

# Rochester Regional Health: Data-Driven Insights into Cancer Incidence and Death

Data-Driven Insights into Cancer Incidence and Death

Cancer Incidence and Death Rates by U.S. Region with a Focus on the Northeast

Cancer Death Rates Across the U.S.: The South, Led by Kentucky, Faces the Highest Mortality

The South Has the Highest Death-to-Incidence R..



## Data-Driven Insights into Cancer Incidence and Death

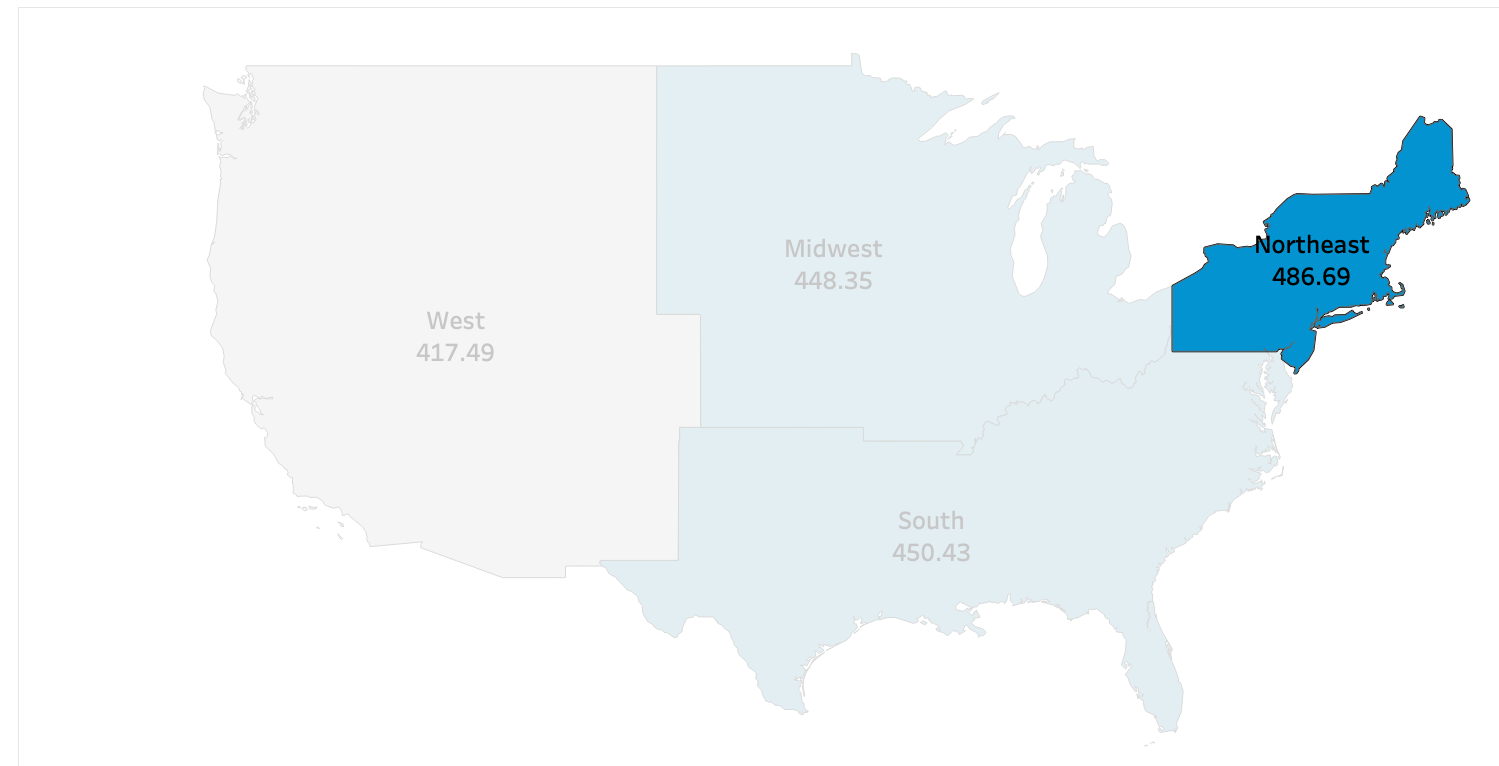
Analytics and Visualizations for Strategic Opportunities in America and New York

“Every year, thousands are impacted by cancer across America and New York. But behind these numbers lie patterns and insights that can help us take action. Our journey begins by exploring these insights.”

# Rochester Regional Health: Data-Driven Insights into Cancer Incidence and Death

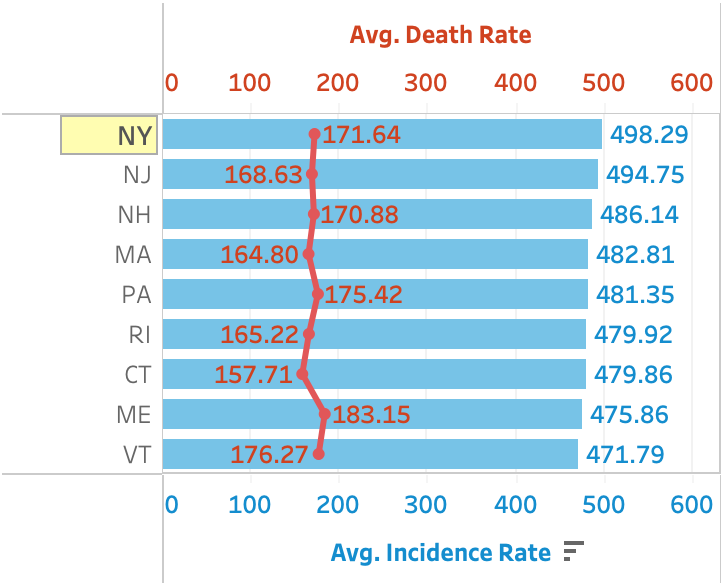
Data-Driven Insights into Cancer Incidence and Death	Cancer Incidence and Death Rates by U.S. Region with a Focus on the Northeast	Cancer Death Rates Across the U.S.: The South, Led by Kentucky, Faces the Highest Mortality	The South Has the Highest Death-to-Incidence R..
--	---	---	--

## Average Cancer Incidence Rate by Region



### Northeast Overview:

- The Northeast has the **highest average cancer incidence rate** among all U.S. regions, recorded at **486.69**. This indicates that cancer cases are more frequent here compared to other regions like the West (417.49), Midwest (448.35), and South (450.43).
- The high incidence rate could be influenced by multiple factors, including lifestyle, environmental exposures, healthcare access, and demographic factors in the Northeast.



