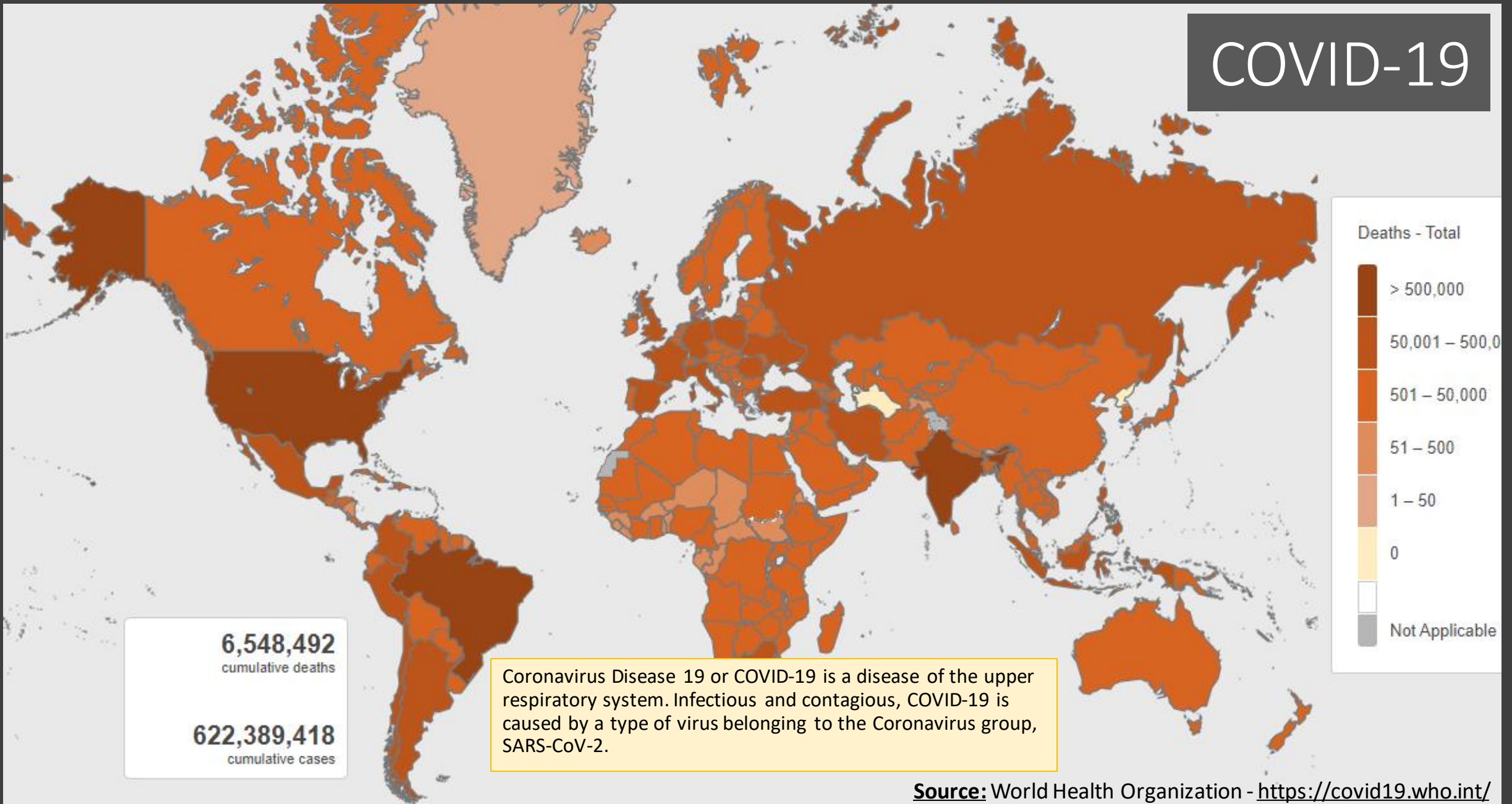


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COVID-19



Source: World Health Organization - <https://covid19.who.int/>

Oxford Database



- The Oxford COVID-19 Government Response Tracker (**OxCGRT**) collects systematic information on policy measures that governments have taken to tackle COVID-19.
- The different policy responses are tracked since 1 January 2020, covering several indicators such as **school closures**, **workplace closures**, **travel restrictions**, **vaccination policy**, rescaled to a value from 0 to 100 (**100 = strictest**).
- These policies are recorded on a scale to reflect the extent of government action, and scores are aggregated into a suite of policy indices.
- The main indicators (or indices) considered for this proposed analysis are:
 - **ConfirmedCases**
 - **ConfirmedDeaths**
 - **PopulationVaccinated**
 - **GovernmentResponseIndex_SimpleAverage**

