Mortality Trends in Carteret County, NC
Total Deaths, Premature Mortality, and Ten Leading Causes of Death; 1979-2001

A Resource for Healthy Communities

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Introduction

Health Indicators Series:
A Resource for Healthy Communities
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Report Series #2: Mortality Trends for Carteret County

Health Indicators is a series of reports describing community health at the state and county level. Health Indicators supplements the Eastern North Carolina Health Care Atlas published by the Center for Health Services Research and Development at East Carolina University. These reports are intended to provide state policy makers, local health departments, hospitals, and community-based health planning groups with a wide range of information useful for diagnosing the health of North Carolina and its local communities, evaluating the effectiveness of existing services, and envisioning and planning new interventions. The reports in this periodically published series can be used in conjunction with the County Health Data Book, produced by the North Carolina Office of Healthy Carolinians, as part of the Community Health Assessment Process. Individual reports in ECU’s Health Indicator Series are custom made for the counties of North Carolina. Reports in this series will describe trends in mortality, including premature mortality for all causes of death, true (crude) and age-adjusted mortality for leading causes of death, and measures of rate disparities or inequalities.

Report Series #2 of the series focuses attention on the two overarching goals of Healthy People 2010, the national blueprint for health improvement. The first goal is to increase the span and quality of life and the second is to eliminate health disparities. North Carolina’s companion plan, Healthy Carolinians 2010, has also embraced these two goals.

Report Series #2 is a tool to help evaluate how well Carteret County and North Carolina are doing in relation to the goals set forth in Healthy People 2010 and Healthy Carolinians 2010 as well as important differences in life span. Using rate comparisons, this report describes the inequalities between Carteret County and North Carolina, between whites and non-whites, and between males and females. Premature mortality, the focus of Report Series #1, is included in the death from all causes section located at the beginning of this report. The measure used to quantify premature mortality is described in more detail in the Methods and Interpretations section.

This report describes the leading contributors to mortality, provides a geographic context, and examines trends and inequalities for twenty-two years. The report begins with data highlights, provided as an introduction to the data, rather than a summary of them. Readers are encouraged to draw their own conclusions from the data and pose new questions suggested by what they see. The second section presents overall and five leading contributors to mortality for the state as a whole and by race and gender. Pie charts describe the relative contribution of each of five leading contributors to the overall rate. The charts also provide comparisons to the nation. Making the area of each pie chart equivalent to the rate for the population group conveys the dimension of disparity across population groups. The last section, the largest, is composed of graphs and tables describing recent trends in mortality and disparities in early death. The graphs include projections to the year 2010. These graphs and tables place Carteret County health status in a historical context and provide a glimpse into the future.
Data Highlights

**Leading 5 causes of death in Carteret County, 1999-2001**

The five leading causes of death are:
1. Heart Disease
2. Cancer (all sites)
3. Stroke
4. COPD
5. Alzheimer's Disease

(unless otherwise noted, trends are reliable: for total deaths $R^2>0.35$)

**Twenty-two year trends in mortality rates:**

- Carteret County’s true mortality rate is above regional and state levels.
- Carteret County’s age-adjusted mortality rate is moderately reliable, and higher than state and national levels in the year 2001, but it is lower than the ENC levels, decreasing by 10% over the period of 1979-2001.
- Non-white males have seen the largest decrease in age-adjusted mortality rates, having experienced a 34% decrease over the 22 year time period, in a moderately reliable trend.
- White males experienced an 13% decrease in a moderately reliable trend for the same time period.
- Non-white males experienced an increase of 15%, in a moderately reliable trend.
- The trends for non-white and white females were not reliable.
- The trend in the non-white age-adjusted all causes mortality was a steady decrease (23%) in a moderately reliable trend.
- Overall, racial disparities seem to have decreased, but the trend line is not reliable.

**All Causes of Premature Mortality**

- Carteret County’s trend line followed that of the state rate of true premature mortality, decreasing 17% in a moderately reliable trend.
- Carteret County’s age-adjusted premature mortality rate decreased at approximately the same rate as the region, state, and nation, and was consistently less than the regional rate.
- Non-white males saw the largest decrease in rate of premature mortality, falling 47% in the time period, in a moderately reliable trend.
- White females experienced a strong decrease of 30% over the same time period.
- Both Non-white (34%) and White (21%) groups saw a decrease in rate of premature mortality, although the trends only are moderately reliable.
Comparison of county to state rates of age-adjusted mortality by 10 leading contributors in 2001

<table>
<thead>
<tr>
<th>Higher than the state rate</th>
<th>Lower than the state rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart Disease – 4%</td>
<td>Stroke – 2%</td>
</tr>
<tr>
<td>Tracheal, Bronchial and Lung Cancer – 17%</td>
<td>Alzheimer’s Disease – 1%</td>
</tr>
<tr>
<td>CLRD – 16%</td>
<td>Influenza and Pneumonia – 46%</td>
</tr>
<tr>
<td>Diabetes – 17%</td>
<td>Colon, Rectal and Anal Cancer — 1%</td>
</tr>
<tr>
<td>Breast Cancer – 9%</td>
<td>All Other Unintentional Injuries and Adverse Effects — 14%</td>
</tr>
</tbody>
</table>

Heart Disease

- Carteret County’s true rate of heart disease mortality remains elevated compared to regional and state rates, but did decrease (14%) at roughly the same rate as state (15%) and regional (21%) rates.
- The county’s age-adjusted rate shows a 43% decrease over the time period, and is similar to trends observed in the region, state and nation.
- White males (45% decrease over the time period) and white females (41% decrease over the time period) experienced a sharp drop in age-adjusted mortality rates for heart disease, while non-white males also experienced a moderately reliable trend in the same direction (56% decrease).
- Non-whites experienced a larger decrease than whites, going from a rate that was 18% higher in 1979 to a rate only 6% greater in 2001.

Cancer – Trachea, Bronchus, and Lung

- The true rate of mortality due to lung cancer in Carteret County remains elevated compared to state and regional levels.
- Carteret County’s rate of age-adjusted mortality due to lung cancer increased less (21%), but was consistently higher than rates in the region and state.
- The rate of age-adjusted mortality due to lung cancer for white females increased 89%, in a moderately reliable trend.

Stroke

- Carteret County’s true mortality rate for stroke changed from 42% lower than the regional rate in 1979 to being 7% higher than the regional rate in 2001, in a moderately reliable trend. The county’s true mortality rate increase was more than four times that of NC.
- Non-whites experienced a 28% decrease in age-adjusted stroke mortality over the time period, in a moderately reliable trend, cutting in half the difference between non-white and white age-adjusted rate of mortality due to stroke.
**Chronic Lower Respiratory Disease**

- Carteret County’s true mortality rate due to CLRD has increased 328% over 22 years.
- Carteret County age-adjusted CLRD mortality experienced more of an increase (163%) than the region (110%), state (101%), or nation (57%).
- White females have seen a huge increase (326%) in incidence of death from CLRD. Non-white and white males have also seen dramatic increases (122% and 76%, respectively) in CLRD related death; both have moderately reliable trends.
- The trend for whites shows a large increase (165%) for age-adjusted mortality.

**Alzheimer’s Disease**

- Carteret County has had a dramatic increase (1163%) in the true mortality rate of Alzheimer’s disease compared to the regional (714% increase) and state (691% increase).
- In age-adjusted mortality due to Alzheimer’s disease, the same trend is observed, with a strong trend, especially in the last three years.
- White females have seen a large increase in age-adjusted mortality rate due to Alzheimer’s. White males have also seen a large increase in their rate, in a moderately reliable trend.
- The white age-adjusted mortality rate is steadily increasing, while the non-white rate is not reliable.
- It is possible that the increase in mortality due to Alzheimer’s disease is due to an artifact of the changeover from ICD-9 to ICD-10, as this increase occurs directly following this changeover (in 1999).