### New York's Incidence and Death Rates:

- Among the Northeastern states, **New York** has the **highest cancer incidence rate at 498.29**, which is above both the Northeast average (486.69) and all other regions.
- Despite this high incidence, New York's **average death rate is 171.64**, which, while significant, is not the highest in the region. States like Vermont (176.27) and Maine (183.15) have higher death rates even though they have lower incidence rates.

# Rochester Regional Health: Data-Driven Insights into Cancer Incidence and Death

Data-Dri  
ven Insi  
ghts..

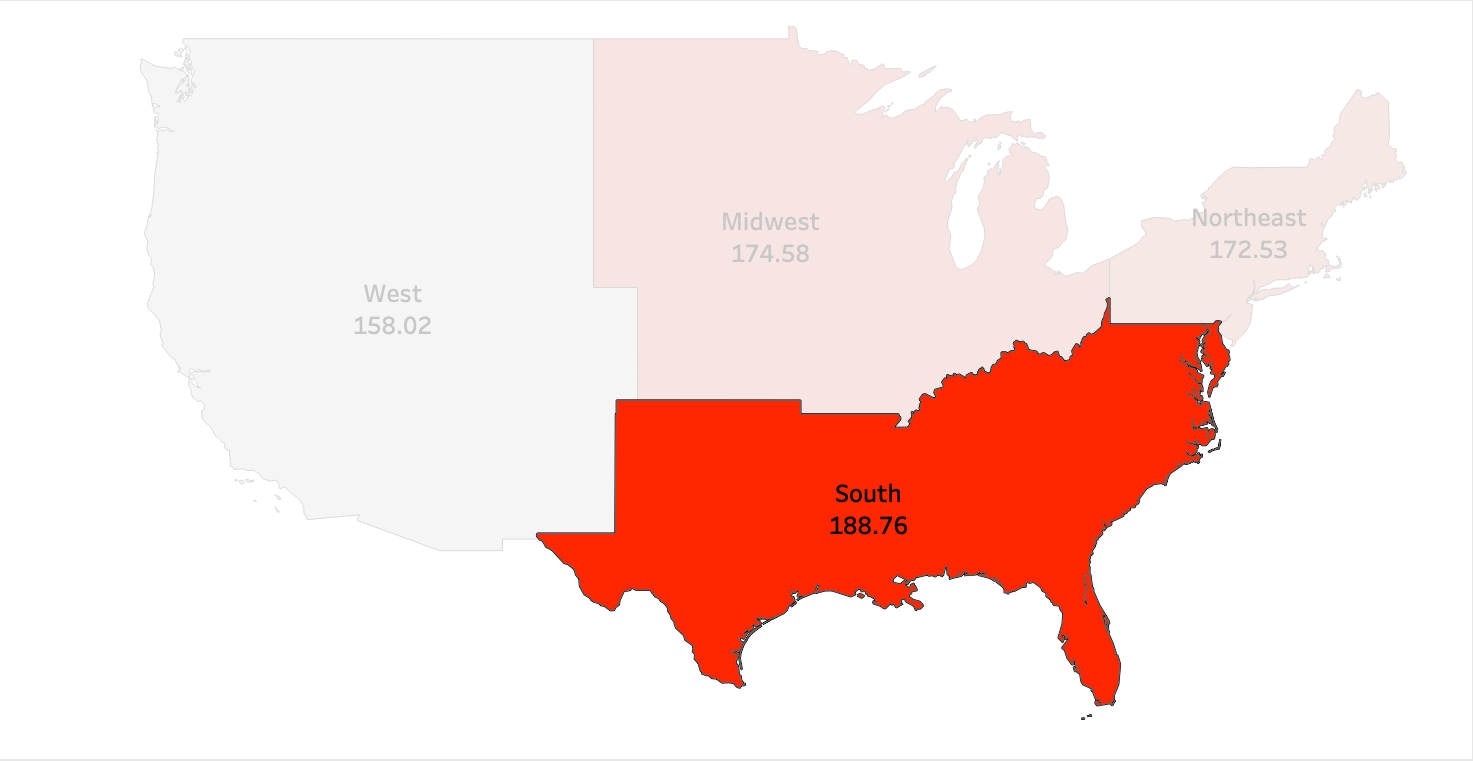
Cancer Incidence and Death Rates by U.S. Region with a Focus on the Northeast..

Cancer Death Rates Across the U.S.: The South, Led by Kentucky, Faces the Highest Mortality

The South Has the Highest Death-to-Incidence Ratio in the U.S.

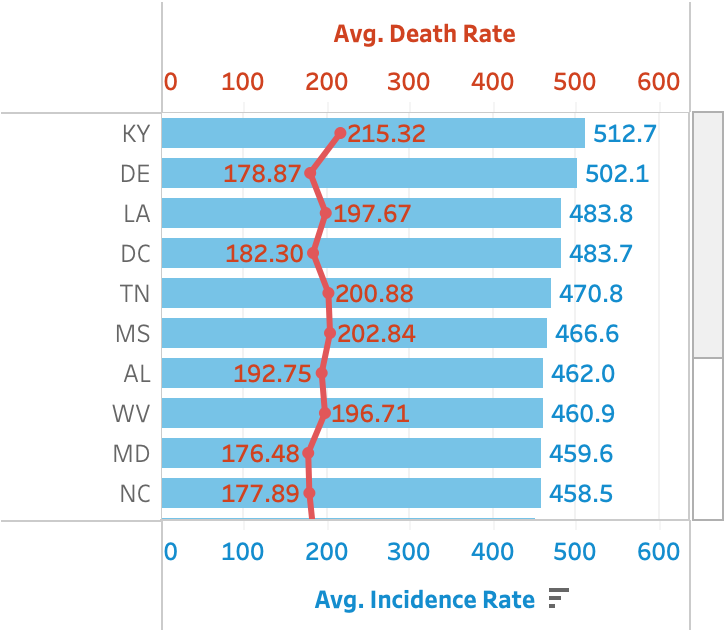
Play with  
3-Level  
Map Drill ..

## Average Cancer Death Rate by Region



### South Overview:

- The South has the **highest average cancer death rate** among all U.S. regions, recorded at **188.76**. This indicates that cancer-related mortality is more prevalent here compared to other regions like the West (158.02), Midwest (174.58), and Northeast (172.53).
- The high death rate in the South may be influenced by factors such as healthcare access, socioeconomic conditions, lifestyle factors, and potentially higher incidences of certain cancers in this region.



### Kentucky's Incidence and Death Rates:

- Among the states shown in the chart, **Kentucky** has the **highest cancer death rate at 215.32**, which is well above the South's regional average (188.76) and all other regions.
- Kentucky also has the highest incidence rate among these states at **512.7**, indicating a high frequency of cancer cases alongside high mortality.

