**COVID – 19 impact on Hospital systems**

This analysis was designed to understand the impact that COVID-19 had on select hospitals.

**Background and Purpose**

The COVID-19 pandemic has created significant deficits in the health and well-being of many Americans. While significant studies have documented the onset, increase, and decline of COVID-19, we have not. Therefore, the purpose of this study was to examine the relationship between several indicators related to COVID-19 among persons living in the Easter Time Zone. Key outcomes of interest include COVID-19 related deaths, hospitalizations, cases (positive and negative), and ..... Descriptive statistics were computed with Numpy, linear regression and correlation analyses were computed with SciPy (or …), and all figures were created with Pandas or Matplotlib. Statistical significance was determined with a two-sided test with a alpha level (α) of 0.05.

**Data availability**

The data set utilized for this exploratory data analysis was COVID-19 Tracking data downloaded from the following website: <https://covidtracking.com/data/download>

**Variables:**

* Outcomes of interest include: COVID-19 related: deaths, hospitalizations, and persons in the intensive care unit.
* Independent variables of interest include total number of cases, % tested positive, % tested negative, total COVID-19 test

**Team Members**

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| **Team Member** | **Role** |
| Marius Clark | Project Manager |
| Raheem Paxton | Project Member |
| Swapna Subbagari | Project Member |

**Tasks**

* Calculate the total number cases available from Mar, 2020 to Mar, 2021.
* For each state, Calculate the total number of Positive cases, negative cases, ICU cases and deaths. Create a group based on the values in the State column.
* Generate a summary statistics table consisting of the mean, median, variance, standard deviation, and SEM of the Covid positive cases for each state.
* Calculate the percentage of total number of ICU cases amongst the total number of Covid positive cases.
* Calculate the percentage of total number of ICU cases amongst the total number of cases entirely (Includes positive, negative, deaths and ICU’s).
* Combine or Merge the Statistics dataframe with Hospital dataset using State code.
* Regression Analysis on the above two for scatter plot.

**Visualizations**

**Bar and Pie Charts**

Generate a bar plot showing the total number of Covid positive cases for each month across all states.

Generate a bar plot showing the total number of ICU cases, Hospital beds for each month across all states.

Generate a pie plot showing the total number of Covid positive cases, negative cases, deaths and ICU cases.

**Line Graph**

**Quartiles, Outliers and Boxplots**

Calculate the total number of positive cases for each month across below states in Eastern Time Zone.

New York, Florida, Pennsylvania, Ohio, Michigan

**Scatter Plot**

**Correlation matrix.** – Yet to figure out the best numbers that would provide the metric info.