**Diabetes**

- The percent increase that Carteret County experienced for diabetes in true mortality is roughly half that of eastern NC and NC.
- Trends in age-adjusted mortality for Carteret County in diabetes were not reliable.
- Non-white females experienced a 263% increase in age-adjusted mortality due to diabetes, in a moderately reliable trend. The trends for all other demographic groups are unreliable.

**Colon Cancer**

- None of the trends in true mortality or age-adjusted mortality for colon cancer in Carteret County is reliable.

**All Other Unintentional Injuries and Adverse Effects**

- Racial disparities in all other unintentional injuries and adverse effects decreased, in a moderately reliable trend.
Influenza and Pneumonia

- Carteret County’s age-adjusted mortality rate due to influenza and pneumonia decreased 55% over the time period, going from 12% greater than ENC’s rate in 1979 to 46% less than ENC in 2001.
- White males showed a strong decrease (74%) in age-adjusted mortality due to influenza and pneumonia, in a moderately reliable trend.
- Whites had a 54% decrease over the time period, while non-whites, in a moderately reliable trend, had an age-adjusted mortality rate decrease of 73%.

Breast Cancer

- Rates in breast cancer were not reliable.
Methods, Interpretation, and References

Methods and Interpretation

Data Sources
The data for mortality and premature mortality in Carteret County were obtained from death certificate data from the North Carolina State Center for Health Statistics and population data from the North Carolina Office of State Planning. For the US, data were obtained from the Compressed Mortality File compiled by the National Center for Health Statistics.

Measures
Two types of mortality measures are covered in this report. The first type is based on the density of deaths per population for a given area over a specified time interval. This type includes the true or “crude” mortality and age-adjusted mortality rates. These mortality rates are typically used in discerning where deaths are occurring and for comparing mortality among areas. The second type of mortality measure is years of life lost before age 75 (YLL-75). The YLL-75 measures include the death density component of both types of mortality rate measures, but they are further weighted by the number of years of life lost before age 75. Like mortality rates, they can either be true (crude) or age-adjusted. These measures provide an indication of the burden of premature mortality in a population or community. The YLL-75 measure is sensitive to deaths occurring earlier in life rather than later. In this report the first type of mortality measures—true and age-adjusted rates—are emphasized. Premature mortality (YLL-75) is considered only for general mortality or deaths by all causes. Premature mortality is the focus of report #1.

A simple count of the number of deaths occurring within an area for a given time period is useful for identifying potential problems or issues of public concern—particularly if the deaths result from a rare cause or are deemed an emerging problem for at-risk socio-demographic groups. In this sense, simple count data act as harbingers. Because nothing is known about the underlying population base from which health events arise, the analytical or even political utility of simple count data is limited. The size of the underlying population will have a natural influence on the observed number of health events. The observed influence is the density of deaths per underlying population. When measured over a given unit of time (usually 1 to 5 years), the density becomes a rate. (The rate is typically multiplied by 100,000 for ease in interpreting the usually small resultant value.) This is the actual observed or true rate for an area and it is an improvement over simple count data because it accounts for the relative size of the underlying population. The chief advantage of the true rate is that it focuses attention on potential public health problems more rigorously than simple counts data. However, the number of health events such as mortality are influenced by more than just the underlying size of the population. The composition of the population will have additional effects on the number of health events that occur and for the analysis of mortality the most important effect is that of the population’s age structure.

Because aging is the greatest risk for mortality, the age structure (composition) of a population will have an effect on the true mortality rate. For example, two counties may have similar population sizes but one has a larger proportion of people over the age of 45 than the other. It is more likely that the older population will experience more deaths over the course of time, which will be reflected in a higher true mortality rate. Age structure, therefore, has a direct effect on the true mortality rate and in order to make meaningful comparisons, population age structures need to be controlled.

Age-adjustment or controlling for a population’s age structure requires an external reference or standard to weight the comparison populations by
age groups. (Currently, the US 2000 Standard Million Population is used in age adjusting populations for comparisons.) The weighting scheme redistributes the age group sizes of the observed population as if it had the same structure as the standard reference population. The standardized age group population is then applied the number of deaths found in the corresponding age group of the observed population to produce an expected number of deaths for that age group. The expected number of deaths are summed and then divided by the weighted total population yielding an age-adjusted death rate. Once age structure is controlled, analysis of the effects of selected diseases on mortality is more tractable and the effects of race and gender can be studied more effectively.

The study of premature mortality focuses on the burden of disease and death in a population. The amount of burden is measured in the accumulated amount of years of life lost (YLL) before a benchmark age. We use 75 years of age as a benchmark because it approximates current life expectancy at birth in the United States and captures deaths from chronic disease occurring in later life. To calculate the number of years lost, the age of each person who dies before age 75 is subtracted from 75 and the lost years are summed. The YLL for each person who dies before age 75 is first aggregated and then the result divided by the population under 75 years of age. Again, the value will be relatively small and so a further multiplication of 10,000 magnifies the number into a more understandable rate. The true YLL for an area, like the true mortality rate, is not readily comparable to other areas but it is useful for assessing community health, evaluating health services, and for health planning. Comparisons are possible when age-adjustment with a standard reference population is used.

Age-adjusted rates for both mortality and premature mortality have little intrinsic meaning, however, and can mask the burden and trends of health events that may be of local importance. A casual inspection of adjusted rates may divert attention from the actual health problems of a population and inappropriately guide interventions or resource allocation. Thus, it is important to consider the actual number of deaths (count data) in conjunction with the true rate first, and then use the adjusted rate only if one wishes to factor out age in understanding the health of a population. All of the statistics presented are for the three-year period (1999 to 2001). A three-year period was used because it provides a useful summary of the mortality experience while minimizing wide year-to-year fluctuations in the rate due to the effect of small numbers.

**Interpreting the Pie Charts**

Pie charts are provided as a visual representation of the burden of mortality and they also depict the proportion of mortality accounted for by each of the leading contributors. (The leading causes of death are found in the table preceding the pie chart section.) The pie charts compare the relative levels of burden and proportions by region and demographic groups. With the exception of the second pie chart figure, all rates are true (or crude). The area of each pie is based on the true mortality rate for the population over a three-year period (1999-2001), with larger pie charts representing higher true mortality rates. For purposes of presentation, we set a limit on the smallest possible area of a circle and assigned this area to the population with the smallest rate. (This lower limit is based on the age-adjusted rate for white females in North Carolina.) We then scaled up the circles for all other groups proportionately based on their rates.

The first two pie chart figures compare the proportions of leading causes of death across regions at the national, state, and county level. The first figure in this set allows comparisons using true rates, which illustrates the relative burden of disease intrinsic to each region. The second figure, which is age-adjusted, allows for direct comparisons among regions. The following two figures use proportions based on true mortality rates to show the relative burden of disease intrinsic within race/gender groups and within two major racial groups.

While comparing the pie charts, the reader should remember that the slices of the pie show differences in how much of the total true or age-adjusted mortality rate is accounted for by a specific contributor, not the absolute differences in magnitude of the disease-specific true mortality
rate. Finally, the reader will see that some pies are composed of different leading contributors to mortality, so they have different colored slices. The variable sizes of pie slices demonstrate differences in the mortality patterns across populations and are of significant importance in studying inequalities and disparities in population health.