# Rochester Regional Health: Data-Driven Insights into Cancer Incidence and Death

Cancer Incidence and D..

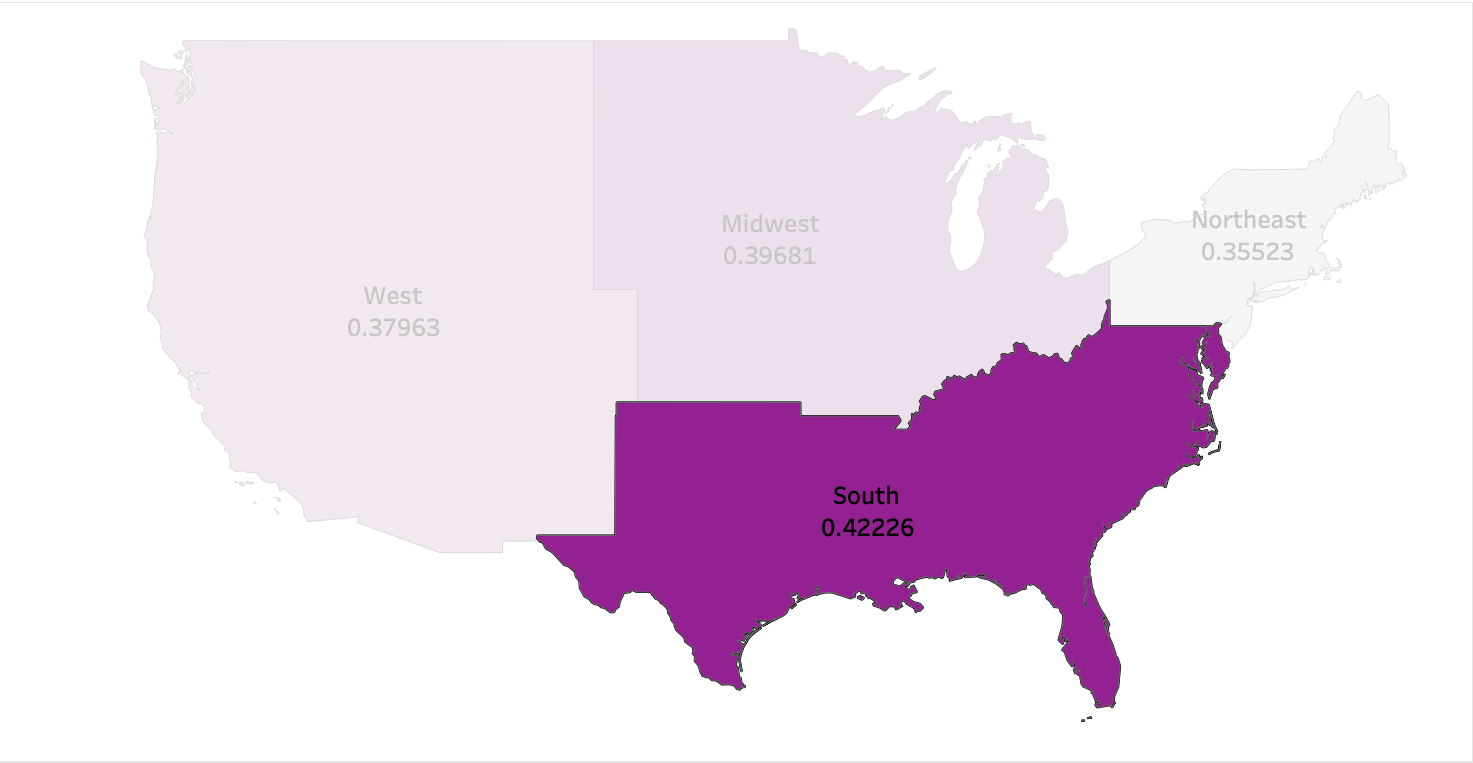
Cancer Death Rates Across the U.S.: The South, Led by Kentucky, Faces the Highest Mortality

The South Has the Highest Death-to-Incidence Ratio in the U.S.

Play with 3-Level Map Drill Downs Dashboard

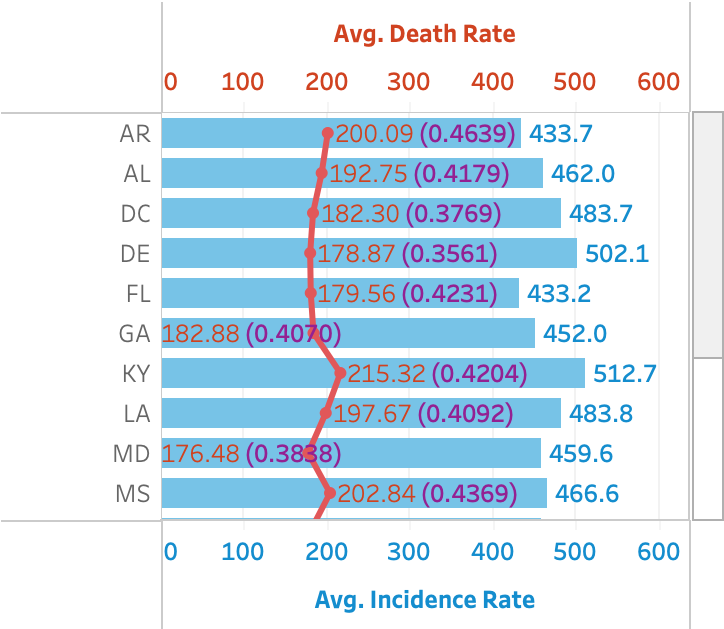
Income and Cancer Death Rat..

## Average Cancer %Death Rate/Incidence Rate by Region



### South Overview:

- The South has the **highest average cancer death rate to incidence rate ratio** among all U.S. regions, recorded at **0.42226**. This ratio indicates that the proportion of cancer deaths relative to incidence is higher here compared to other regions like the Northeast (0.35523), Midwest (0.39681), and West (0.37963).



### Arkansas's Incidence and Death Rates:

- Among the states shown in the chart, **Arkansas** has one of the highest death-to-incidence ratios at **0.4639**, with an average death rate of **200.09** and an incidence rate of **433.7**.
- This high ratio indicates that Arkansas has a substantial number of cancer deaths relative to its incidence rate, which may point to issues in early detection, access to quality healthcare, or effectiveness of cancer treatment.

# Rochester Regional Health: Data-Driven Insights into Cancer Incidence and Death

Cancer Death Rates ...

