Our initial collection of data sets included various components needed for analysis. We were able to secure the data need to evaluate relationships between the virus and unemployment, vaccine distribution, contributors to the spread of the virus, and how the virus has impacted altered the health of the nation. This data was collected from the CDC, Bureau of Labor Statistics, US Census, as well as various data sites including Dataworld.com and Keggel.com.

**Analysis of Vaccine Distribution to the US**

Did the Government Distribute the Vaccine as they described?

What possible considerations did the government consider when planning the distribution of the vaccines?

While compiling the data needed to review the distribution of Vaccines to various effects of the virus such as confirmed cases, deaths, age, gender, population, population density. It was discovered that information within the CDC Provisional statistics pertaining to age were inconsistent with gender statistics. Upon reviewing state level case statistics, it was decided to move forward without age grouped information as it did not match state level while gender statistics matched.

We reviewed three potential scenarios to find the methodology applied to the distribution of the vaccine.

1. Total Allocated Dosage vs Population Density

We looked at this relationship due to the ease of spread of the virus. We expected that more densely populated state would exhibit greater spread and be in higher need of the vaccine. This was not the case as there was virtually no relationship (correlation factor of .17) between the distribution and how many people were located per square mile.

1. Total Allocated Dosage vs CDC total confirmed cases per state

While reviewing this relationship we expected there to potentially be a strong relationship between the distribution and total confirmed cases to help slow the spread and work to heard immunity there was a strong relationship between these variables of .97.

1. Total Allocated Dosage vs Population

The near perfect correlation of .99 between these data sets show that the government followed thorough with their roll out of the vaccine based on population. The relationship posed a few additional questions we reviewed from our data.

While developing the answers to why the government distributed the vaccine as they did, we explored a few additional questions that arose. It is heavily reported on the ease at which this virus spreads. We looked to see if there was a correlation between CDC confirmed cases and Population Density. Much to our surprise population density only had a correlation factor of .14 while CDC confirmed cases and Total Population showed a near perfect correlation of .98.

We also reviewed to see if there were any relationships between the Pfizer and Moderna vaccines. We found no clear relationships to the breakdown of distribution of the manufacturers. The only relationship was the total allocations to the total populations.

**Analysis of Covid-19 Deaths vs. Influenza Deaths**

The data utilized was retrieved from the **National Center for Health and Statistics** (**NCHS**).

Utilizing Line Graphs

**Step 1**: Evaluate **Total Deaths** for the past five years.

**Step 2**: Evaluate **Pneumonia Deaths** for the past five years.

**Step 3**: Evaluate **Covid-19 Deaths** for 2020.

**Step 4a**: Calculate **Covid-19 Pneumonia Deaths** in targeted 2020 timeframe.

**Step 4b**: Calculate **Covid-19 Non-Pneumonia Deaths** in targeted 2020 timeframe.

**Step 4c**: Calculate **Influenza Pneumonia Deaths** in targeted 2020 timeframe.

**Step 4d**: Evaluate **Targeted Pneumonia Deaths** in targeted 2020 timeframe.

**Step 4e**: Use correlation analysis to verify **Influenza Pneumonia Deaths** were statistically consistent with the same timeframe in previous years.

**Step 4f**: Use ANOVA analysis to verify **Influenza Pneumonia Deaths** were statistically distributed with the same timeframe in previous years.

Utilizing Pie Charts

**Step 5**: Compare 2020 **Influenza Pneumonia** and **Non-Pneumonia Deaths**.

**Step 6**: Compare 2020 **Covid-19 Pneumonia** and **Non-Pneumonia Deaths**.

References

**Step 7**: Provide a link concerning **Comorbidities** associated with Covid-19 deaths.

**Step 8**: Provide a link concerning **CARES Act** compensation made available to hospitals during the Covid-19 epidemic.

Thoughts

**Step 9**: Reflect on a little of what was seen in the previous charts.

**Step 10**: Provide some explanation of link information.

**Step 11**: Perform calculations to obtain an estimated number of **Weighted Covid-19 Deaths**.

A Final Question

Step 12: Pose a final question concerning the results, calculations, and information reviewed.