

Data Discovery Project



Analyzing Cancer Incidence Using Tableau

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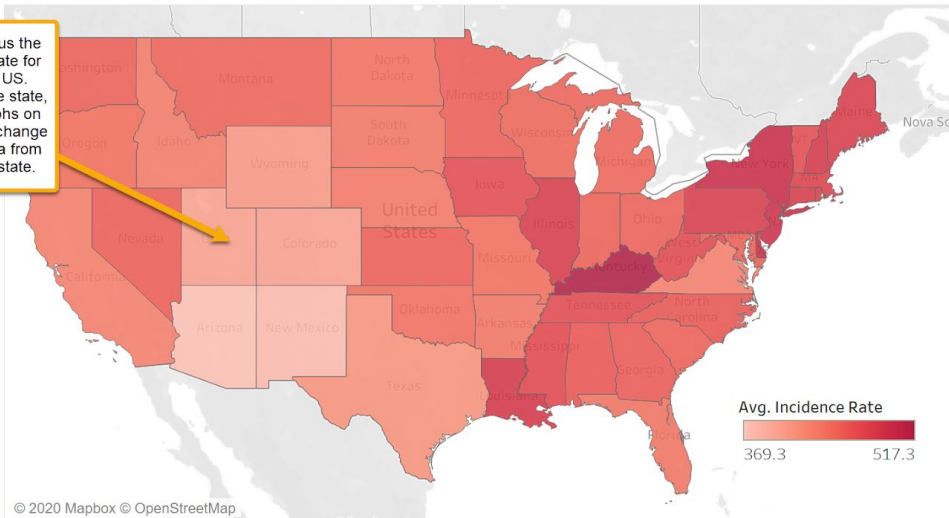
Scope

- The goal of this project was to create visualizations using Tableau, which would allow Rochester Regional Health to explore cancer incidence rate across the United States and across New York State
- The insights found in these visualizations can be used to drive better business opportunities within the cancer treatment market
- With increased knowledge of cancer causes and trends, Rochester Regional Health will be able to provide improved care by focusing on the most impactful factors related to cancer

Cancer Incidence Across the United States

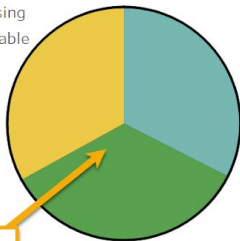
- The dashboard on the next slide shows cancer incidence rate across the US by state, as well as other potentially associated factors
- Some possible insights that can be made with this visualization will be discussed in the next few slides

This graph shows us the cancer incidence rate for each state in the US. When we select one state, the rest of the graphs on the dashboard will change to show us the data from only the selected state.



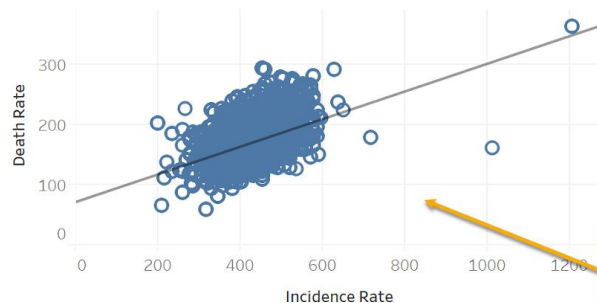
Recent Trend

- falling
- rising
- stable



This graph shows us the proportion of the number of cancer cases that are either rising, falling, or stable.