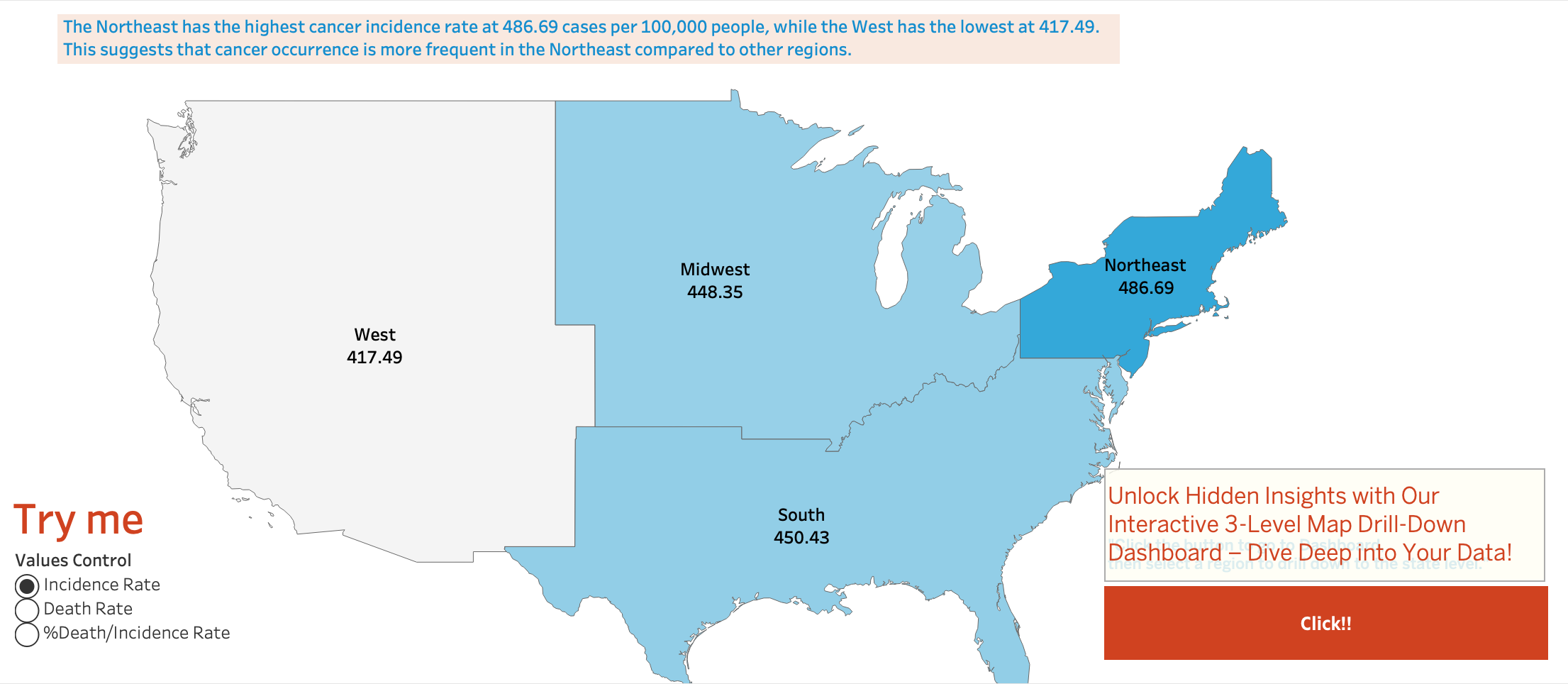
The South Has the Highest Death-to-Incidence Ratio in the U.S.

Play with 3-Level Map Drill Downs Dashboard

Income and Cancer Death Rates: How Your Wealth Could Be Saving Your Life!

While anyone can develop c..

## Average Incidence Rate by Region



# Rochester Regional Health: Data-Driven Insights into Cancer Incidence and Death

The South Has th..

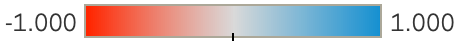
Play with 3-Level Map Drill Downs Dashboard

Income and Cancer Death Rates: How Your Wealth Could Be Saving Your Life!

While anyone can develop cancer, individuals with higher incomes tend to have lower cancer mortality rates.

Exploring t he Correlat ion..

## Pearson Correlation Coefficient



## Data interpretation

### Northeast

Name Values	deathRate	incidenceRate
deathRate		0.3315
incidenceRate	0.3315	
medIncome	-0.5068	0.1571
popEst2015	-0.3093	-0.0123
PovertyEst	-0.1815	-0.0645
povertyPercent	0.3368	-0.1162

### Midwest

Name Values	deathRate	incidenceRate
deathRate		0.3701
incidenceRate	0.3701	
medIncome	-0.3929	0.0515
popEst2015	0.0160	0.1020
PovertyEst	0.0513	0.0976
povertyPercent	0.4534	-0.0035

### West

Name Values	deathRate	incidenceRate
deathRate		0.4799
incidenceRate	0.4799	
medIncome	-0.2045	0.0520
popEst2015	-0.0481	0.0384
PovertyEst	-0.0324	0.0184
povertyPercent	0.1791	-0.1054

### South

Name Values	deathRate	incidenceRate
deathRate		0.5092
incidenceRate	0.5092	
medIncome	-0.4230	-0.0787
popEst2015	-0.2119	-0.0197
PovertyEst	-0.1673	-0.0125
povertyPercent	0.3856	0.0751

**Northeast Region:** The strong negative correlation of **-0.5068** between median income and death rate may be due to:

- **Access to Healthcare:** Higher income areas typically have better access to healthcare services, which can lead to earlier detection and more effective treatment of serious illnesses, reducing the death rate.
- **Healthier Lifestyles:** Higher-income populations often have greater access to health education, better nutrition, and healthier living environments, potentially lowering mortality rates.

**Midwest Region:** The moderate negative correlation (**-0.3929**) might indicate:

- **Regional Disparities in Income and Healthcare Quality:** The Midwest may have more variability in healthcare access across income levels, leading to a less pronounced but still significant relationship between income and death rates.

**West and South Regions:** Lower correlations suggest:

- **Cultural and Lifestyle Variances:** Factors like diet, physical activity, and cultural attitudes towards healthcare might play a role in these regions, making income a less dominant predictor of mortality.

The **Pearson Correlation Coefficient**, often denoted as  $r$ , is a statistical measure that calculates the strength and direction of the linear relationship between two variables. It ranges from -1 to 1:

- 1** indicates a perfect positive correlation.
- 1** indicates a perfect negative correlation.
- 0** means no linear correlation between the variables.

# Rochester Regional Health: Data-Driven Insights into Cancer Incidence and Death

Play with 3-Level..