A screenshot of a web interface titled "actions-user OxCGRT Data Update". It shows a table with two rows of data. Each row has a file icon, a filename, and a "OxCGRT Data Update" link. The first row is for "OxCGRT_USA_differentiated_withnotes_2020.csv" and the second row is for "OxCGRT_USA_differentiated_withnotes_2021.csv".

actions-user OxCGRT Data Update		
..		
	OxCGRT_USA_differentiated_withnotes_2020.csv	OxCGRT Data Update
	OxCGRT_USA_differentiated_withnotes_2021.csv	OxCGRT Data Update

Source: University of Oxford (COVID-19 Government Response Tracker) - <https://www.bsg.ox.ac.uk/research/covid-19-government-response-tracker>

USA Census Bureau



- Census Bureau's mission is to serve USA as the nation's leading provider of quality data about its people and economy.
- U.S. Census Bureau provide access to demographic, economic and population data (database and API).
- The main information considered for this proposed analysis are (via API call):
 - **Region Name (State)**
 - **Population per State**

Source: United States Census Bureau - <https://www.census.gov/>

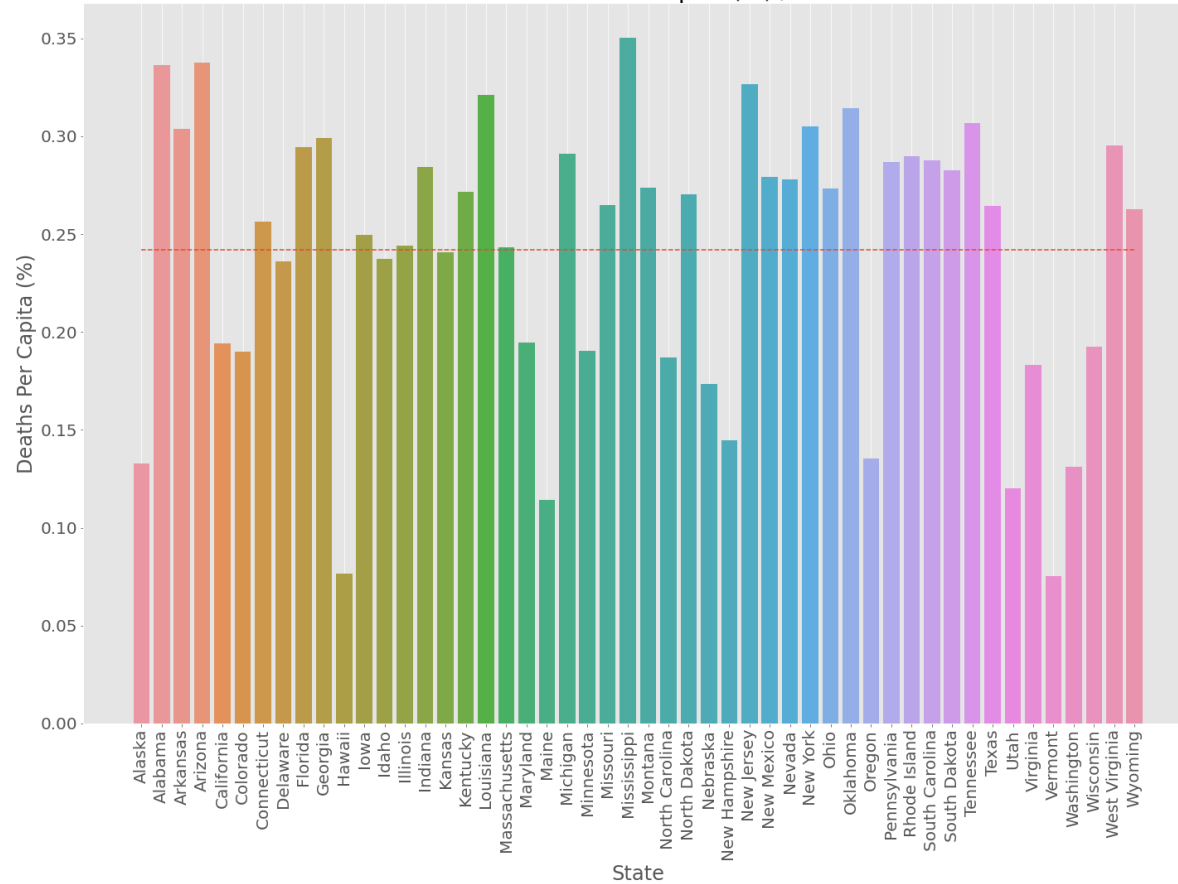
Questions & Analysis

- What state was most impacted by COVID-19 (by population)
 - Deaths per capita?
 - Cases per capita?
- Did vaccination rate impact the spread of COVID-19?
 - Spread (Confirmed Cases) vs. Vaccination Rate
 - Deaths vs. Vaccination Rate
- Did Government Response change COVID-19 impact?
 - Government vs. Deaths
 - Government vs. Confirmed Cases