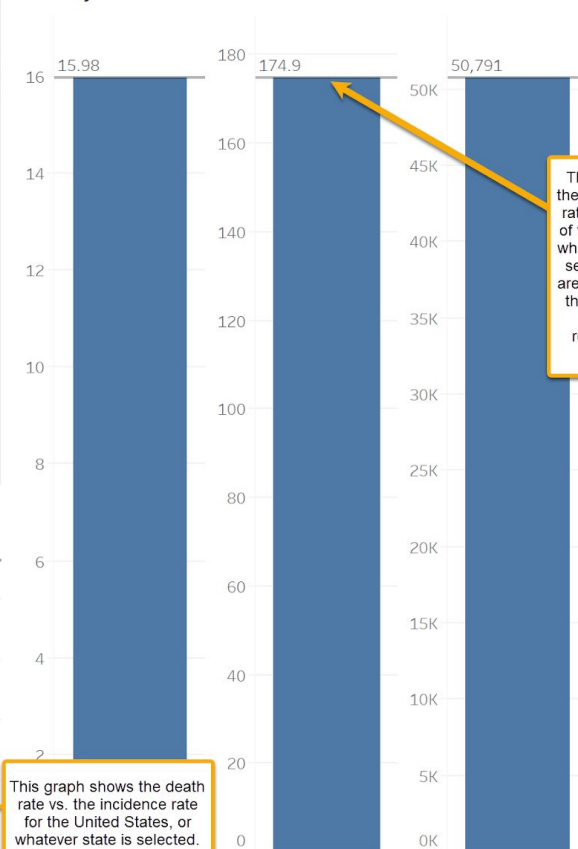
Death Rate vs. Incidence Rate



Poverty Percent

Death Rate

Median Income

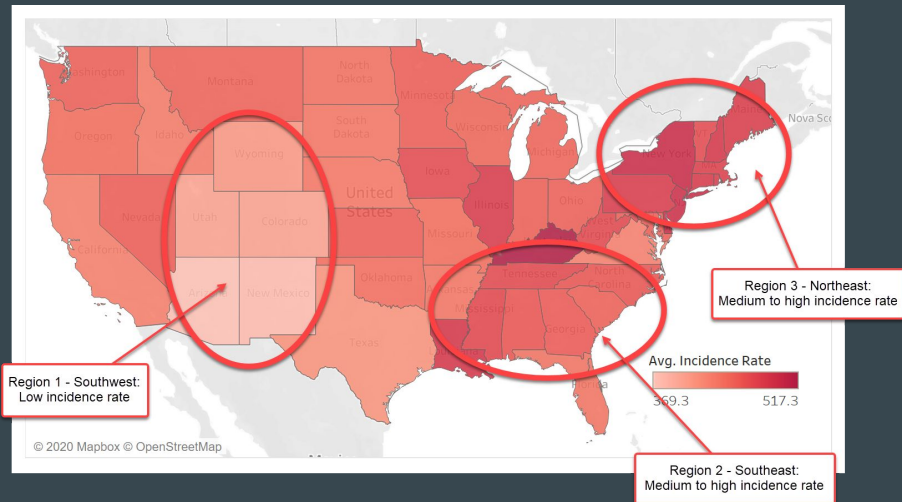


These bar graphs show the poverty percent, death rate, and median income of the United States, or of whatever state is currently selected. The gray lines are locked to always show the values for the whole United States, as a reference point for the individual states.

This graph shows the death rate vs. the incidence rate for the United States, or whatever state is selected. A steeper line may tell us that those with cancer are more likely to die. A flat line is the best possible result.

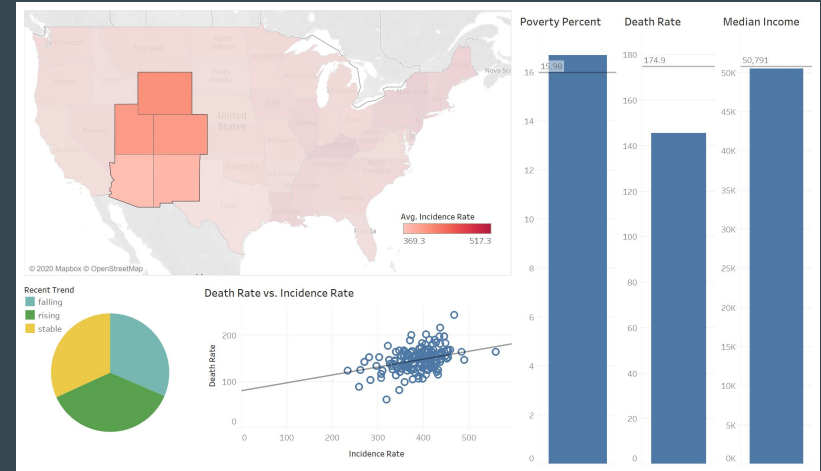
Exploring the Dashboard

- When looking at the dashboard, I noticed that some regions seemed to be able to be grouped together by incidence rate
- I thought these regions would be interesting to explore because each one has a different culture, political leaning, etc.
- Let's explore each region and see what we are shown from the rest of the dashboard



