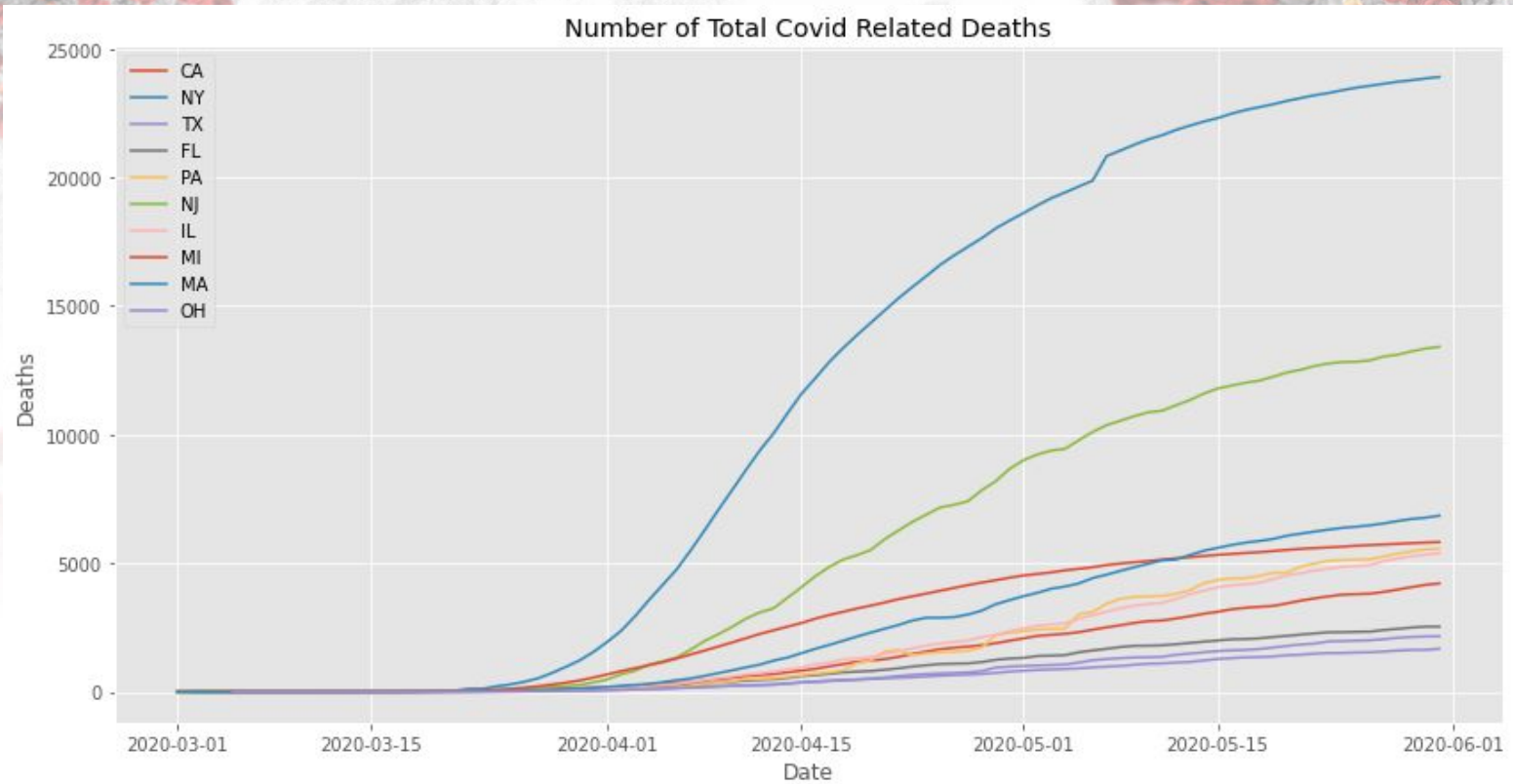


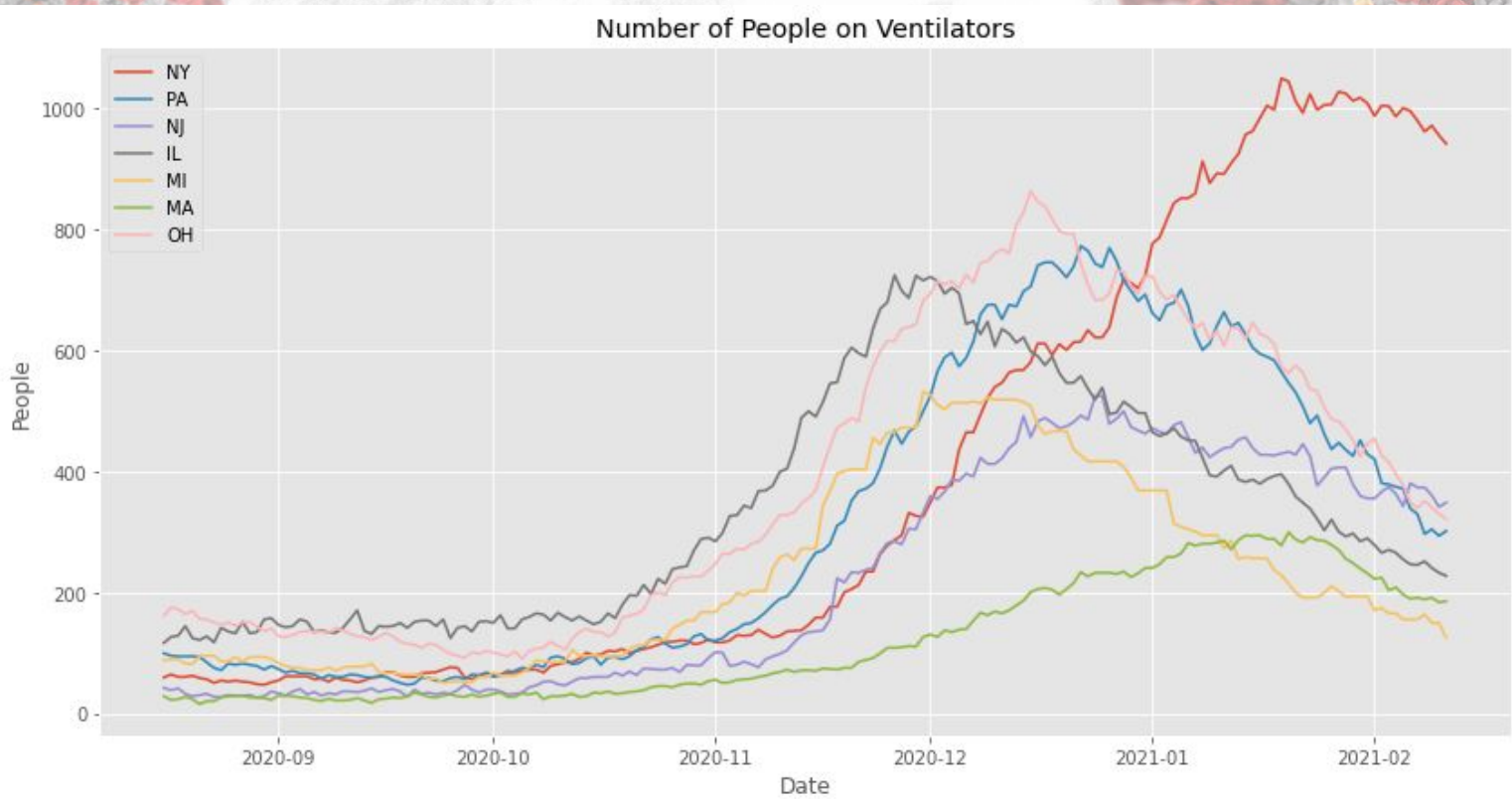
COVID-19 Forecasting

Joseph Denney

Problem and Purpose

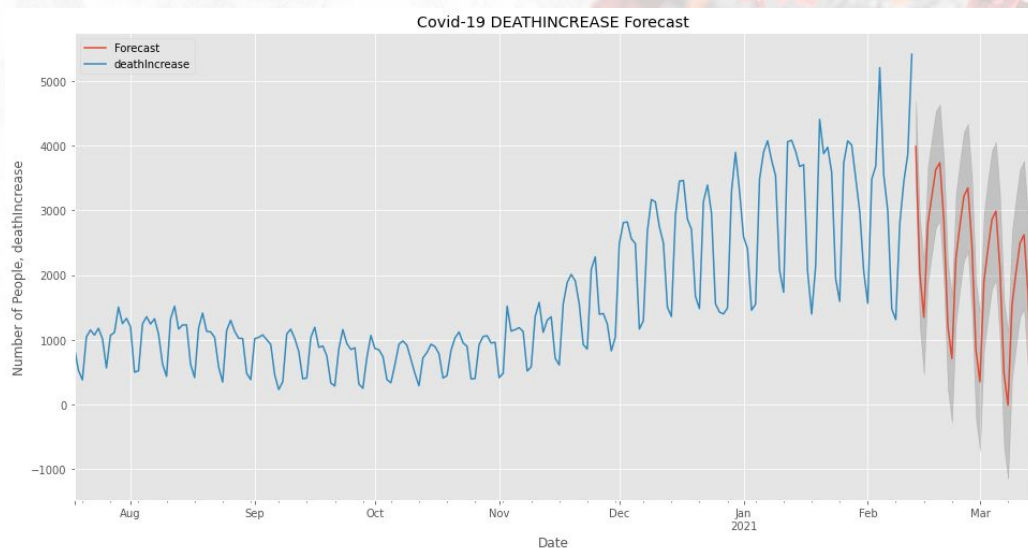


The Data

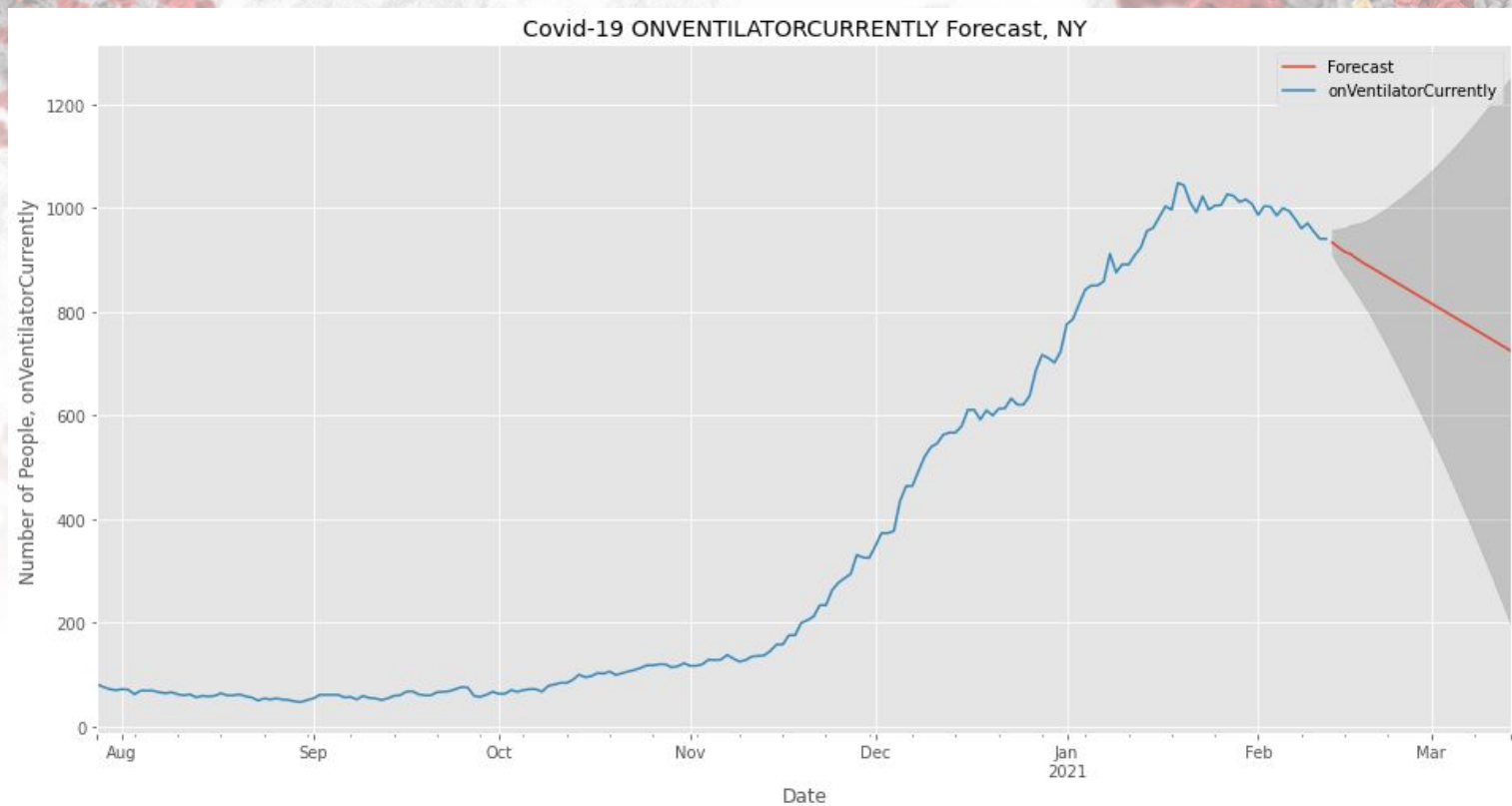