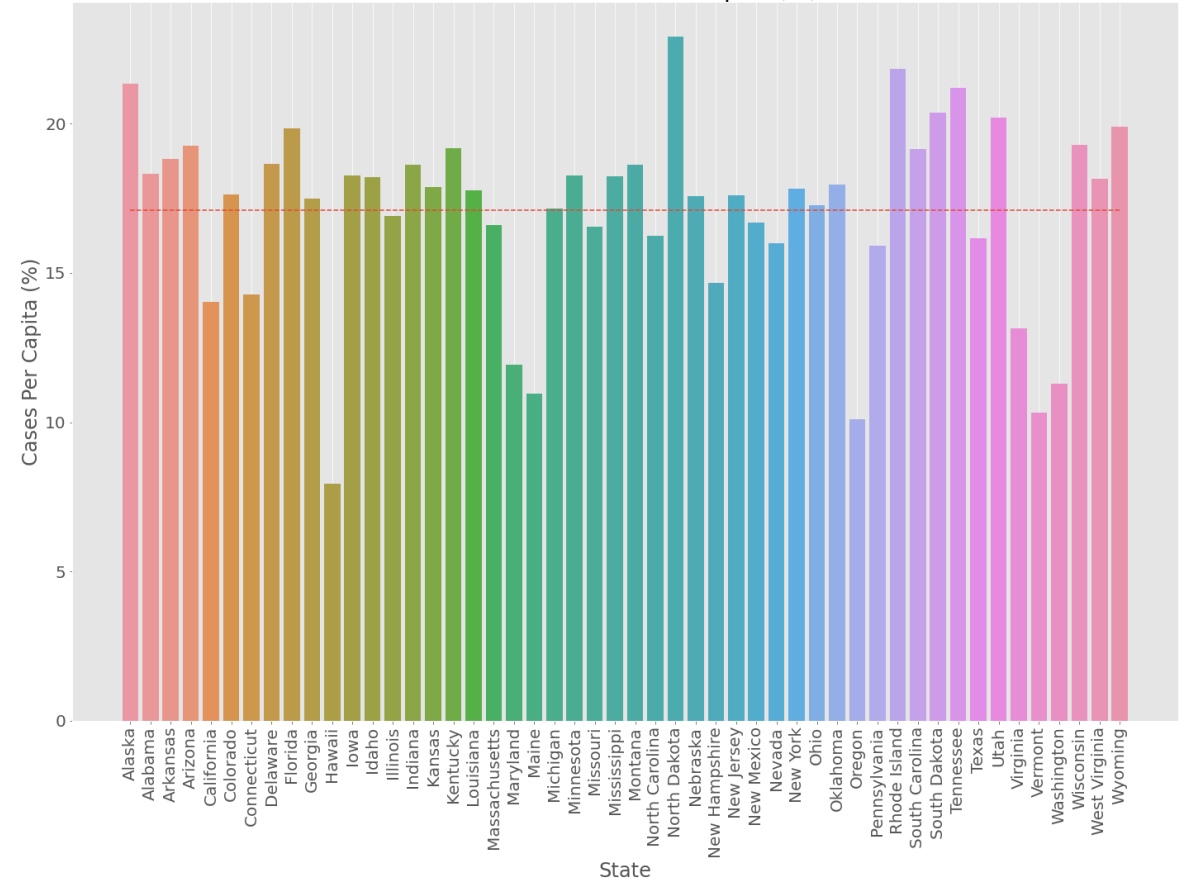
USA States and the impacts of Covid-19

2021 :: Deaths Per Capita (%) / State



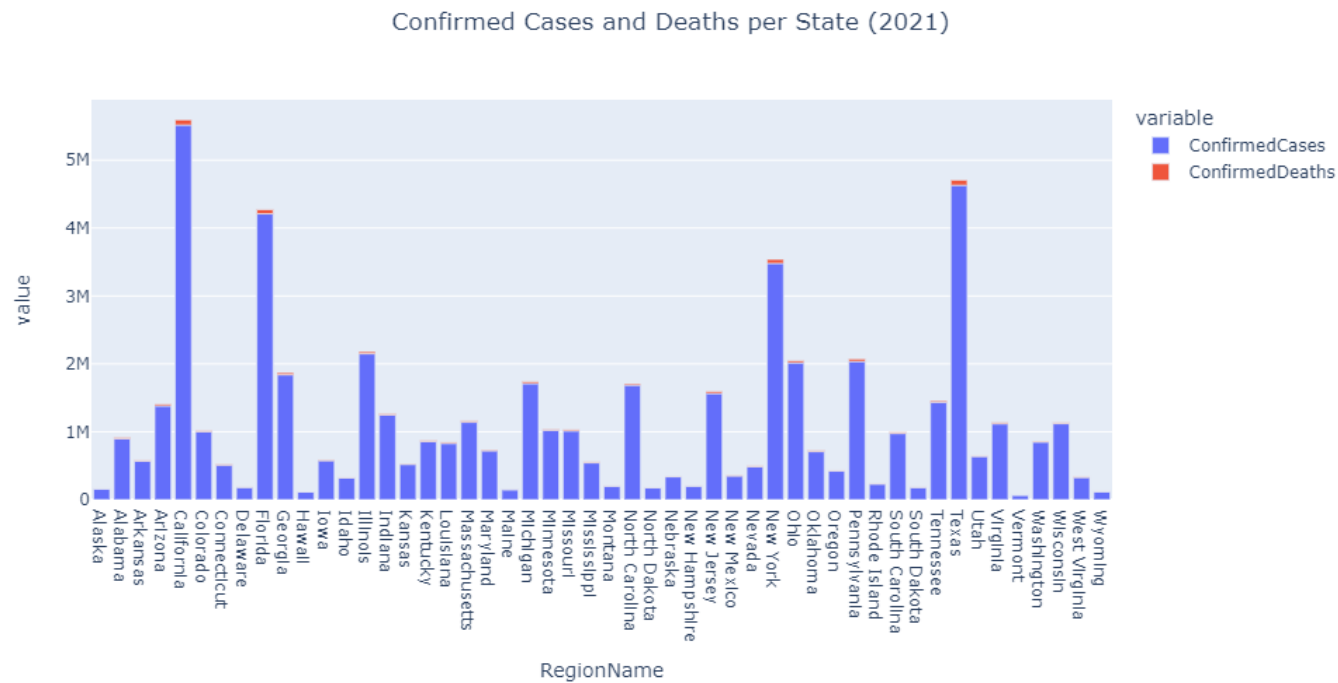
- 31 States above the National Average (0.24%) for Deaths per Capita.
- 3 States presenting Deaths per capita above 0.33%: Alabama, Arizona, Mississippi.
- Mississippi presented the highest rate of Deaths Per Capita (0.35045%).
- Vermont presented the lowest rate of Deaths Per Capita (0.07544%).