**Interpreting the Trend Figures**

Four different types of figures are created to show trends in mortality by all causes and for each of the leading causes in the county over a twenty-three year period. True and age-adjusted mortality rate trends are shown for deaths by all causes in addition to the ten leading causes of death. Premature mortality is described for deaths by all causes only. The first figure in the trend series illustrates the true mortality rates for the county, region, and state. Here, the magnitude of each region's mortality pattern for each time interval can be examined. The second figure shows age-adjusted mortality rates for the county, region, state, and nation. In this figure, these geographical entities can be compared directly, because their age structures have been controlled. The third figure compares trends in age-adjusted mortality rates by race and gender. Again, age structure is controlled for each group, which permits observation of the effects of race and gender on these groups. The last figure depicts racial differentials based on true mortality over the twenty-three year time period. True mortality is used here so that the percent differences of the actual number of deaths, or the relative mortality experience for, can be examined for potential disparities. Trend lines provide historical depth to mortality processes as well as a basis for future comparisons and action.

The trend line concept is borrowed from statistical modeling. However, unlike true modeling, we are not assuming the statistical independence of each sequential observation (the rate at time interval x). Instead, our assumption is that each observation is dependent to some degree on previous observations, forming a trend. If the degree of dependence is high, then the observations (rates) should lie close to the trend line. If observations appear to bounce around the fitted line in a random fashion, then there is less dependence and less of a trend in the observations. The purpose of trend lines is to uncover patterns in the data, which will assist the investigator in determining and understanding the underlying processes which generate them.

Mathematically, an equation of the line can be derived from a set of observation points. This line is an estimate of where each observed rate would be if the previous observation could predict with 100% accuracy the value of the next observation. In nature, this situation seldom arises and the degree to which individual observations deviate from this linear trend line is an indication of how well they “fit” or conform to the trend. The linear trend lines in the time series figures project theoretical rates to the year 2010 from historical values (1979 to 2001) to provide a general idea about where mortality trends are heading.

The equation of the line allows the user to calculate an expected or fitted rate—a rate on the trend line—for a given year. The variable “x” in the equation of the line represents the ordinal year in the series. For example, 1990 represents the 11th year in the time series. When the number 11 is substituted for x in the equation of the line describing ENC’s age-adjusted mortality rate for cancer of lung, trachea, and bronchus for the years 1979 to 2001, the calculated fitted rate approaches 63 persons dying per 100,000 people from this disease. The observed age-adjusted rate for 1990 is 69 deaths per 100,000 people. (The observed rates are the values found in the table that runs along the x-axis of the time series chart.) For the year 1990, the expected mortality rate is 63 per 100,000 people compared to the observed rate of 69—an underestimate of six people for that year. Each previous and subsequent year’s difference between the expected and observed rates will vary by a greater or lesser degree. The amount of variation can be measured to determine how well the line fits or models the observed data.

The time series figures include coefficients of determination (R²), to note when the trend lines are significant, and the percent increase or decrease from 1979 to 2001. The coefficients of determination are included in order to show how well the trend lines fit the data. R-square can
range from 0 to 1, with higher scores representing a better fit. The trend lines are generally unreliable when $R^2$ is less than 0.11, moderately reliable when $R^2$ is between 0.11 and 0.35, and most reliable when $R^2$ is greater than 0.35. Graphically, data points, data lines, and trend lines are weighted according to their significance. The thinnest, dotted trend lines are for those where $R^2$ is less than 0.11 and should be considered non-significant. The thickest dotted lines are used for trends where the $R^2$ is greater than 35.0. In some cases, the trend lines do not fit the data well (i.e. small $R^2$). In other words, the presentation of a trend line does not necessarily indicate a linear trend in the data line. In some instances a non-linear trend may be present; however, the theoretical basis with which to explore non-linear trends is beyond the scope of this publication. The percent change provides a quantitative measure of the projected rate of change as well as an indication of whether the trend is increasing or decreasing. Percentage increase or decrease is provided on the graphs for trends where $R^2$ is greater than 0.11. The reader should evaluate all available data carefully before drawing conclusions about mortality patterns.

The reader will notice that some data lines in the trend figures fluctuate widely. This fluctuation is due to two main factors. In a small population, the number of deaths may vary widely from year-to-year and lead to large changes in annual mortality and premature mortality rates, a phenomenon known as the effect of small numbers. In addition, because mortality is based on the age of death, any fluctuation in the distribution of deaths across age groups from year-to-year can cause rates to change dramatically. Both the number of deaths and the age of decedents influence trends in mortality.

Each figure, with the exception of the one showing disparity, is accompanied by two comparison tables located in the lower portion of the page. These tables are structured so that the reader can compare the rates derived from the equation of the line (i.e., the fitted rates) among different regions or demographic groups. The 1979 and 2001 tables compare the fitted rates calculated for the beginning and end of the observed time series in terms of percent difference. For example, Carteret County’s fitted rate for cancer of the lung, trachea, and bronchus in 1979 is 44% greater than (GT) ENC’s fitted rate. In 2001, Carteret County’s fitted rate is the 40% greater than (GT) ENC’s fitted rate. The tables permit a quick assessment of trends calculated from observed time series data.

Caveats about the Concepts of Race, Gender, and Geography

We also offer several caveats about the concepts of race, gender, and geography as they apply to the analysis of mortality patterns. While we do intend to bring attention to the stark racial inequalities in mortality across North Carolina, we do not mean to imply that this is a biological phenomenon. Other factors such as differences in socioeconomic status, educational attainment, occupation, and lifestyle probably account for the large racial gaps in mortality rates. Likewise, gender inequalities may have less to do with biological differences between men and women than with socially structured gender roles, health behaviors, occupational exposures, and use of health services. Finally, it is important to consider that county borders may not always be the most appropriate way to look at specific health problems. Few of our health care problems begin or end at political boundary lines and many of our health problems in North Carolina are common to large groups of counties. Counties are convenient units of data collection and readers should not jump to conclusions about health problems or possible solutions based solely on the way data appear when aggregated to this level. In some cases, data at multi-county, zip code, or minor civil division levels are a better way to understand problems and solutions. Similarly, as indicated in Healthy Carolinians 2010, consideration needs to be given to whether or not a county is characterized as rural or urban, as this can be an indication to the level of development and amount of resources available in a county.
References


Leading Causes of Death in Carteret County, NC
Figure 1. Leading causes of death for the United States, North Carolina, Eastern North Carolina, and Carteret County, (1999-2001). True Mortality rate per 100,000 population.

United States

849 deaths/100,000

North Carolina

885 deaths/100,000

Eastern North Carolina

920 deaths/100,000

Carteret County

1130 deaths/100,000

NC rate is 4% higher than US
ENC rate is 4% higher than NC
County rate is 23% higher than ENC rate.

Pie charts are proportionally scaled using the state age-adjusted mortality rate of white-females (718 deaths / 100,000 pop) as a standard. The areas are proportional to the rates. Slices without percentages constitute less than 5% of the deaths within that chart.
Figure 2. Leading causes of death for the United States, North Carolina, Eastern North Carolina, and Carteret County, (1999-2001). Age-Adjusted Mortality rate per 100,000 population.

United States  
855 deaths/100,000

North Carolina  
908 deaths/100,000

Eastern North Carolina  
988 deaths/100,000

Carteret County  
970 deaths/100,000

NC rate is 6% higher than US  
ENC rate is 9% higher than NC rate. County rate is 2% lower than ENC rate.

County rate is 7% higher than NC rate.  
County rate is 13% higher than US rate.