Intro to SARIMAX

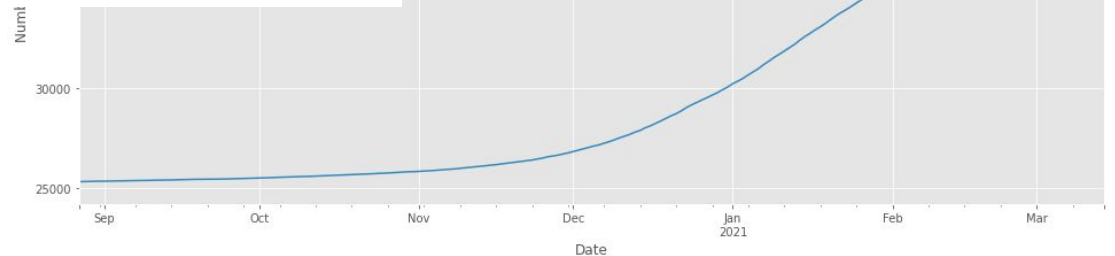
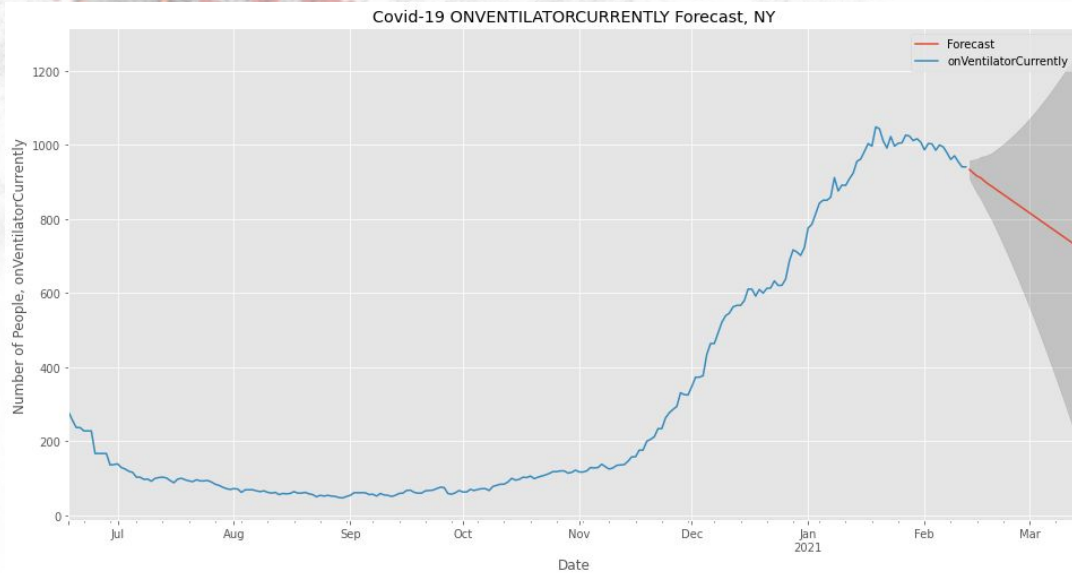
- Seasonal AutoRegressive Integrated Moving Average eXogenous.
- The model is built to handle (S)easonal data and predicts future data points by looking at previous data points (AR) as well as the slope of the trend (MA)
- SARIMAX modeling automatically integrates the data, meaning it differences the data so that the data is stationary for the model to work with.
- Finally, the X portion of SARIMAX is where the model can take in time series data for other variables in order to better predict a target variable. In our case, the target is deaths.