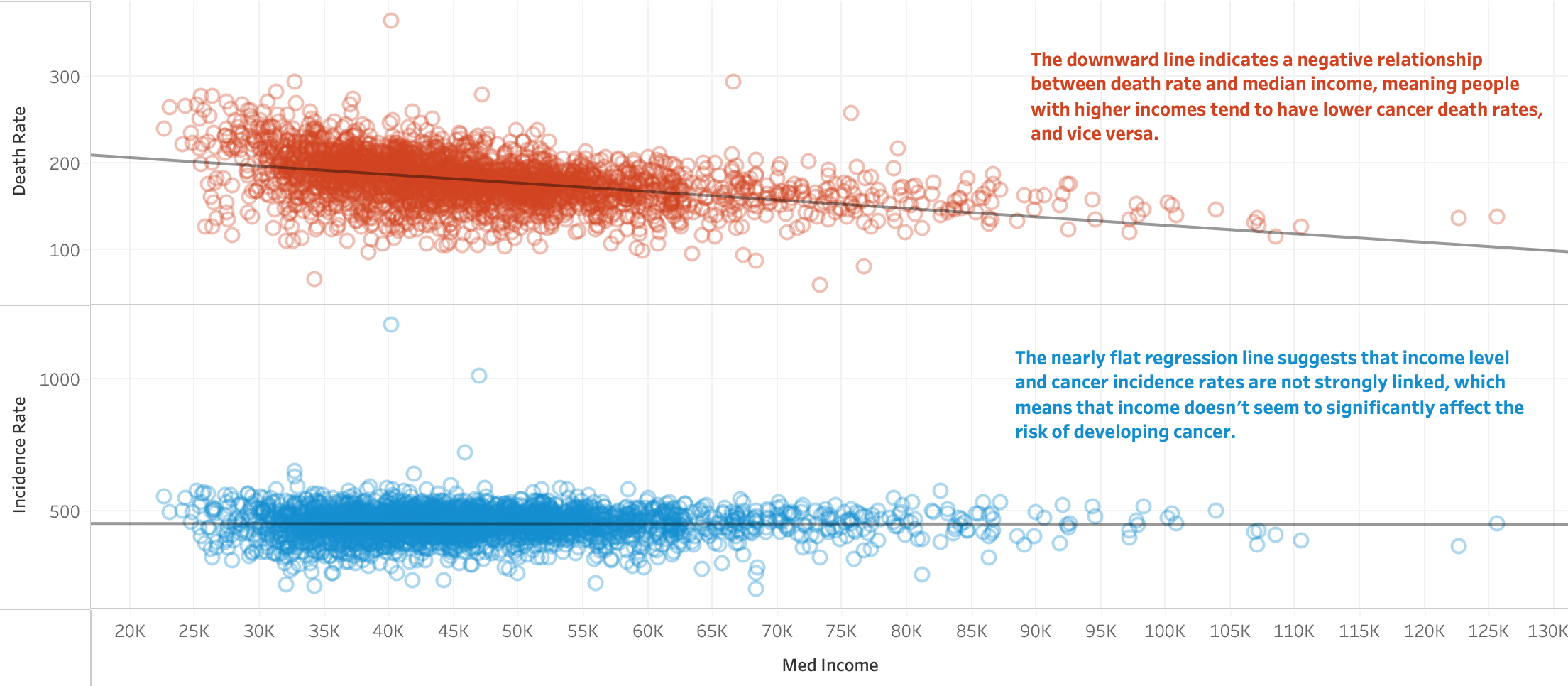
Income and Cancer Death Rates: How Your Wealth Could Be Saving Your Life!

While anyone can develop cancer, individuals with higher incomes tend to have lower cancer mortality rates.

Exploring the Correlation Between Diagnosis Rates and Deaths

Why Lower-Income Co..

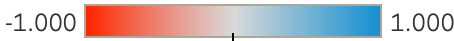
While anyone can develop cancer, individuals with higher incomes tend to have lower cancer mortality rates.



# Rochester Regional Health: Data-Driven Insights into Cancer Incidence and Death

Income and Cancer ..	While anyone can develop cancer, individuals with higher incomes tend to have lower cancer mortality rates.	Exploring the Correlation Between Diagnosis Rates and Deaths	Why Lower-Income Communities Face Higher Mortality Risks	Correlation Insights Across U...
----------------------	---	--	--	----------------------------------

## Pearson Correlation Coefficient



## Data interpretation

### Northeast

Name Values	deathRate	incidenceRate
deathRate		0.3315
incidenceRate	0.3315	
medIncome	-0.5068	0.1571
popEst2015	-0.3093	-0.0123
PovertyEst	-0.1815	-0.0645
povertyPercent	0.3368	-0.1162

### Midwest

Name Values	deathRate	incidenceRate
deathRate		0.3701
incidenceRate	0.3701	
medIncome	-0.3929	0.0515
popEst2015	0.0160	0.1020
PovertyEst	0.0513	0.0976
povertyPercent	0.4534	-0.0035

### West

Name Values	deathRate	incidenceRate
deathRate		0.4799
incidenceRate	0.4799	
medIncome	-0.2045	0.0520
popEst2015	-0.0481	0.0384
PovertyEst	-0.0324	0.0184
povertyPercent	0.1791	-0.1054

### South

Name Values	deathRate	incidenceRate
deathRate		0.5092
incidenceRate	0.5092	
medIncome	-0.4230	-0.0787
popEst2015	-0.2119	-0.0197
PovertyEst	-0.1673	-0.0125
povertyPercent	0.3856	0.0751

**South Region:** The strong positive correlation (**0.5092**) implies that areas with high incidence rates also see high death rates, potentially due to:

- **Late Diagnosis:** In regions with less healthcare access, cancer might be detected at later stages, making it harder to treat and increasing mortality.
- **Higher Cancer Risk Factors:** The South has high rates of smoking, obesity, and poor diet, which are risk factors for cancer, contributing to both higher incidence and mortality rates.

**West Region:** The moderate correlation (**0.4799**) could reflect:

- **Population Aging:** The West has an aging population in certain areas, which might increase cancer incidence and mortality rates, as cancer risk generally rises with age.

**Northeast and Midwest Regions:** Weaker correlations suggest:

- **Better Screening Programs:** These regions may have more robust cancer screening programs, helping detect cancer earlier and potentially reducing the link between incidence and death rates.

The **Pearson Correlation Coefficient**, often denoted as  $r$ , is a statistical measure that calculates the strength and direction of the linear relationship between two variables. It ranges from -1 to 1:

- 1 indicates a perfect positive correlation.
- 1 indicates a perfect negative correlation.
- 0 means no linear correlation between the variables.