Pie charts are proportionally scaled using the state age-adjusted mortality rate of white-females (718 deaths / 100,000 pop) as a standard. The areas are proportional to the rates. Slices without percentages constitute less than 5% of the deaths within that chart.
Figure 3: Leading causes of death for Carteret County by race and gender, (1999-2001). True Mortality rate per 100,000 population.

The Non-White Male true mortality rate is 40% lower than the White Male rate, and 13% lower than the Non-White Female rate.

723 deaths/100,000

Non-White Males

Heart Disease: 31%
Cancer (all sites): 29%
Chronic Lower Respiratory Diseases: 17%
Stroke: 15%
Diabetes Mellitus: 13%
All Other Unintentional Injuries: 7%
Essential (primary) Hypertension: 5%
Pneumonitis Due to Solids and Liquids: 5%
Intentional Self-Harm (Suicide): 29%
Chronic Liver Disease and Cirrhosis: 27%
Nephritis, Nephrotic Syndrome, and Nephrosis: 23%
All other deaths: 8%

832 deaths/100,000

Non-White Females

Heart Disease: 30%
Cancer (all sites): 29%
Chronic Lower Respiratory Diseases: 15%
Stroke: 13%
Diabetes Mellitus: 10%
All Other Unintentional Injuries: 7%
Essential (primary) Hypertension: 5%
Pneumonitis Due to Solids and Liquids: 5%
Intentional Self-Harm (Suicide): 27%
Chronic Liver Disease and Cirrhosis: 27%
Nephritis, Nephrotic Syndrome, and Nephrosis: 6%
All other deaths: 6%

1119 deaths/100,000

White Males

Heart Disease: 29%
Cancer (all sites): 29%
Chronic Lower Respiratory Diseases: 27%
Stroke: 6%
Diabetes Mellitus: 5%
All Other Unintentional Injuries: 8%
Essential (primary) Hypertension: 8%
Pneumonitis Due to Solids and Liquids: 5%
Intentional Self-Harm (Suicide): 28%
Chronic Liver Disease and Cirrhosis: 23%
Nephritis, Nephrotic Syndrome, and Nephrosis: 23%
All other deaths: 23%

1212 deaths/100,000

White Females

Heart Disease: 29%
Cancer (all sites): 29%
Chronic Lower Respiratory Diseases: 27%
Stroke: 6%
Diabetes Mellitus: 5%
All Other Unintentional Injuries: 8%
Essential (primary) Hypertension: 8%
Pneumonitis Due to Solids and Liquids: 5%
Intentional Self-Harm (Suicide): 28%
Chronic Liver Disease and Cirrhosis: 23%
Nephritis, Nephrotic Syndrome, and Nephrosis: 23%
All other deaths: 23%

Pie charts are proportionally scaled using the state age-adjusted mortality rate of white-females (718 deaths / 100,000 pop) as a standard. The areas are proportional to the rates. Slices without percentages constitute less than 5% of the deaths within that chart.
Figure 3a: Leading causes of death for Carteret County by race and gender, (1999-2001). Age-Adjusted Mortality rate per 100,000 population.

The Non-White Male age-adjusted mortality rate is 11% higher than the White Male rate, and 44% higher than Non-White Female rate.

1285 deaths/100,000
1154 deaths/100,000

Non-White Males

- Heart Disease: 30%
- Cancer (all sites): 13%
- Chronic Lower Respiratory Diseases: 15%
- Stroke: 5%
- Diabetes Mellitus: 7%
- All Other Unintentional Injuries: 5%
- Certain Conditions Originating in the Perinatal Period: 17%
- Alzheimer's Disease: 13%
- Essential (primary) Hypertension: 29%
- Pneumonitis Due to Solids and Liquids: 10%
- Intentional Self-Harm (Suicide): 20%
- Chronic Liver Disease and Cirrhosis: 27%
- Nephritis, Nephrotic Syndrome, and Nephrosis: 6%
- All other deaths: 29%

White Males

- Heart Disease: 29%
- Cancer (all sites): 27%
- Chronic Lower Respiratory Diseases: 5%
- Stroke: 6%
- Diabetes Mellitus: 8%
- All Other Unintentional Injuries: 29%
- Certain Conditions Originating in the Perinatal Period: 28%
- Alzheimer's Disease: 23%
- Essential (primary) Hypertension: 28%
- Pneumonitis Due to Solids and Liquids: 5%
- Intentional Self-Harm (Suicide): 23%
- Chronic Liver Disease and Cirrhosis: 10%
- Nephritis, Nephrotic Syndrome, and Nephrosis: 8%
- All other deaths: 28%

Non-White Females

- Heart Disease: 31%
- Cancer (all sites): 17%
- Chronic Lower Respiratory Diseases: 10%
- Stroke: 7%
- Diabetes Mellitus: 10%
- All Other Unintentional Injuries: 20%
- Certain Conditions Originating in the Perinatal Period: 31%
- Alzheimer's Disease: 29%
- Essential (primary) Hypertension: 15%
- Pneumonitis Due to Solids and Liquids: 7%
- Intentional Self-Harm (Suicide): 6%
- Chronic Liver Disease and Cirrhosis: 27%
- Nephritis, Nephrotic Syndrome, and Nephrosis: 6%
- All other deaths: 27%

White Females

- Heart Disease: 28%
- Cancer (all sites): 29%
- Chronic Lower Respiratory Diseases: 8%
- Stroke: 8%
- Diabetes Mellitus: 23%
- All Other Unintentional Injuries: 28%
- Certain Conditions Originating in the Perinatal Period: 23%
- Alzheimer's Disease: 29%
- Essential (primary) Hypertension: 23%
- Pneumonitis Due to Solids and Liquids: 8%
- Intentional Self-Harm (Suicide): 23%
- Chronic Liver Disease and Cirrhosis: 10%
- Nephritis, Nephrotic Syndrome, and Nephrosis: 8%
- All other deaths: 28%

Pie charts are proportionally scaled using the state age-adjusted mortality rate of white-females (718 deaths / 100,000 pop) as a standard. The areas are proportional to the rates. Slices without percentages constitute less than 5% of the deaths within that chart.
Figure 4: Leading causes of death for Carteret County by race (1999-2001). True Mortality rate per 100,000 population.

The Non-White true mortality rate is 33% lower than the White rate.

Non-Whites: 780 deaths/100,000

Whites: 1165 deaths/100,000
Figure 4a: Leading causes of death for Carteret County by race (1999-2001). Age-Adjusted Mortality rate per 100,000 population.

- **Non-Whites**
  - Heart Disease: 31%
  - Cancer (all sites): 24%
  - Chronic Lower Respiratory Diseases: 6%
  - Stroke: 10%
  - Diabetes Mellitus: 6%
  - All Other Unintentional Injuries: 25%
  - Alzheimer's Disease: 3%
  - All other deaths: 7%
  - Total: 1033 deaths/100,000

- **Whites**
  - Heart Disease: 30%
  - Cancer (all sites): 29%
  - Chronic Lower Respiratory Diseases: 6%
  - Stroke: 7%
  - Diabetes Mellitus: 25%
  - All Other Unintentional Injuries: 10%
  - Alzheimer's Disease: 6%
  - All other deaths: 10%
  - Total: 966 deaths/100,000

The Non-White rate is 34% higher than the White rate.
Figure 5. Population Pyramid for Carteret County, 2000
Table 1. Leading contributors to age-adjusted mortality in Carteret County by race and gender, 1999-2001.