2021 :: Confirmed Cases Per Capita (%) / State



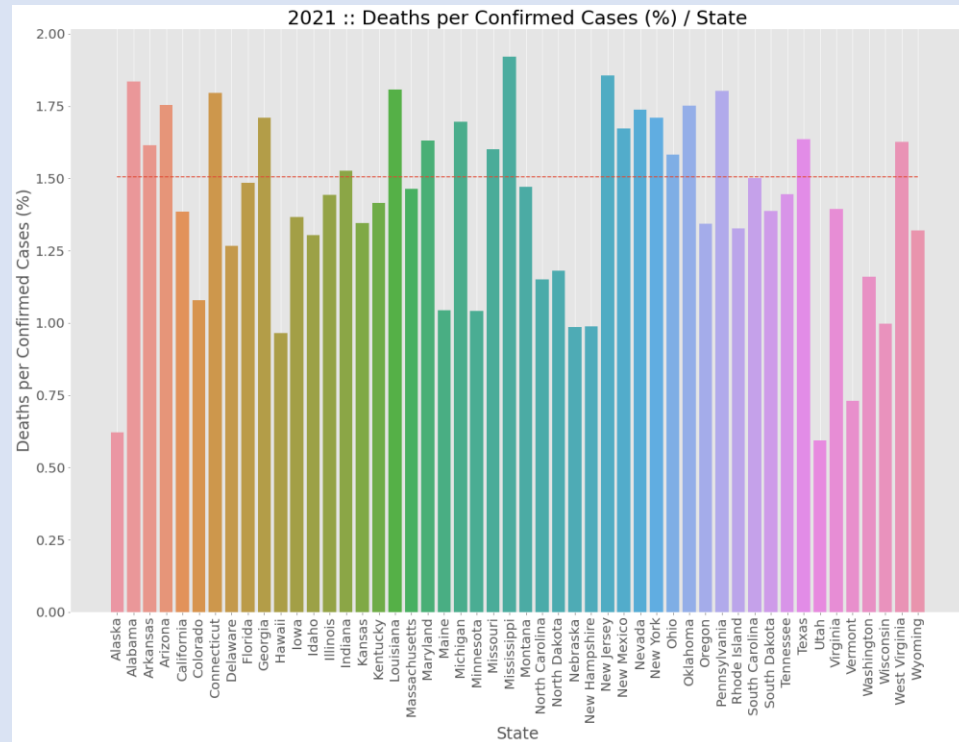
- 31 States above the National Average (17.09%) for Confirmed Cases per Capita.
- 4 States presenting Confirmed Cases per capita above 21%: North Dakota, Rhode Island, Alaska, Tennessee.
- North Dakota presented the highest rate of Confirmed Cases Per Capita (22.92%).
- Hawaii presented the lowest rate of Confirmed Cases Per Capita (7.95%).