# Rochester Regional Health: Data-Driven Insights into Cancer Incidence and Death

While anyone can de..	Exploring the Correlation Between Diagnosis Rates and Deaths	Why Lower-Income Communities Face Higher Mortality Risks	Correlation Insights Across U.S. Regions: Pearson Correlation Dashboard	Among the Northeastern state..
-----------------------	--	--	---	--------------------------------



## Data interpretation

### Northeast

Name Values	deathRate	incidenceRate
deathRate		0.3315
incidenceRate	0.3315	
medIncome	-0.5068	0.1571
popEst2015	-0.3093	-0.0123
PovertyEst	-0.1815	-0.0645
povertyPercent	0.3368	-0.1162

### Midwest

Name Values	deathRate	incidenceRate
deathRate		0.3701
incidenceRate	0.3701	
medIncome	-0.3929	0.0515
popEst2015	0.0160	0.1020
PovertyEst	0.0513	0.0976
povertyPercent	0.4534	-0.0035

### West

Name Values	deathRate	incidenceRate
deathRate		0.4799
incidenceRate	0.4799	
medIncome	-0.2045	0.0520
popEst2015	-0.0481	0.0384
PovertyEst	-0.0324	0.0184
povertyPercent	0.1791	-0.1054

### South

Name Values	deathRate	incidenceRate
deathRate		0.5092
incidenceRate	0.5092	
medIncome	-0.4230	-0.0787
popEst2015	-0.2119	-0.0197
PovertyEst	-0.1673	-0.0125
povertyPercent	0.3856	0.0751

- Midwest Region:** The positive correlation of **0.4534** between poverty percent and death rate could be attributed to:
- **Limited Access to Preventive Care:** Higher poverty rates can limit individuals' access to regular check-ups, vaccinations, and preventive measures, increasing death rates.
  - **Higher Prevalence of Chronic Conditions:** Lower-income populations might have higher rates of chronic conditions (like obesity, diabetes, and hypertension) that increase mortality risks.
- South Region:** The correlation of **0.3856** suggests:
- **Higher Health Disparities:** The South is known for having some of the highest poverty rates in the U.S., often correlating with worse health outcomes and limited access to quality healthcare.
- Northeast and West Regions:** The weaker correlations in these regions may indicate:
- **Better Social Support Programs:** States in these regions might have stronger social support networks and healthcare programs that help mitigate the impact of poverty on health outcomes.

The **Pearson Correlation Coefficient**, often denoted as *r*, is a statistical measure that calculates the strength and direction of the linear relationship between two variables. It ranges from -1 to 1:

- 1 indicates a perfect positive correlation.
- 1 indicates a perfect negative correlation.
- 0 means no linear correlation between the variables.

# Rochester Regional Health: Data-Driven Insights into Cancer Incidence and Death

Explorin  
g the Co  
relati..

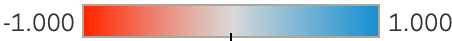
Why Lower-Income Communities Face Higher Mortality  
Risks

Correlation Insights Across U.S. Regions: Pearson  
Correlation Dashboard

Among the Northeastern states, New York has the  
highest cancer incidence rate at 498.29

Focusing  
on New  
York Stat..

## Pearson Correlation Coefficient



### Northeast

Name Values	deathRate	incidenceRate
deathRate		0.3315
incidenceRate	0.3315	
medIncome	-0.5068	0.1571
popEst2015	-0.3093	-0.0123
PovertyEst	-0.1815	-0.0645
povertyPercent	0.3368	-0.1162

### Midwest

Name Values	deathRate	incidenceRate
deathRate		0.3701
incidenceRate	0.3701	
medIncome	-0.3929	0.0515
popEst2015	0.0160	0.1020
PovertyEst	0.0513	0.0976
povertyPercent	0.4534	-0.0035

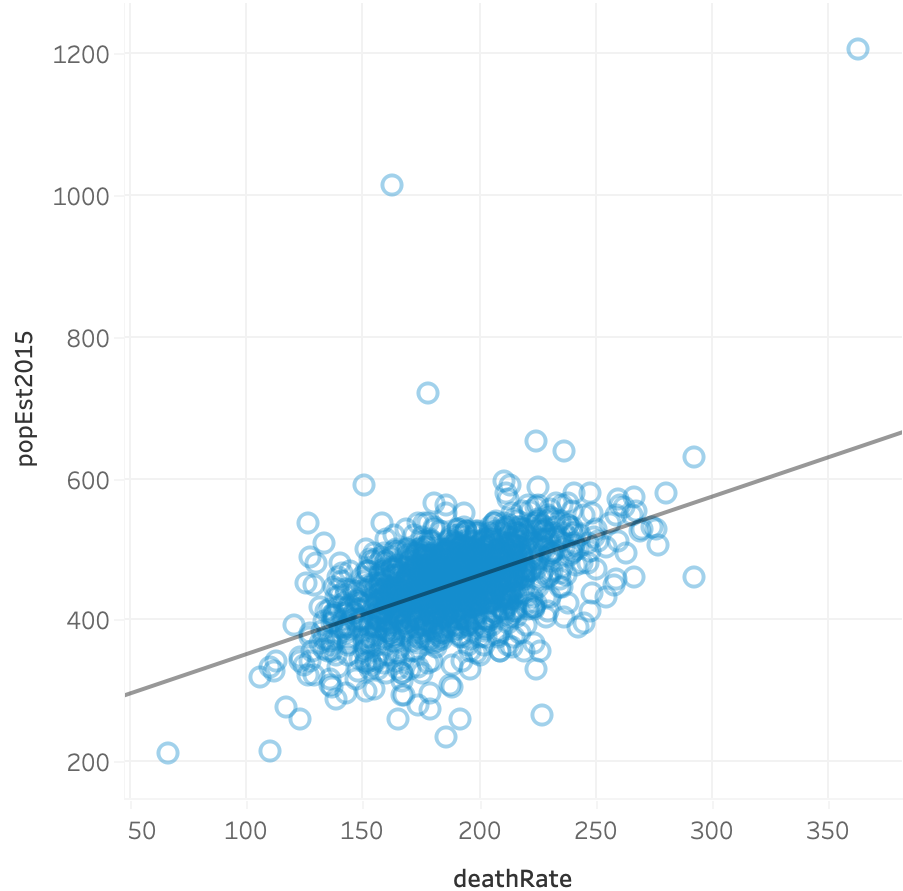
### West

Name Values	deathRate	incidenceRate
deathRate		0.4799
incidenceRate	0.4799	
medIncome	-0.2045	0.0520
popEst2015	-0.0481	0.0384
PovertyEst	-0.0324	0.0184
povertyPercent	0.1791	-0.1054

### South

Name Values	deathRate	incidenceRate
deathRate		0.5092
incidenceRate	0.5092	
medIncome	-0.4230	-0.0787
popEst2015	-0.2119	-0.0197
PovertyEst	-0.1673	-0.0125
povertyPercent	0.3856	0.0751

## Correlation Between incidenceRate and deathRate in the South Region



**Dive into the Data Yourself!**  
**Click!** on the Correlation Values  
**& Watch the Graph Transform Instantly!**

How it work!