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Ten Leading Causes of Death

Heart Disease

Cancer - Trachea, Bronchus, and Lung

Stroke

Chronic Lower Respiratory Disease

Alzheimer’s Disease

Diabetes Mellitus

Cancer - Colon, Rectum, and Anus

All Other Unintentional Injuries and Adverse Effects

Influenza and Pneumonia

Cancer - Breast
All Causes of Death
Figure 6. All Causes of Death:
Trends in mortality rates by county, region, and state, 1979-2001 with projections to 2010

1979 Carteret rate is 3% greater than ENC
2001 Carteret rate is 15% greater than ENC
Figure 7. All Causes of Death:
Trends in age-adjusted mortality rates by county, region, state, and nation, 1979-2001 with projections to 2010

Carteret
- 10% decrease
- $R^2 = 0.30$
- $y = -4.57x + 1034$

ENC
- 13% decrease
- $R^2 = 0.89$
- $y = -6.91x + 1145$

NC
- 13% decrease
- $R^2 = 0.90$
- $y = -6.49x + 1058$

US
- 14% decrease
- $R^2 = 0.94$
- $y = -7.39x + 1032$

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Comparison of Fitted Rates in 1979

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Figure 8. All Causes of Death:
Trends in age-adjusted mortality rates by race and gender,
1979-2001 with projections to 2010

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Comparison of Fitted Rates in 1979

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Comparison of Fitted Rates in 1979

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Comparison of Fitted Rates in 1979

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Comparison of Fitted Rates in 1979

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Comparison of Fitted Rates in 1979

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Figure 9. All Causes of Death: Trends in age-adjusted mortality rates by race, 1979-2001 with projections to 2010

- **NW**: 23% decrease, \( R^2 = 0.15 \), \( y = -14.60x + 1412 \)
- **W**: 8% decrease, \( R^2 = 0.19 \), \( y = -3.74x + 1006 \)

1979 Non-white rate is 40% greater than the White rate
2001 Non-white rate is 18% greater than the White rate
Figure 10. All Causes of Death: Disparity in mortality rates by race, 1979-2001 with projections to 2010

Race
57% decrease
$R^2 = 0.07$
$y = -1.10x + 42$

Carteret County
All Causes of Premature Mortality
Figure 11. All Causes of Premature Mortality: Trends in premature mortality rates by county, region, and state, 1979-2001 with projections to 2010

1979 Carteret rate is 10% less than ENC
2001 Carteret rate is 10% less than ENC
Figure 12. All Causes of Premature Mortality:
Trends in age-adjusted premature mortality rates by county, region, state, and nation, 1979-2001 with projections to 2010

1979 Carteret rate is 16% less than ENC
2001 Carteret rate is 16% less than ENC

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Comparison of Fitted Rates in 1979

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Comparison of Fitted Rates in 2001

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Figure 13. All Causes of Premature Mortality: Trends in age-adjusted premature mortality rates by race and gender, 1979-2001 with projections to 2010

Comparison of Fitted Rates in 1979

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Comparison of Fitted Rates in 2001

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Comparison of Fitted Rates in 2010

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Figure 14. All Causes of Premature Mortality: Trends in age-adjusted premature mortality rates by race, 1979-2001 with projections to 2010

**NW**
- 34% decrease
- $R^2 = 0.18$
- $y = -27.75x + 1818$

**W**
- 21% decrease
- $R^2 = 0.30$
- $y = -9.74x + 996$

1979 Non-white rate is 82% greater than the White rate
2001 Non-white rate is 54% greater than the White rate
Figure 15. All Causes of Premature Mortality: Disparity in premature mortality rates by race, 1979-2001 with projections to 2010

Race
29% decrease
$R^2 = 0.02$
y = -1.10x + 83
Heart Disease
Figure 16. Heart Disease:
Trends in mortality rates by county, region, and state,
1979-2001 with projections to 2010

- **Carteret**
  - 14% decrease
  - $R^2 = 0.17$
  - $y = -2.33x + 359$

- **ENC**
  - 15% decrease
  - $R^2 = 0.77$
  - $y = -2.15x + 309$

- **NC**
  - 21% decrease
  - $R^2 = 0.85$
  - $y = -3.12x + 319$

**Comparison of Fitted Rates in 1979**

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**Comparison of Fitted Rates in 2001**

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Actual Deaths

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**Figure 16. Heart Disease:**
Trends in mortality rates by county, region, and state, 1979-2001 with projections to 2010

- **Carteret**
  - 14% decrease
  - $R^2 = 0.17$
  - $y = -2.33x + 359$

- **ENC**
  - 15% decrease
  - $R^2 = 0.77$
  - $y = -2.15x + 309$

- **NC**
  - 21% decrease
  - $R^2 = 0.85$
  - $y = -3.12x + 319$
Figure 17. Heart Disease:

Carteret
43% decrease
y = -8.98x + 460
R² = 0.73

ENC
39% decrease
y = -8.02x + 457
R² = 0.97

NC
41% decrease
y = -7.89x + 425
R² = 0.98

US
34% decrease
y = -7.51x + 421
R² = 0.98

1979 Carteret rate is 1% greater than ENC
2001 Carteret rate is 7% less than ENC
Figure 18. Heart Disease: Trends in age-adjusted mortality rates by race and gender, 1979-2001 with projections to 2010.
Figure 19. Heart Disease:
Trends in age-adjusted mortality rates by race, 1979-2001 with projections to 2010

1979 Non-white rate is 18% greater than the White rate
2001 Non-white rate is 6% greater than the White rate

NW
48% decrease
$R^2 = 0.32$
y = -11.74x + 536

W
42% decrease
$R^2 = 0.73$
y = -8.77x + 454.43
Figure 20. Heart Disease:
Disparity in mortality rates by race,
1979-2001 with projections to 2010

Race
89% decrease
R² = 0.02
y = -0.78x + 19
Cancer -
Trachea, Bronchus, and Lung
Figure 21. Cancer — Trachea, Bronchus, and Lung: Trends in mortality rates by county, region, and state, 1979-2001 with projections to 2010

Carteret 57% increase
R² = 0.46
y = 1.58x + 61

ENC 62% increase
R² = 0.86
y = 1.19x + 42

NC 56% increase
R² = 0.83
y = 1.07x + 42

1979 Carteret rate is 44% greater than ENC
2001 Carteret rate is 40% greater than ENC

Comparison of Fitted Rates in 1979
Carteret ENC NC
31% LT 31% LT 31% LT

Comparison of Fitted Rates in 2001
Carteret ENC NC
28% LT 31% LT 31% LT

Carteret County
Center for Health Services Research and Development, ECU
Figure 22. Cancer — Trachea, Bronchus, and Lung:
Trends in age-adjusted mortality rates by county, region, and state,
1979-2001 with projections to 2010

1979 Carteret rate is 20% greater than ENC
2001 Carteret rate is 8% greater than ENC
Figure 23. Cancer — Trachea, Bronchus, and Lung: Trends in age-adjusted mortality rates by race and gender, 1979-2001 with projections to 2010

Comparison of Fitted Rates in 1979

| 79 80 81 82 83 84 85 86 | 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06 07 08 09 10 |
|--------------------------|--------------------------|---------------------|------------------|------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| NWM                      | WM                       | NWF                 | WF               |
| 63 0 65 414 0 0 129 195 | 141 63 137 92 134 89 103 81 84 134 100 72 111 138 101 104 105 126 89 109 97 102 101 | 0 0 0 47 44 0 0 0 49 0 0 121 55 40 0 0 80 36 127 42 33 0 76 | 28 23 26 29 37 40 37 28 44 55 48 40 76 53 17 68 37 34 47 48 57 49 58 |