USA States and the impacts of COVID-19

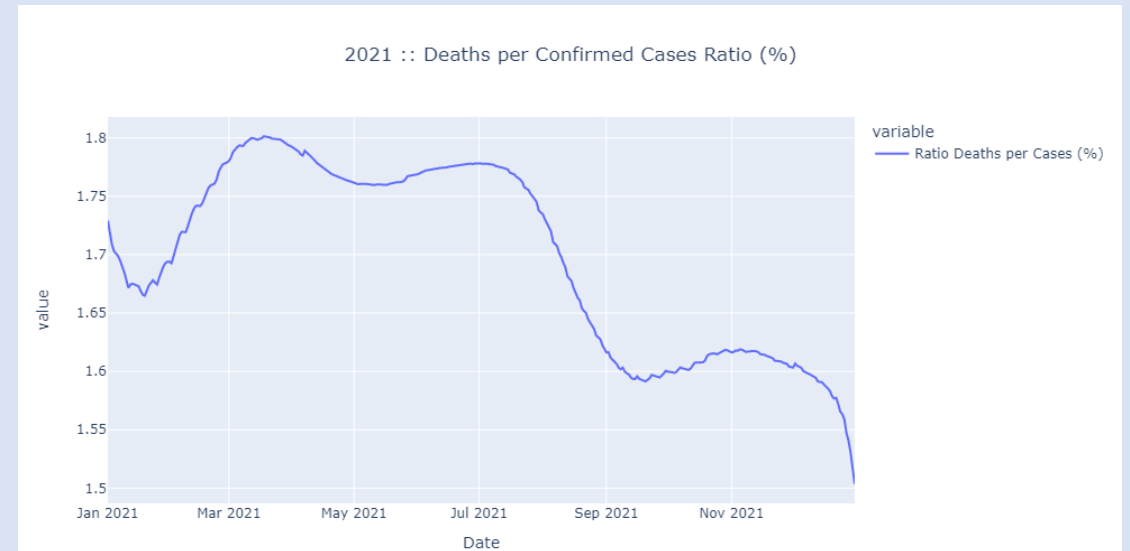


- National average as of 31/12/2021:
 - Confirmed Cases: 54,512,513
 - Confirmed Deaths: 820,719
 - Deaths per Confirmed Case Ratio: 1.50 %.
- States with higher population present higher absolute figures for Confirmed Cases and Deaths.
 - California
 - Confirmed Cases: 5,517,870
 - Deaths: 76,478
 - Texas
 - Confirmed Cases: 4,630,880
 - Deaths: 75,744
 - Florida
 - Confirmed Cases: 4,209,927
 - Deaths: 62,504