Values Corr.. deathR..

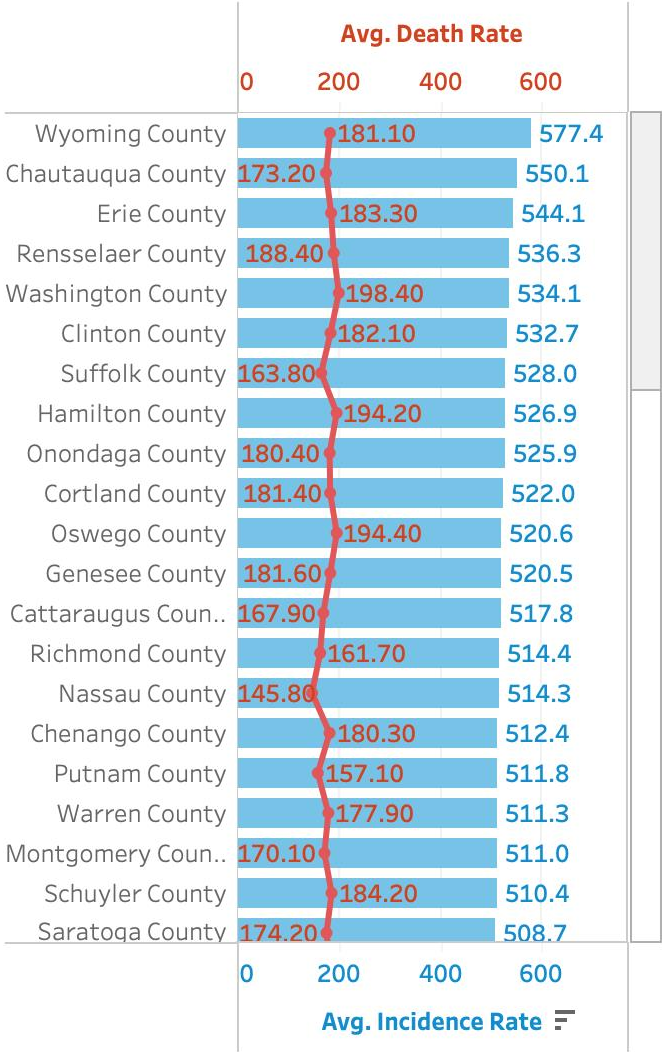
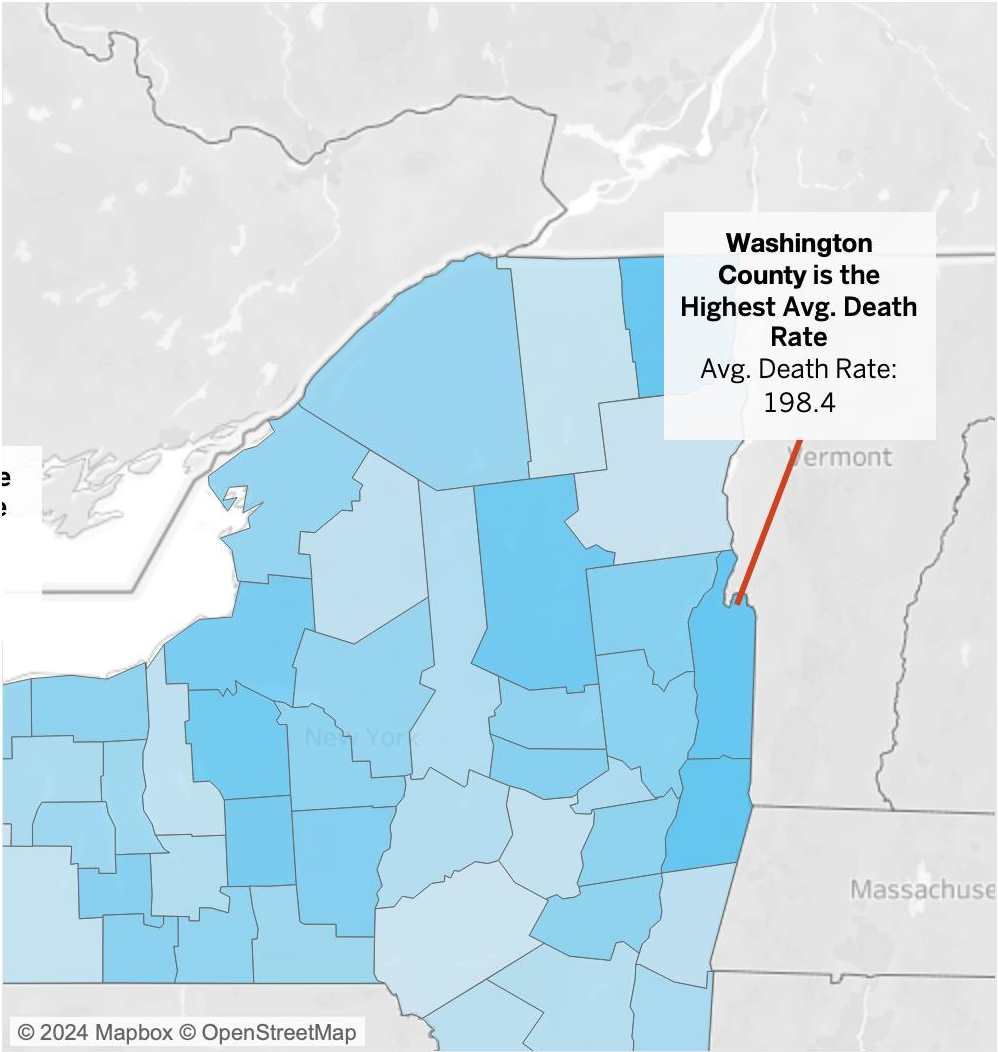
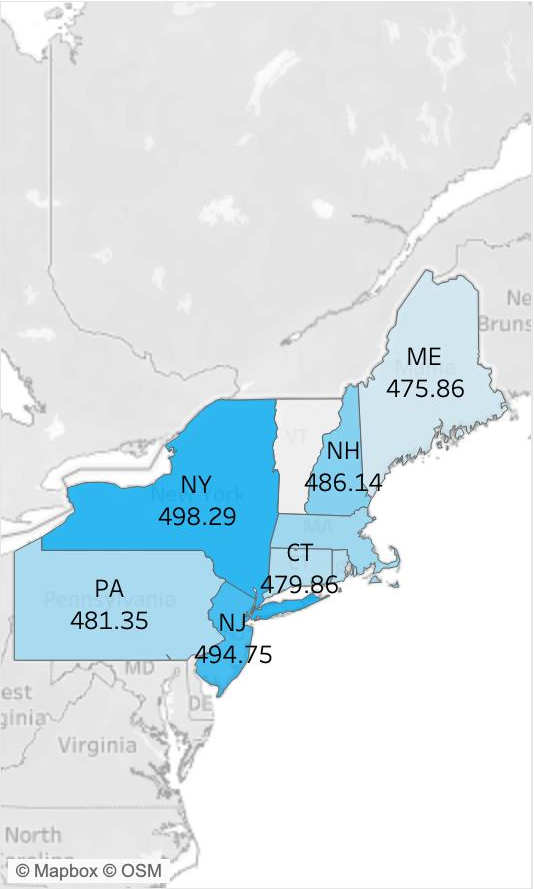
Values Corr.. inciden..