SARIMAX

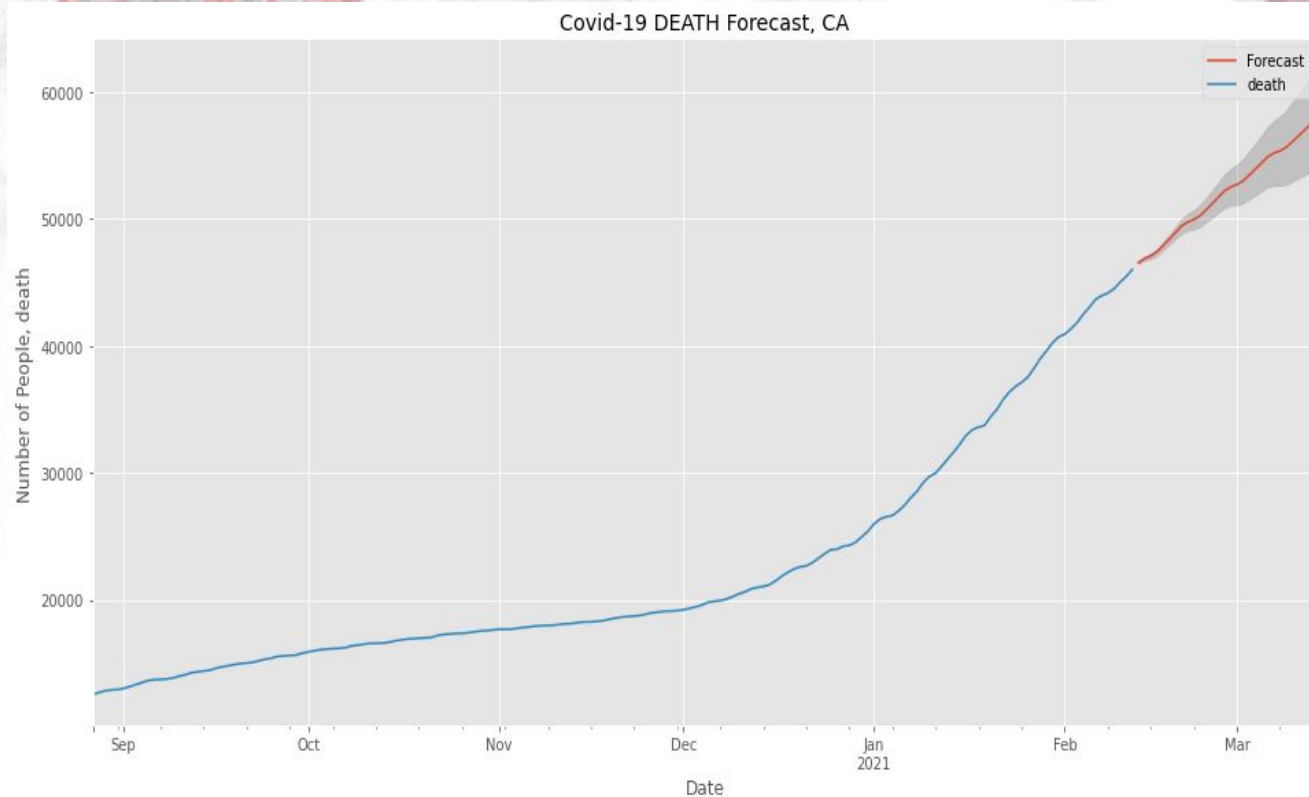


New York Forecast



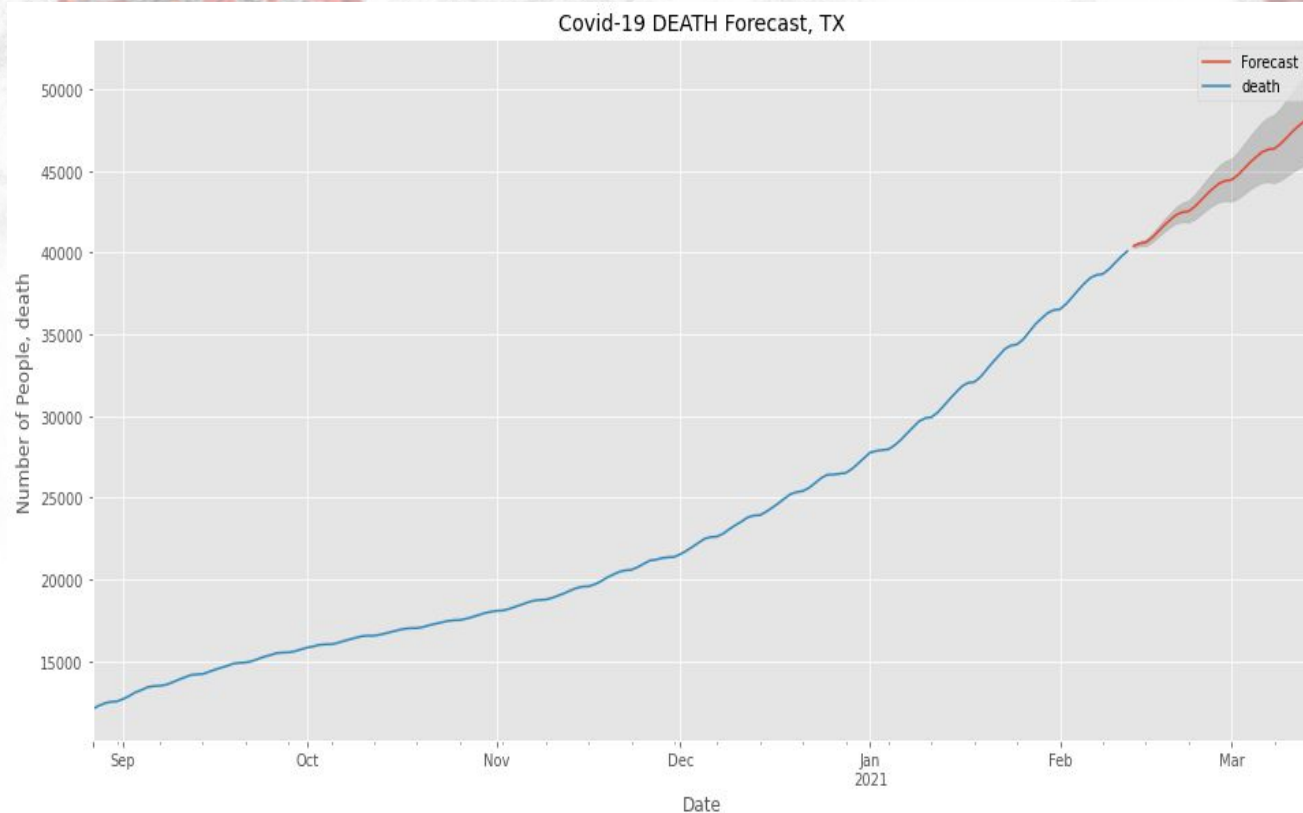
- Equally affected by the initial Covid wave and the post-2020 holidays.
- Private gatherings are allowed, limited to 10.
- Business are greatly suffering as a result of less traffic and high rent.