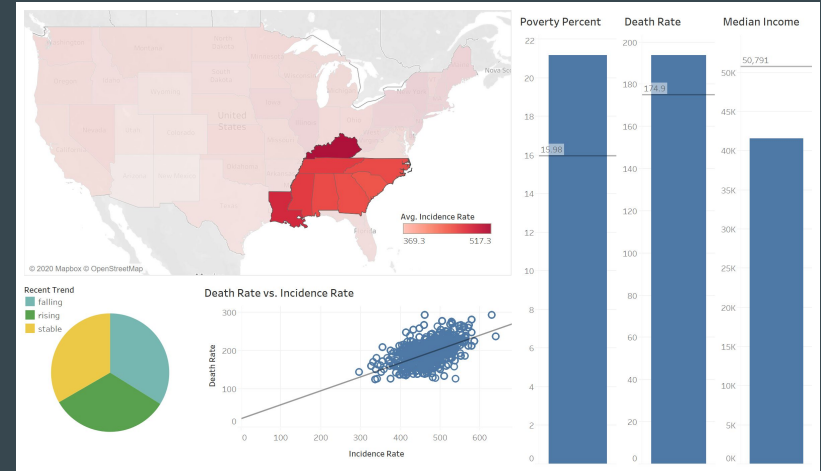
Region 1 - Southwest

- The states in this region have some of the lowest incidence rates in the country
- The recent trends of this region is in a very similar proportion to that of the US
- The death rate vs. incidence rate slope is gentler compared to the slope for the US
- The poverty percent is slightly higher than that of the US
- The death rate is significantly lower than that of the US
- The median income is almost exactly the same as that of the US



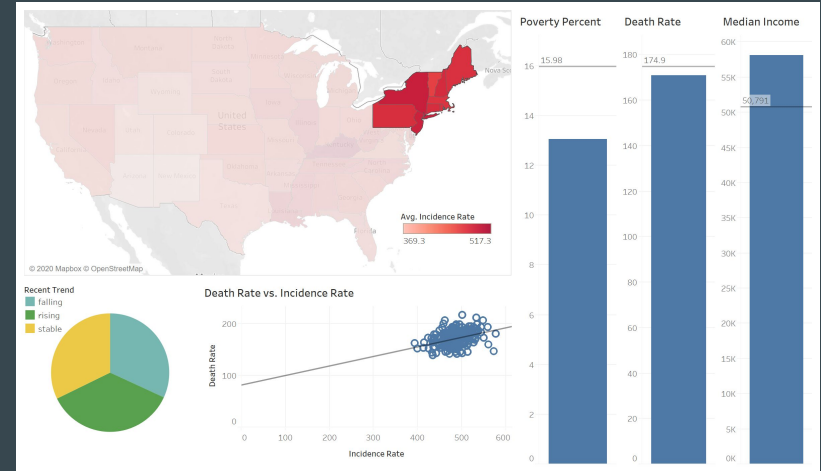
Region 2 - Southeast

- The states in this region have medium to very high incidence rates
- The recent trends of this region is in a very similar proportion to that of the US
- The death rate vs. incidence rate slope is similar to the slope for the US, but slightly gentler
- The poverty percent is significantly higher than that of the US
- The death rate is moderately higher than that of the US
- The median income is significantly lower than that of the US



Region 3 - Northeast

- The states in this region have medium to very high incidence rates
- The recent trends of this region is in a very similar proportion to that of the US
- The death rate vs. incidence rate slope is gentler compared to the slope for the US
- The poverty percent is significantly lower than that of the US
- The death rate is almost exactly the same as that of the US
- The median income is significantly higher than that of the US



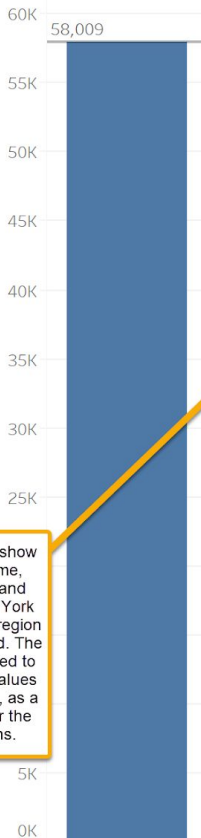
General Insights for the Regions

- For all three regions, the recent trend chart vs incidence rate chart had very similar proportions to the chart for the whole US
- Death rate was much lower in the Southwest region than in the other two regions
 - The Southwest region had the lowest incidence rates country-wide
- Poverty percent and medium income did not change linearly with incidence rate
 - Other factors, such as cost of living in the area and population density, are likely a factor here
- The Southeast region had the steepest death vs. incidence rate slope
 - This likely indicates that people diagnosed with cancer in that region do not have access to quality care
 - Access in this case could be nearby hospitals and treatment centers, affordability, and the quality/capability of hospitals and treatment centers within reach