USA States and the impacts of COVID-19

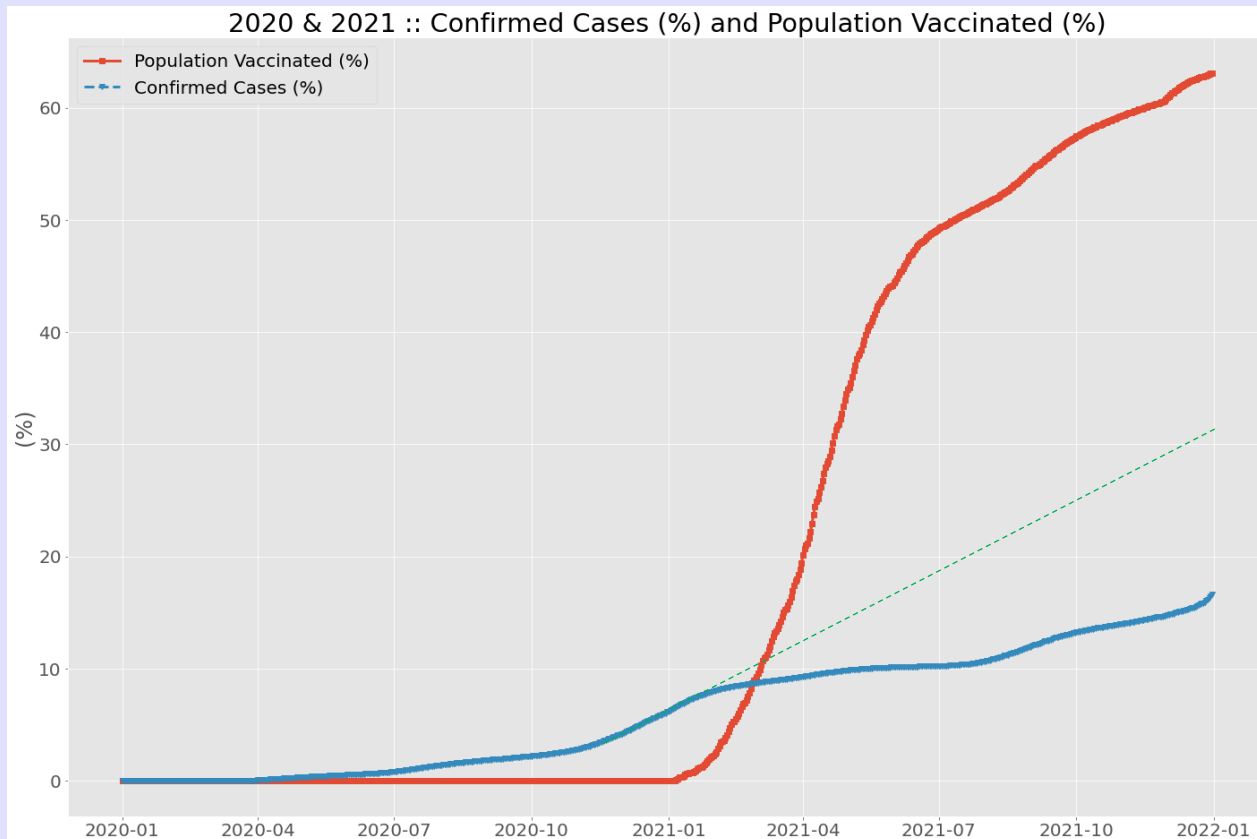


- National average for Deaths per Confirmed Cases Rate as of 31-Dec-2021: 1.50%
- 5 States presenting Deaths per Confirmed Cases Rate above 1.80%: Pennsylvania, Louisiana, Alabama, New Jersey, Mississippi.
- Mississippi presented the highest Deaths per Confirmed Cases Rate (1.92%).
- Utah presented the lowest Deaths per Confirmed Cases Rate (0.59%).



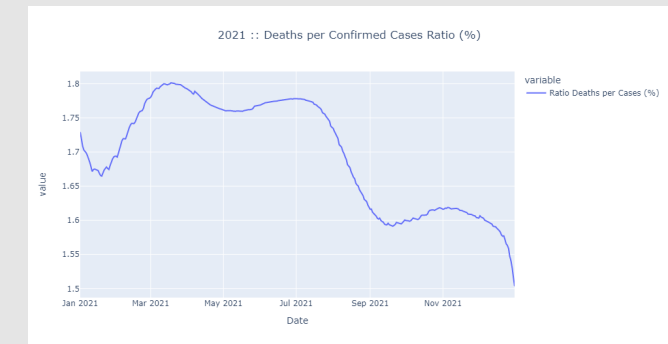
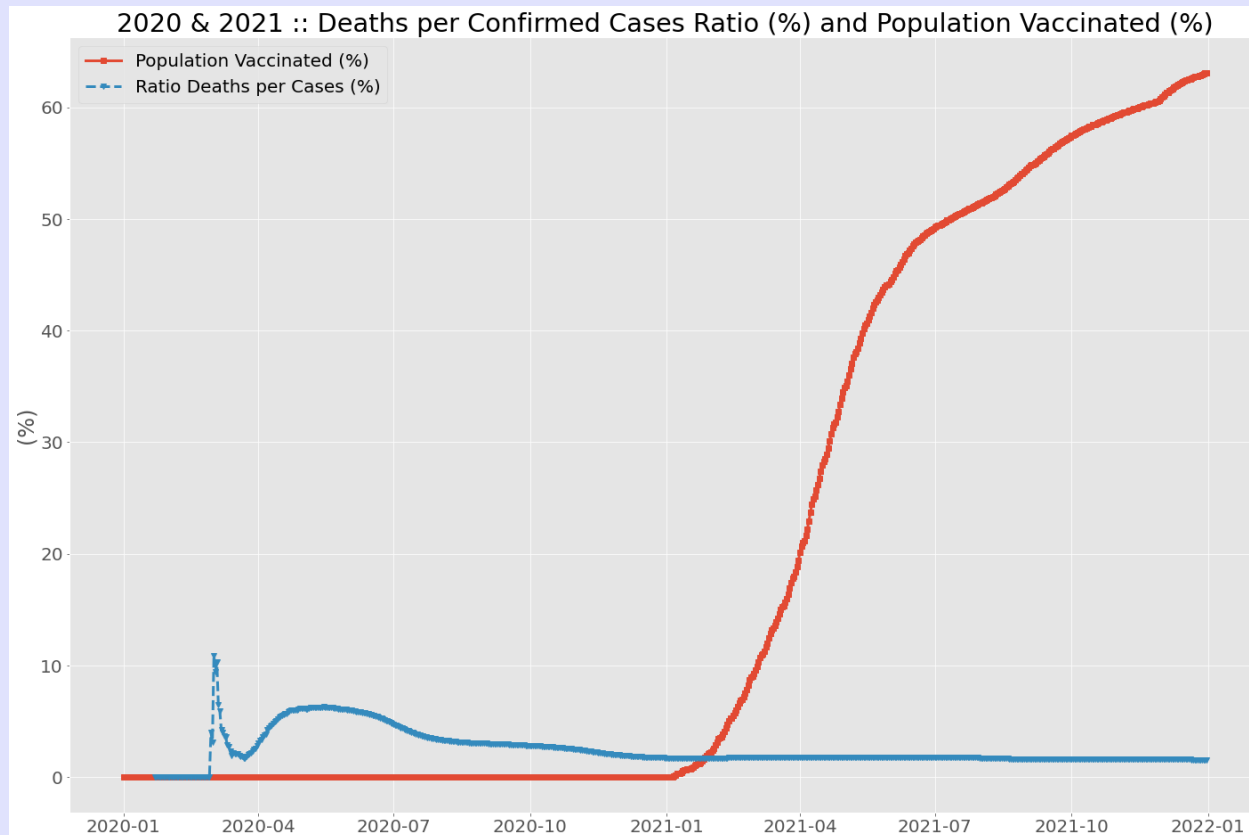
- Over 365 days in 2021, the National average for Deaths per Confirmed Cases Ratio fluctuated from 1,64% on 1st January to 1,50% on 31st December.
- The highest Deaths per Confirmed Cases Rate identified in 18-03-2021: 1.80 %.
- The lowest Deaths per Confirmed Cases Rate identified in 31-12-2021: 1.50 %.
- Significant decrease of Deaths per Confirmed Cases Rate in July-2021.
- In further analysis, this difference can be considered with Vaccination index and Government responses.