Corr Regio.. South

# Rochester Regional Health: Data-Driven Insights into Cancer Incidence and Death

Why Lower-Income..	Correlation Insights Across U.S. Regions: Pearson Correlation Dashboard	Among the Northeastern states, New York has the highest cancer incidence rate at 498.29	Focusing on New York State, which factors are important?	Recommendations
--------------------	---	---	--	-----------------

Among the Northeastern states, New York has the highest cancer incidence rate at 498.29



# Rochester Regional Health: Data-Driven Insights into Cancer Incidence and Death

Correlation Insights  
Across U.S. Regions:  
Pearson Correlation ..

Among the Northeastern states, New York has the highest cancer incidence rate at 498.29

Focusing on New York State, which factors are important?

Recommendations

## Focusing on New York State, which factors are important?

**Death Rate with Positive correlation with Incidence Rate (0.489):** Areas with higher cancer incidence also tend to have higher death rates.

**Death Rate with Negative correlation with Population Estimate (2015) (-0.555):** Regions with higher populations might have lower death rates, possibly due to better healthcare access in densely populated areas.

Name Values	deathRate	incidenceRate	medIncome	popEst2015	PovertyEst	povertyPercent
deathRate		0.489	-0.493	-0.555	-0.448	0.080
incidenceRate	0.489		0.114	-0.289	-0.372	-0.274
medIncome	-0.493	0.114		0.324	0.055	-0.659
popEst2015	-0.555	-0.289	0.324		0.917	0.183
PovertyEst	-0.448	-0.372	0.055	0.917		0.456
povertyPercent	0.080	-0.274	-0.659	0.183	0.456	

**Death Rate with Negative correlation with Median Income (-0.493):** Higher-income areas tend to have lower death rates, suggesting income impacts healthcare access or lifestyle factors influencing cancer mortality.

**Incidence Rate with Negative correlation with Poverty Percentage (-0.274) and Poverty Estimate (-0.372):** Although weaker, this suggests that higher poverty may correlate with lower cancer incidence. This could reflect underreporting or reduced healthcare access in impoverished areas, leading to undiagnosed cases.

# Rochester Regional Health: Data-Driven Insights into Cancer Incidence and Death

Correlation Insights Across U.S. Regions: Pearson Correlation ..	Among the Northeastern states, New York has the highest cancer incidence rate at 498.29	Focusing on New York State, which factors are important?	Recommendations
<p><b>Death Rate with Positive correlation with Incidence Rate (0.489):</b> Areas with higher cancer incidence also tend to have higher death rates.</p> <p><u>Solution</u></p> <p><b>Target High Cancer Incidence and Death Rate Areas</b></p> <p>Focus for Health Professionals: Prioritize regions with high cancer incidence and death rates, as these areas show a positive correlation (0.489). Health professionals should focus on improving early diagnosis, treatment options, and support services in these areas to reduce mortality.</p> <p><u>Business Strategy</u></p> <p>Expand specialized cancer care facilities or mobile clinics in high-incidence areas. This will not only meet healthcare needs but also position RRH as a primary cancer treatment provider, driving patient influx from underserved regions.</p>	<p><b>Death Rate with Negative correlation with Population Estimate (2015) (-0.555):</b> Regions with higher populations might have lower death rates, possibly due to better healthcare access in densely populated areas.</p> <p><u>Solution</u></p> <p><b>Improve Access to Healthcare in High-Population Areas</b></p> <p>Focus for Health Professionals: Despite a negative correlation with death rates (-0.555), higher-population areas may still benefit from improved healthcare access. Focus on maintaining high-quality care in these areas to continue lowering death ra..</p> <p><u>Business Strategy</u></p> <p>Establish partnerships with local clinics and hospitals in densely populated areas to offer RRH’s specialized cancer services, such as diagnostics and advanced treatment options, extending the RRH network and brand reach.</p>	<p><b>Incidence Rate with Negative correlation with Poverty Percentage (-0.274) and Poverty Estimate (-0.372):</b> Although weaker, this suggests that higher poverty may correlate with lower cancer incidence. This could reflect underreporting or reduced healthcare access in impoverished areas, leading to undiagnosed cases.</p> <p><u>Solution</u></p> <p><b>Address Underreporting and Access Issues in High-Poverty Areas</b></p> <p>Focus for Health Professionals: Given the weaker negative correlation between incidence rate and poverty indicators (-0.274 and -0.372), high-poverty areas might have underreported cases due to reduced healthcare access. Health professionals should increase outreach and screening in these communities to ensure accurate diagnosis and timely treatment.</p> <p><u>Business Strategy</u></p> <p>Deploy mobile screening units and telehealth services to reach high-poverty, underserved areas. By improving access, RRH can capture a new patient base while contributing to better public health outcomes, positioning RRH as a leader in equitable healthcare access.</p>	<p><b>Death Rate with Negative correlation with Median Income (-0.493):</b> Higher-income areas tend to have lower death rates, suggesting income impacts healthcare access or lifestyle factors influencing cancer mortality.</p> <p><u>Solution</u></p> <p><b>Target Low-Income Communities with Preventive Programs</b></p> <p>Focus for Health Professionals: Lower-income areas, where there’s a negative correlation between median income and death rate (-0.493), should receive targeted preventive health programs. Health professionals should provide affordable cancer screenings and preventive ed..</p> <p><u>Business Strategy</u></p> <p>Create subsidized screening programs or preventive health packages for low-income communities. RRH can also partner with insurers or government programs to cover these services, improving community health and generating business through high service utilization.</p>