Comparison of Fitted Rates in 2001

| 79 80 81 82 83 84 85 86 | 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06 07 08 09 10 |
|--------------------------|--------------------------|---------------------|------------------|------------------|---------------------|---------------------|---------------------|---------------------|
| NWM                      | WM                       | NWF                 | WF               |
| 63 0 65 414 0 0 129 195 | 141 63 137 92 134 89 103 81 84 134 100 72 111 138 101 104 105 126 89 109 97 102 101 | 0 0 0 47 44 0 0 0 49 0 0 121 55 40 0 0 80 36 127 42 33 0 76 | 28 23 26 29 37 40 37 28 44 55 48 40 76 53 17 68 37 34 47 48 57 49 58 |
Figure 24. Cancer - Trachea, Bronchus and Lung:
Trends in age-adjusted mortality rates by race,
1979-2001 with projections to 2010

1979 Non-white rate is 5% less than the White rate
2001 Non-white rate is 24% greater than the White rate

1979 Non-white rate is 5% less than the White rate
2001 Non-white rate is 24% greater than the White rate

NW
55% increase
$R^2 = 0.03$
y = 1.51x + 60

W
19% increase
$R^2 = 0.08$
y = 0.53x + 63

Age-adjusted mortality rate per 100,000 population

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Figure 25. Cancer — Trachea, Bronchus, and Lung: Disparity in mortality rates by race, 1979-2001 with projections to 2010

Race
149% increase
$R^2 = 0.00$
y = 1.32x - 20
Stroke
Figure 26. Stroke:
Trends in mortality rates by county, region, and state,
1979-2001 with projections to 2010

1979 Carteret rate is 42% less than ENC
2001 Carteret rate is 7% greater than ENC

<table>
<thead>
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<th>Year</th>
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<th>NC Actual Deaths</th>
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Comparison of Fitted Rates in 1979
- Carteret: 56% increase
  \[ R^2 = 0.28 \]
  \[ y = 1.20x + 47 \]
- ENC: 15% decrease
  \[ R^2 = 0.53 \]
  \[ y = -0.56x + 81 \]
- NC: 12% decrease
  \[ R^2 = 0.46 \]
  \[ y = -0.41x + 77 \]

Comparison of Fitted Rates in 2001
- Carteret: 7% LT
- ENC: 7% LT
- NC: 8% GT
Figure 27. Stroke:
Trends in age-adjusted mortality rates by county, region, state, and nation, 1979-2001 with projections to 2010

Carteret
1% decrease
$R^2 = 0.00$
y = -0.03x + 68

ENC
44% decrease
$R^2 = 0.91$
y = -2.59x + 131

NC
39% decrease
$R^2 = 0.89$
y = -2.03x + 113

US
38% decrease
$R^2 = 0.88$
y = -1.87x + 92

Comparison of Fitted Rates in 1979
Carteret ENC NC US
94% GT 87% GT 37% GT
48% LT 14% LT 30% LT ENC
27% LT 16% GT 18% LT NC

Comparison of Fitted Rates in 2001
Carteret ENC NC US
11% GT 2% GT 23% LT
10% LT 8% LT 31% LT ENC
2% LT 8% GT 25% LT NC
31% GT 44% GT 34% GT US

1979 Carteret rate is 48% less than ENC
2001 Carteret rate is 10% less than ENC
Figure 28. Stroke:
Trends in age-adjusted mortality rates by race and gender,
1979-2001 with projections to 2010

Comparison of Fitted Rates in 1979

<table>
<thead>
<tr>
<th>Race</th>
<th>NWM</th>
<th>WM</th>
<th>NWF</th>
<th>WF</th>
</tr>
</thead>
<tbody>
<tr>
<td>11% increase</td>
<td>R² = 0.00</td>
<td>y = 1.00x + 192</td>
<td>3% decrease</td>
<td>R² = 0.00</td>
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</table>

Comparison of Fitted Rates in 2001

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<th>WM</th>
<th>NWF</th>
<th>WF</th>
</tr>
</thead>
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<td>68% LT</td>
<td>61% LT</td>
<td>71% LT</td>
<td>NWM</td>
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<tr>
<td>169% GT</td>
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<td>16% LT</td>
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<td>NWF</td>
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<td>272% GT</td>
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<td>178% GT</td>
<td>WF</td>
<td></td>
</tr>
<tr>
<td>250% GT</td>
<td>13% GT</td>
<td>35% GT</td>
<td>WF</td>
<td></td>
</tr>
</tbody>
</table>
Figure 29. Stroke:
Trends in age-adjusted mortality rates by race, 1979-2001 with projections to 2010

- **NW**: 28% decrease
  - $R^2 = 0.11$
  - $y = -2.06x + 164$
- **W**: 7% increase
  - $R^2 = 0.01$
  - $y = 0.20x + 60$

1979 Non-white rate is 174% greater than the White rate
2001 Non-white rate is 85% greater than the White rate
Figure 30. Stroke:
Disparity in mortality rates by race, 1979-2001 with projections to 2010

Race
51% decrease
$R^2 = 0.10$
y = -4.44x + 190

Percentage Difference - Nonwhite to White

<table>
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<tr>
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</table>

Carteret County  Center for Health Services Research and Development, ECU 57
Chronic Lower Respiratory Diseases
Figure 31. Chronic Lower Respiratory Diseases:
Trends in mortality rates by county, region, and state,
1979-2001 with projections to 2010

Carteret
328% increase
$R^2 = 0.81$
y = 2.18x + 15

ENC
182% increase
$R^2 = 0.96$
y = 1.31x + 16

NC
155% increase
$R^2 = 0.96$
y = 1.26x + 18

1979 Carteret rate is 8% less than ENC
2001 Carteret rate is 40% greater than ENC
Figure 32. Chronic Lower Respiratory Diseases: Trends in age-adjusted mortality rates by county, region, state, and nation, 1979-2001 with projections to 2010

- **Carteret County**
  - 163% increase
  - $R^2 = 0.64$
  - $y = 1.51x + 20$

- **ENC**
  - 110% increase
  - $R^2 = 0.94$
  - $y = 1.16x + 23$

- **NC**
  - 101% increase
  - $R^2 = 0.95$
  - $y = 1.06x + 23$

- **US**
  - 57% increase
  - $R^2 = 0.95$
  - $y = 0.82x + 27$

- **Comparison of Fitted Rates in 1979**
  - Carteret: 12% LT
  - ENC: 14% LT
  - NC: 13% GT
  - US: 17% GT

- **Comparison of Fitted Rates in 2001**
  - Carteret: 1% LT
  - ENC: 9% LT
  - NC: 16% GT
  - US: 19% GT

- **1979 Carteret rate is 12% less than ENC**
- **2001 Carteret rate is 10% greater than ENC**
Figure 33. Chronic Lower Respiratory Diseases: Trends in age-adjusted mortality rates by race and gender, 1979-2001 with projections to 2010

Comparison of Fitted Rates in 1979

<table>
<thead>
<tr>
<th></th>
<th>NWM</th>
<th>WM</th>
<th>NWF</th>
<th>WF</th>
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<td>9%</td>
<td>8%</td>
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<td>162%</td>
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<td>62%</td>
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Comparison of Fitted Rates in 2001

<table>
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<th>WM</th>
<th>NWF</th>
<th>WF</th>
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<td>973%</td>
<td>111%</td>
<td>132%</td>
<td>113%</td>
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<tr>
<td>416%</td>
<td>64%</td>
<td>176%</td>
<td>17%</td>
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<tr>
<td>845%</td>
<td>15%</td>
<td>136%</td>
<td>58%</td>
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</table>
Figure 34. Chronic Lower Respiratory Disease: Trends in age-adjusted mortality rates by race, 1979-2001 with projections to 2010