California Death Forecast



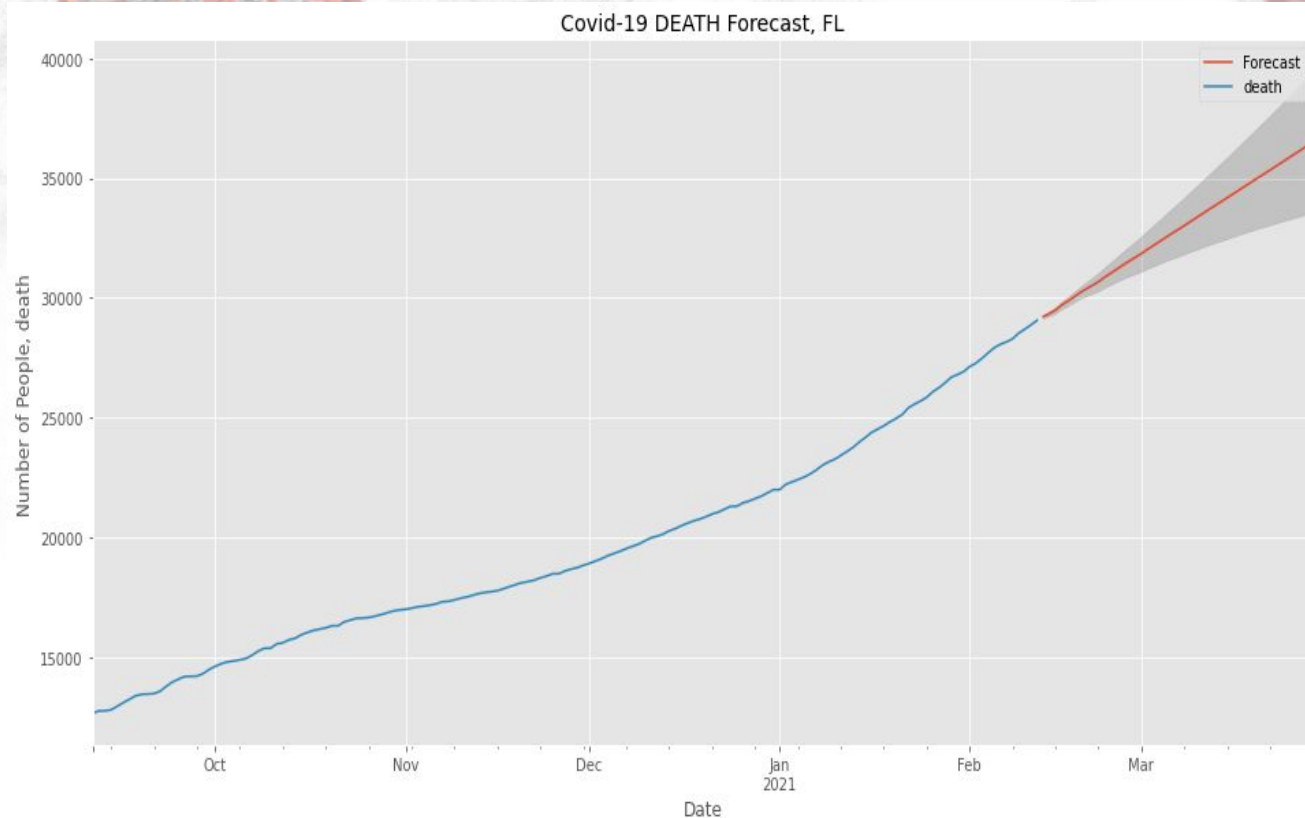
- Hardest hit by the post-2020 holidays.
- Private gatherings are allowed.
- Los Angeles was at ICU capacity for weeks over the 2020-2021 winter season.