Did vaccination rate impact the spread of COVID-19?



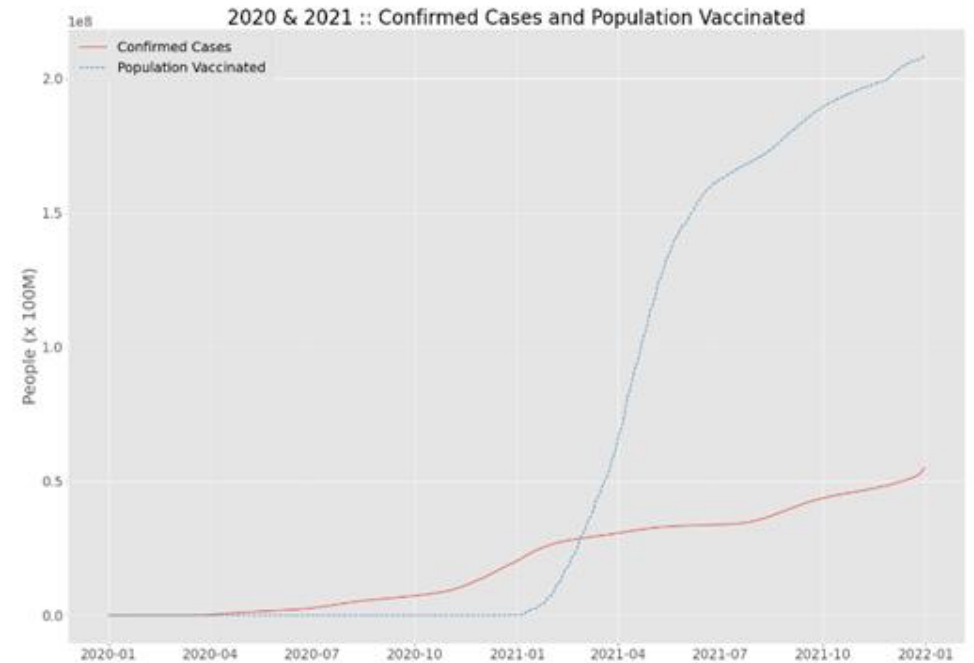
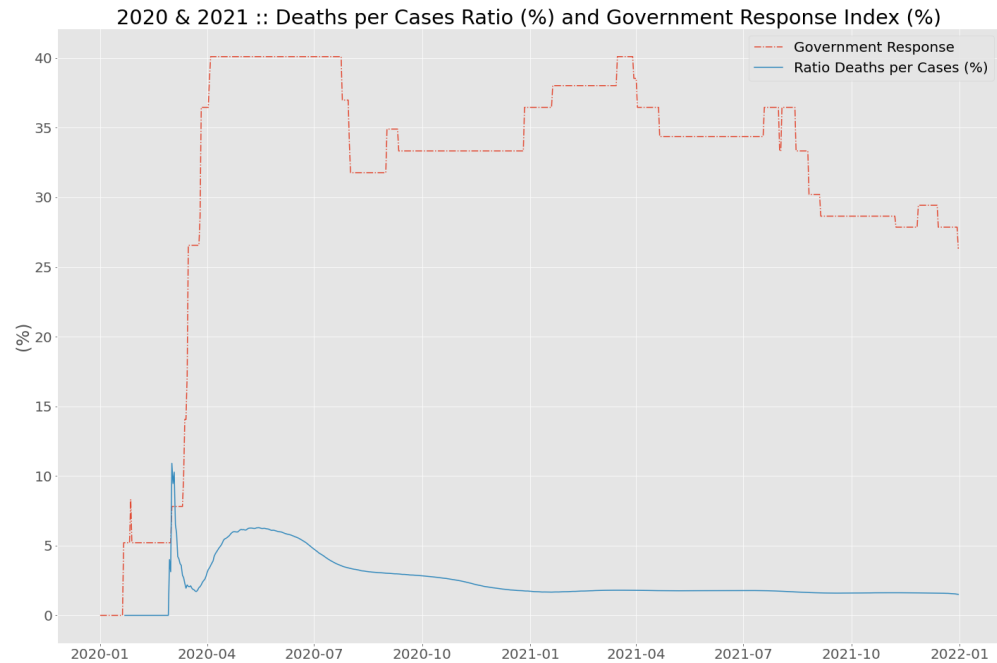
- Vaccination started only in 2021.
- More than 63% of the population vaccinated by the end of 2021.
- 16.65% of the population already confirmed to have had COVID-19 by the end of 2021.
- We can see a lower increase of the confirmed cases after the first month of the vaccination, and the curve becomes flatter.
 - Without the Vaccination, the confirmed deaths would be much higher at the end of the year, and
 - Number of deaths would be higher, following the deaths per confirmed cases rate.