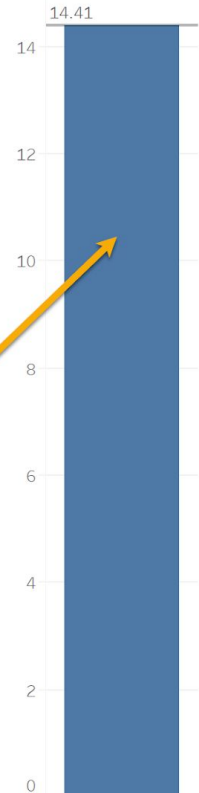
Cancer Incidence Rate Across New York State

- The dashboard on the next slide shows cancer incidence across New York State by zip code, as well as other potentially associated factors
- Some possible insights that can be made with this visualization will be discussed in the next few slides

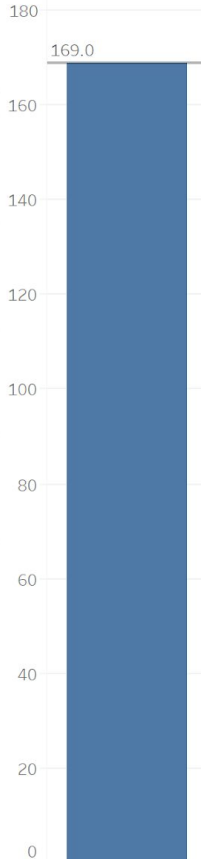
Median Income



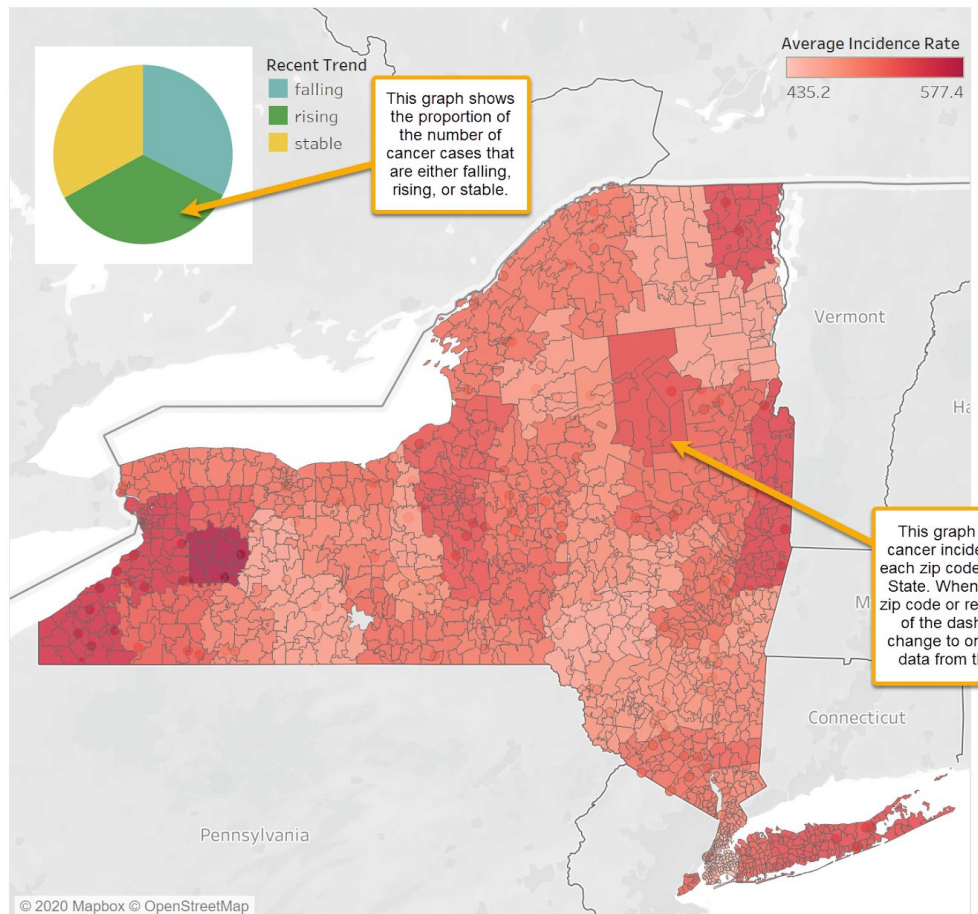
Poverty Percentage



Death Rate

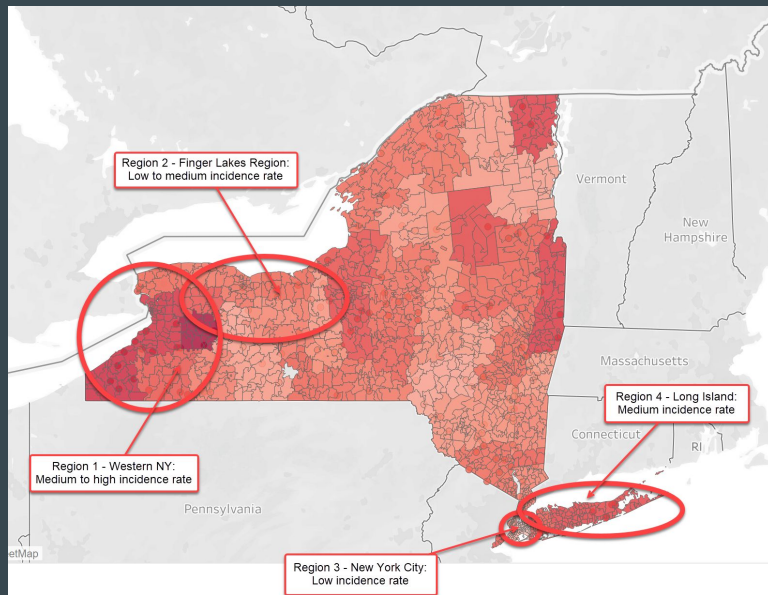


These bar graphs show the median income, poverty percent, and death rate of New York State, or whatever region is currently selected. The gray lines are locked to always show the values for the whole state, as a reference point for the individual regions.



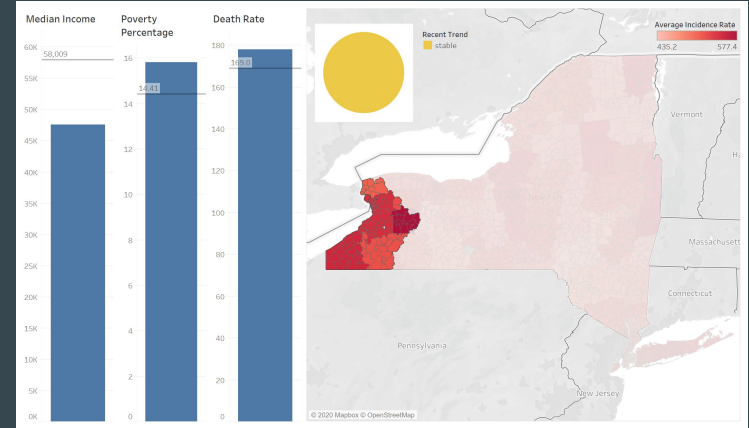