Texas Deaths Forecast



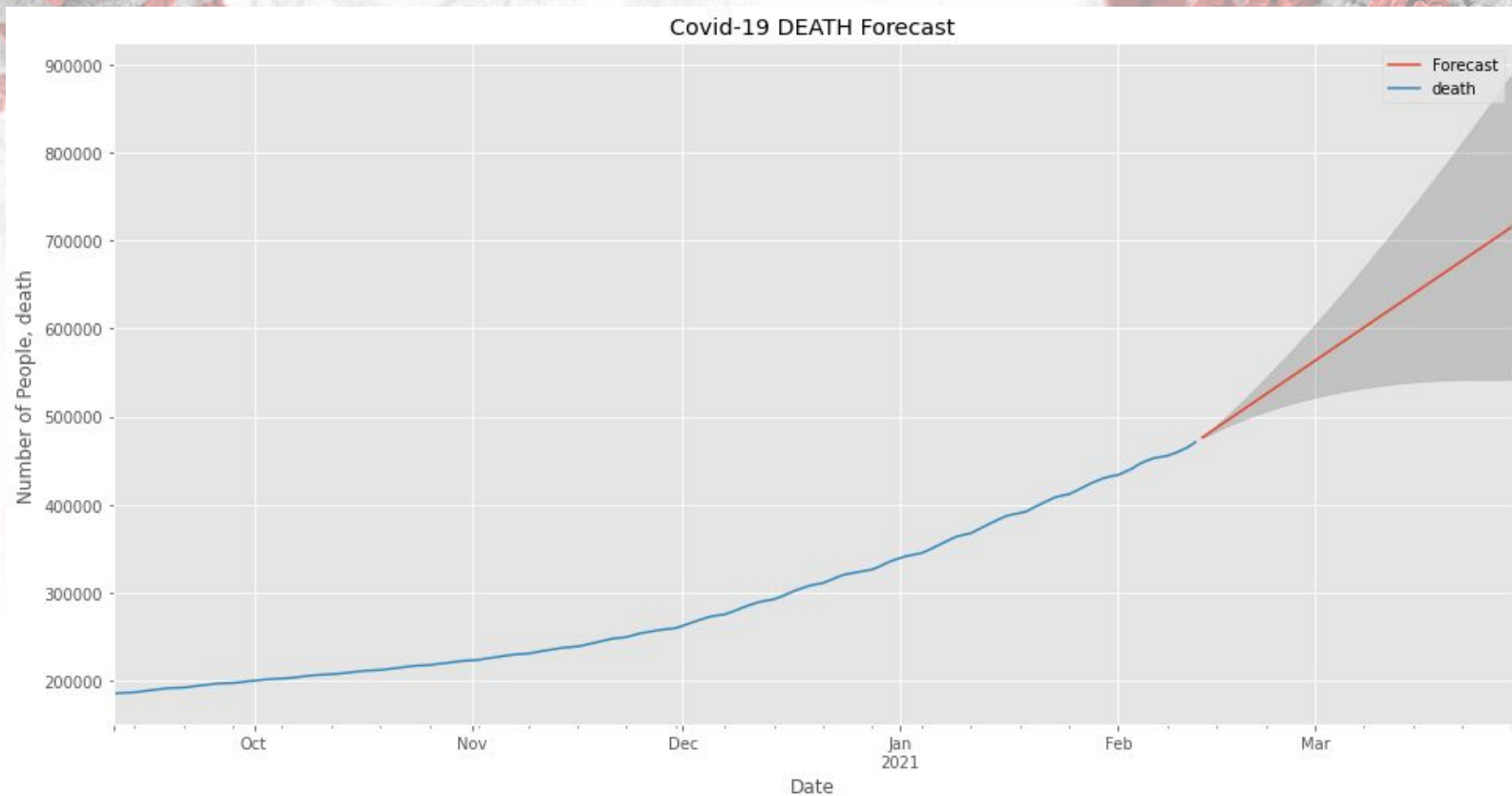
- Continual growth in Covid infections.
- Private gatherings and social gatherings are allowed.
- Cases have decreased but there is concern about overall ICU bed availability.

Florida Deaths Forecast



- Florida monitors daily numbers on their website and they are reporting decreases in death rates over the last 2 weeks despite the Super Bowl.
- There are 0 travel restrictions.
- Private and public gatherings are allowed.

United States Deaths Forecast



Conclusions and Recommendations

Viruses cannot travel on radio waves/mobile networks.

COVID-19 is spreading in many countries that do not have 5G mobile networks.

COVID-19 is spread through respiratory droplets when an infected person coughs, sneezes or speaks.

People can also be infected by touching a contaminated surface and then their eyes, mouth or nose.

FACT:
5G mobile networks
DO NOT spread COVID-19



Future Work

Severe Acute Respiratory Syndrome (SARS-CoV)

First reported in 2002



Total cases: 8,098 from 17 countries
Total deaths: 744

Middle East Respiratory Syndrome (MERS-CoV)

First reported in 2012



Total cases: more than 2,500 from 21 countries
Total deaths: approximately 860

COVID-19 (SARS-CoV-2)

First reported in 2019



New cases reported daily

On March 11, 2020, the World Health Organization declared COVID-19 a global pandemic. The last pandemic reported was the H1N1 flu pandemic in 2009, which killed hundreds of thousands globally.

Thank you!

**STAYING
SAFE
TOGETHER**

WEAR YOUR MASK



SO OUR BUSINESS
CAN STAY OPEN