1979 Non-white rate is 16% less than the White rate
2001 Non-white rate is 80% less than the White rate

NW
38% decrease
\[ R^2 = 0.01 \]
\[ y = -0.3081x + 17.715 \]

W
165% increase
\[ R^2 = 0.62 \]
\[ y = 1.58x + 21 \]
Figure 35. Chronic Lower Respiratory Diseases: Disparity in mortality rates by race, 1979-2001 with projections to 2010

Race
154% decrease
$R^2 = 0.16$
y = -6.17x + 88
Alzheimer’s Disease
Figure 36. Alzheimer's Disease:
Trends in mortality rates by county, region, and state,
1979-2001 with projections to 2010

Carteret
1163% increase
$R^2 = 0.40$
$y = 0.87x - 2$

ENC
714% increase
$R^2 = 0.82$
$y = 0.55x - 2$

NC
691% increase
$R^2 = 0.82$
$y = 0.82x - 3$

1979 Carteret rate is 3% less than ENC
2001 Carteret rate is 68% greater than ENC

Actual Deaths

<table>
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Comparison of Fitted Rates in 1979

Carteret
3% GT
ENC
NC

Comparison of Fitted Rates in 2001

Carteret
68% GT
ENC
NC

Carteret County
Figure 37. Alzheimer’s Disease:
Trends in age-adjusted mortality rates by county, region, and state,
1979-2001 with projections to 2010

1979 Carteret rate is 78% greater than ENC
2001 Carteret rate is 33% greater than ENC
Figure 38. Alzheimer’s Disease: Trends in age-adjusted mortality rates by race and gender, 1979-2001 with projections to 2010

Comparison of Fitted Rates in 1979

<table>
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<th>WM</th>
<th>NWF</th>
<th>WF</th>
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Comparison of Fitted Rates in 2001

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NWM 130% decrease  
$R^2 = 0.15$

$y = -1.90x + 32$

WM 988% increase  
$R^2 = 0.21$

$y = 0.44x + 1$

NWF 275% increase  
$R^2 = 0.13$

$y = 0.75x - 6$

WF 1005% increase  
$R^2 = 0.45$

$y = 1.11x - 2$
Figure 39. Alzheimer’s Disease:
Trends in age-adjusted mortality rates by race, 1979-2001 with projections to 2010

1979 Non-white rate is 914% more than the White rate
2001 Non-white rate is 76% less than the White rate
Figure 40. Alzheimer’s Disease: Disparity in mortality rates by race, 1979-2001 with projections to 2010.

Race
93% decrease
$R^2 = 1$
y = -69.34x + 1640

Percentage Difference - Nonwhite to White
Diabetes Mellitus
Figure 41. Diabetes Mellitus:
Trends in mortality rates by county, region, and state,
1979-2001 with projections to 2010

**Carteret**
- 77% increase
- \( R^2 = 0.22 \)
- \( y = 0.51x + 15 \)

**ENC**
- 176% increase
- \( R^2 = 0.93 \)
- \( y = 0.89x + 11 \)

**NC**
- 138% increase
- \( R^2 = 0.93 \)
- \( y = 0.71x + 11 \)

**Actual Deaths**

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**Comparison of Fitted Rates in 1979**

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**Comparison of Fitted Rates in 2001**

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<td>3% LT</td>
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</table>
Figure 42. Diabetes Mellitus: Trends in age-adjusted mortality rates by county, region, state, and nation, 1979-2001 with projections to 2010

Comparison of Fitted Rates in 1979

<table>
<thead>
<tr>
<th>Carteret</th>
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Comparison of Fitted Rates in 2001

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<th>Carteret</th>
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<td>13% LT</td>
<td>10% LT</td>
<td>45% GT</td>
<td></td>
</tr>
<tr>
<td>8% LT</td>
<td>33% LT</td>
<td>11% LT</td>
<td>17% LT</td>
<td></td>
</tr>
</tbody>
</table>

Carteret
32% increase
$R^2 = 0.05$
y = 0.25x + 17

ENC
102% increase
$R^2 = 0.89$
y = 0.75x + 16

NC
84% increase
$R^2 = 0.87$
y = 0.57x + 15

US
51% increase
$R^2 = 0.86$
y = 0.42x + 15

1979 Carteret rate is 6% greater than ENC
2001 Carteret rate is 31% less than ENC
Figure 43. Diabetes Mellitus:
Trends in age-adjusted mortality rates by race and gender,
1979-2001 with projections to 2010

Comparison of Fitted Rates in 1979

<table>
<thead>
<tr>
<th></th>
<th>NWM</th>
<th>WM</th>
<th>NWF</th>
<th>WF</th>
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<tbody>
<tr>
<td>NWM</td>
<td>57% LT</td>
<td>45% LT</td>
<td>56% LT</td>
<td>NWM</td>
</tr>
<tr>
<td>WM</td>
<td>130% GT</td>
<td>25% GT</td>
<td>1% GT</td>
<td>WM</td>
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<tr>
<td>NWF</td>
<td>82% GT</td>
<td>21% LT</td>
<td>20% LT</td>
<td>NWF</td>
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<td>WF</td>
<td>128% GT</td>
<td>1% LT</td>
<td>25% GT</td>
<td>WF</td>
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Comparison of Fitted Rates in 2001

<table>
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<tr>
<th></th>
<th>NWM</th>
<th>WM</th>
<th>NWF</th>
<th>WF</th>
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<tbody>
<tr>
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<td>120% GT</td>
<td>44% LT</td>
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<tr>
<td>WM</td>
<td>46% GT</td>
<td>221% GT</td>
<td>18% LT</td>
<td>WM</td>
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<tr>
<td>NWF</td>
<td>54% LT</td>
<td>69% LT</td>
<td>74% LT</td>
<td>NWF</td>
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<tr>
<td>WF</td>
<td>78% GT</td>
<td>22% GT</td>
<td>291% GT</td>
<td>WF</td>
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</table>
Figure 44. Diabetes: Trends in age-adjusted mortality rates by race, 1979-2001 with projections to 2010

1979 Non-white rate is 63% greater than the White rate
2001 Non-white rate is 188% greater than the White rate
Figure 45. Diabetes Mellitus: Disparity in mortality rates by race, 1979-2001 with projections to 2010

Race
16% decrease
$R^2 = 0.00$
y = -2.04x + 278
Cancer -
Colon, Rectum, and Anus
Figure 46. Cancer — Colon, Rectum, and Anus: Trends in mortality rates by county, region, and state, 1979-2001 with projections to 2010

Carteret County

Center for Health Services Research and Development, ECU

8% increase  
$R^2 = 0.01$  
y = 0.08x + 23

ENC  
28% increase  
$R^2 = 0.63$  
y = 0.21x + 17

NC  
12% increase  
$R^2 = 0.33$  
y = 0.10x + 18

1979 Carteret rate is 38% greater than ENC
2001 Carteret rate is 17% greater than ENC
Figure 47. Cancer — Colon, Rectum, and Anus:
Trends in age-adjusted mortality rates by county, region, and state,
1979-2001 with projections to 2010

Comparison of Fitted Rates in 1979

<table>
<thead>
<tr>
<th></th>
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<th>NC</th>
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<tr>
<td>11% LT</td>
<td>10% LT</td>
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<td>ENC</td>
</tr>
<tr>
<td>12% GT</td>
<td>1% GT</td>
<td>NC</td>
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Comparison of Fitted Rates in 2001