Exploring the Dashboard

- For this dashboard, I decided to create regions based off of my knowledge as a NYS resident
- I thought these regions would be interesting to explore because they vary significantly in population density, political leanings, and infrastructure
- Let's explore each region and see what we are shown from the rest of the dashboard



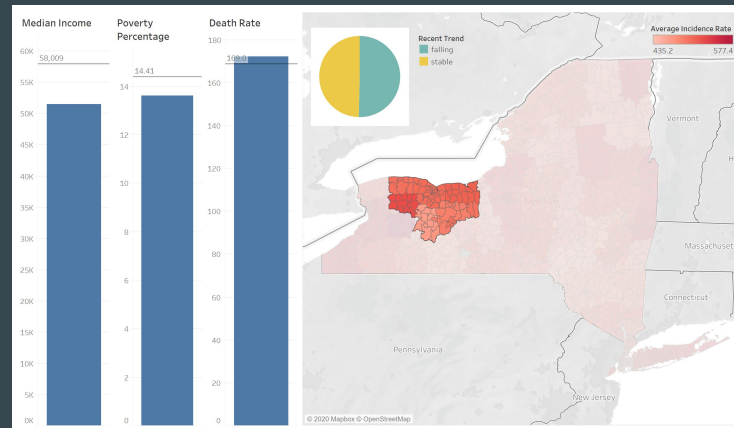
Region 1 - Western NY

- This region has some of the highest incidence rates in the state
- The recent trend of this region is that cancer rates are completely stable
- The median income of this region is significantly lower than that of the entire state
- The poverty percentage is moderately higher than that of the entire state
- The death rate is slightly higher than that of the entire state