Did vaccination rate impact the spread of COVID-19?



- Vaccination started only in 2021.
- After the start of the Vaccination program, the rate of deaths per confirmed case became stable (fluctuation up to 0.3%) and flat.
- The Vaccination impacted positively in the decrease of the rate of deaths per confirmed cases. In 2021:
 - The highest Deaths per Confirmed Cases Rate: 1.80 %.
 - The lowest Deaths per Confirmed Cases Rate: 1.50 %.

Did Government Response change COVID impact?



- According to the Oxford data 2020 and 2021 used as the data sets in this project governments' responses have been divided into categories such as closure policies:
- Report created an index to measure a country's response which we have used to compare with death rate.
- Maximum government response index is from April 2020 to July 2020 which is the period of the first lockdown. significant decrease in death rate.
- In January 2021 the vaccinations started along with the other closer and health policies.
- There is a slight drop in confirmed cases in between January 2021 and July 2021.



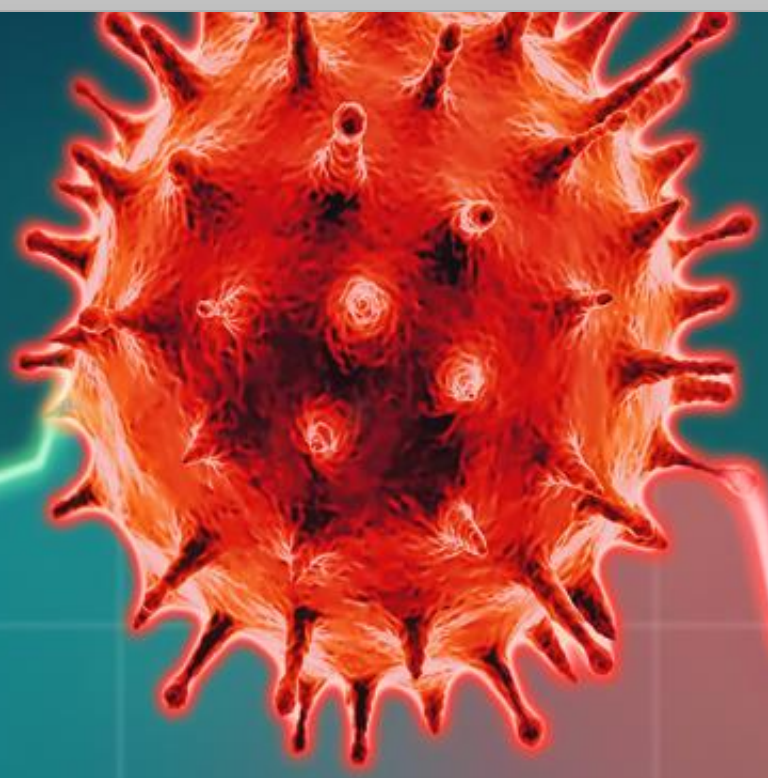
Conclusion

- States with higher population present higher absolute figures for Confirmed Cases and Deaths.
- As of 31/12/2021:
 - Mississippi presented the highest rate of Deaths Per Capita (0.35045%).
 - North Dakota presented the highest rate of Confirmed Cases Per Capita (22.92%).
- The Vaccination impacted positively in the decrease of the rate of deaths per confirmed cases. In 2021:
 - The highest Deaths per Confirmed Cases Rate: 1.80 %.
 - The lowest Deaths per Confirmed Cases Rate: 1.50 %.
- Maximum government response index is from April 2020 to July 2020 which is the period of the first lockdown. significant decrease in death rate.



Questions?

Thank you!



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