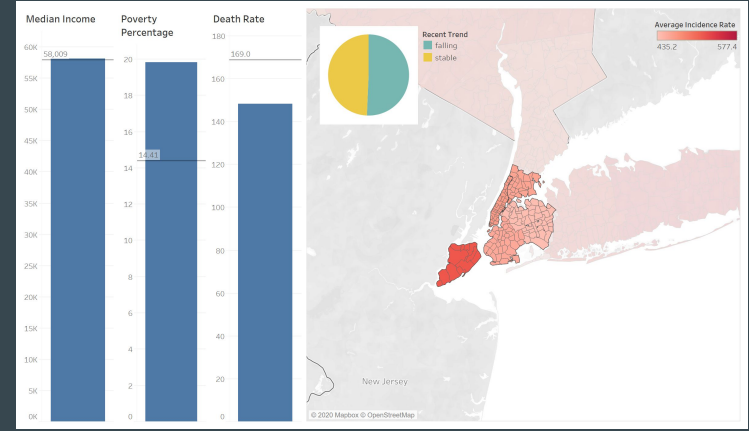
Region 2 - Finger Lakes Region

- This region has low to medium incidence rates compared to the entire state
- The recent trend of this region is that cancer rates are about 50% falling, 50% stable
- The median income of this region is significantly lower than that of the entire state
- The poverty percentage is slightly lower than that of the entire state
- The death rate is almost exactly the same as that of the entire state



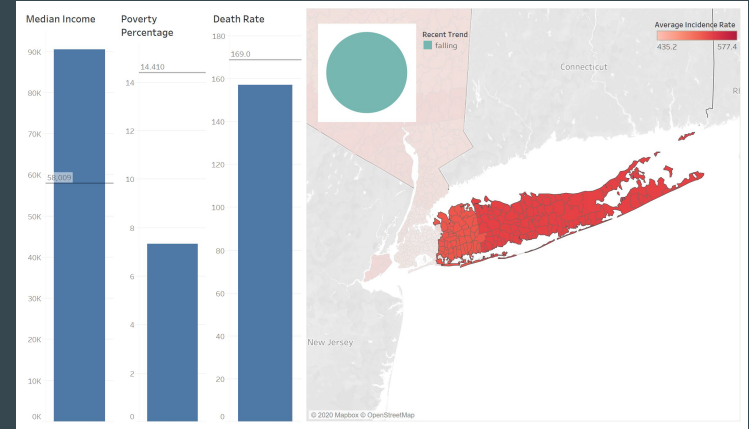
Region 3 - New York City

- This region has some of the lowest incidence rates in the entire state, especially if we exclude Staten Island
- The recent trend of this region is that cancer rates are about 50% falling, 50% stable
- The median income of this region is almost exactly the same as that of the entire state
- The poverty percentage is significantly higher than that of the entire state
- The death rate is significantly lower than that of the entire state



Region 4 - Long Island

- This region has medium incidence rates compared to the entire state
- The recent trend of this region is that cancer rates are only falling
- The median income of this region is significantly higher than that of the entire state
- The poverty percentage is significantly lower than that of the entire state
- The death rate is moderately lower than that of the entire state



General Insights for the Regions

- None of the studied regions had increasing cancer rates
- Death rate was lowest in New York City, and highest in Western NY
- Poverty percent and medium income did not change linearly with incidence rate
 - Other factors, such as cost of living in the area and population density, are likely a factor here
- Long Island was the standout region financially, with the highest median income, and lowest poverty percent, by a huge margin
 - This is likely because residents of Long Island have historically been very wealthy
- New York city had the lowest incidence and death rates, but the highest poverty percent
 - Incidence rates may be so low because those in poverty may not have the financial ability to go to a hospital and get diagnosed with cancer, even if they do have cancer
 - The death rate may be low because of many factors, such as quality hospitals, easy access to hospitals because of the widespread public transportation system in place there, and low costs of hospitals
 - Some of these reasons conflict with one another, indicating more research should be done to discover how this region has such low incidence and death rates with such high poverty levels

Conclusions

- For both the United States and New York, there were clear regional differences in incidence rate
- When we studied each region, there was no clear pattern for median income, death rate, poverty percent, or recent cancer trends
- More exploration is needed to create any type of definitive conclusion for possible factors of cancer
- Users will have the ability to explore this dataset on their own, by using the Tableau dashboard discussed in this presentation