<table>
<thead>
<tr>
<th></th>
<th>Carteret</th>
<th>ENC</th>
<th>NC</th>
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<tbody>
<tr>
<td>9% LT</td>
<td>10% GT</td>
<td>8%</td>
<td>ENC</td>
</tr>
<tr>
<td>1% LT</td>
<td>9% GT</td>
<td>NC</td>
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</table>
Figure 48. Cancer — Colon, Rectum, and Anus: Trends in age-adjusted mortality rates by race and gender, 1979-2001 with projections to 2010

Comparison of Fitted Rates in 1979

<table>
<thead>
<tr>
<th></th>
<th>NWM</th>
<th>WM</th>
<th>NWF</th>
<th>WF</th>
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</thead>
<tbody>
<tr>
<td>51% LT</td>
<td>28% LT</td>
<td>64% LT</td>
<td>NWM</td>
<td></td>
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<tr>
<td>104% GT</td>
<td>47% GT</td>
<td>26% LT</td>
<td>WM</td>
<td></td>
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<tr>
<td>39% GT</td>
<td>32% LT</td>
<td>49% LT</td>
<td>NWF</td>
<td></td>
</tr>
<tr>
<td>175% GT</td>
<td>35% GT</td>
<td>97% GT</td>
<td>WF</td>
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Comparison of Fitted Rates in 2001

<table>
<thead>
<tr>
<th></th>
<th>NWM</th>
<th>WM</th>
<th>NWF</th>
<th>WF</th>
</tr>
</thead>
<tbody>
<tr>
<td>56% LT</td>
<td>60% LT</td>
<td>77% LT</td>
<td>NWM</td>
<td></td>
</tr>
<tr>
<td>129% GT</td>
<td>9% LT</td>
<td>48% LT</td>
<td>WM</td>
<td></td>
</tr>
<tr>
<td>151% GT</td>
<td>10% GT</td>
<td>43% LT</td>
<td>NWF</td>
<td></td>
</tr>
<tr>
<td>343% GT</td>
<td>94% GT</td>
<td>76% GT</td>
<td>WF</td>
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</table>
Figure 49. Cancer - Colon, Rectum, Anus: Trends in age-adjusted mortality rates by race, 1979-2001 with projections to 2010

1979 Non-white rate is 59% greater than the White rate
2001 Non-white rate is 80% greater than the White rate
Figure 50. Cancer — Colon, Rectum, and Anus:
Disparity in mortality rates by race,
1979-2001 with projections to 2010

Race
10% decrease
$R^2 = 0.00$
$y = -0.93x + 210$
All Other Unintentional Injuries and Adverse Effects
Figure 51. All Other Unintentional Injuries and Adverse Effects:
Trends in mortality rates by county, region, and state,
1979-2001 with projections to 2010

Carteret 23% increase
$R^2 = 0.03$
y = 0.26x + 24

ENC 27% decrease
$R^2 = 0.65$
y = -0.35x + 29

NC 18% decrease
$R^2 = 0.53$
y = -0.21x + 25

1979 Carteret rate is 15% less than ENC
2001 Carteret rate is 43% greater than ENC

Comparison of Fitted Rates in 1979

<table>
<thead>
<tr>
<th>County</th>
<th>Carteret</th>
<th>ENC</th>
<th>NC</th>
</tr>
</thead>
<tbody>
<tr>
<td>15% LT</td>
<td>18% GT</td>
<td>4%</td>
<td>GT</td>
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</table>

Comparison of Fitted Rates in 2001

<table>
<thead>
<tr>
<th>County</th>
<th>Carteret</th>
<th>ENC</th>
<th>NC</th>
</tr>
</thead>
<tbody>
<tr>
<td>43% GT</td>
<td>30% LT</td>
<td>31%</td>
<td>LT</td>
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</table>

Actual Deaths

<table>
<thead>
<tr>
<th>Year</th>
<th>Carteret</th>
<th>NWM</th>
<th>WM</th>
<th>NWF</th>
<th>WF</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979</td>
<td>15 6 11 4 10 14 10 19 17 16 12 17 26 10 21 24 10 12</td>
<td></td>
<td></td>
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<tr>
<td>1980</td>
<td>10 4 6 2 6 7 9 7 11 9 11 9 6 14 8 10 17 5 11 11 8 10</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1981</td>
<td>2 4 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 2 0 0</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>1982</td>
<td>3 2 0 1 4 3 1 1 2 5 9 6 5 6 3 4 6 9 4 6 9 1 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Carteret</th>
<th>ENC</th>
<th>NC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979</td>
<td>18% GT</td>
<td>4%</td>
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<tr>
<td>1980</td>
<td>43% GT</td>
<td>1%</td>
<td>LT</td>
</tr>
<tr>
<td>1981</td>
<td>45% GT</td>
<td>1%</td>
<td>GT</td>
</tr>
</tbody>
</table>
Figure 52. All Other Unintentional Injuries and Adverse Effects: Trends in age-adjusted mortality rates by county, region, state, and nation, 1979-2001 with projections to 2010

<table>
<thead>
<tr>
<th>Year</th>
<th>Carteret</th>
<th>ENC</th>
<th>NC</th>
<th>US</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979</td>
<td>21% LT</td>
<td>33% LT</td>
<td>30% LT</td>
<td>25% LT</td>
</tr>
<tr>
<td>2001</td>
<td>33% LT</td>
<td>42% LT</td>
<td>39% LT</td>
<td>39% LT</td>
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Comparison of Fitted Rates in 1979

<table>
<thead>
<tr>
<th>Carteret</th>
<th>ENC</th>
<th>NC</th>
<th>US</th>
</tr>
</thead>
<tbody>
<tr>
<td>8% increase</td>
<td>35% decrease</td>
<td>29% decrease</td>
<td>22% decrease</td>
</tr>
<tr>
<td>$R^2 = 0.00$</td>
<td>$R^2 = 0.75$</td>
<td>$R^2 = 0.75$</td>
<td>$R^2 = 0.69$</td>
</tr>
<tr>
<td>$y = 0.10x + 27$</td>
<td>$y = -0.54x + 34$</td>
<td>$y = -0.38x + 29$</td>
<td>$y = -0.27x + 24$</td>
</tr>
</tbody>
</table>

1979 Carteret rate is 21% less than ENC
2001 Carteret rate is 33% greater than ENC
Figure 53. All Other Unintentional Injuries and Adverse Effects: Trends in age-adjusted mortality rates by race and gender, 1979-2001 with projections to 2010

Comparison of Fitted Rates in 1979

<table>
<thead>
<tr>
<th>Race</th>
<th>NWM</th>
<th>WM</th>
<th>NWF</th>
<th>WF</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979</td>
<td>74% LT</td>
<td>91% LT</td>
<td>92% LT</td>
<td>NWM</td>
</tr>
<tr>
<td>213% GT</td>
<td>86% LT</td>
<td>68% LT</td>
<td>WM</td>
<td></td>
</tr>
<tr>
<td>103% GT</td>
<td>196% GT</td>
<td>5% LT</td>
<td>NWF</td>
<td></td>
</tr>
<tr>
<td>1095% GT</td>
<td>212% GT</td>
<td>5% GT</td>
<td>WF</td>
<td></td>
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</tbody>
</table>

Comparison of Fitted Rates in 2001

<table>
<thead>
<tr>
<th>Race</th>
<th>NWM</th>
<th>WM</th>
<th>NWF</th>
<th>WF</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>48% LT</td>
<td>88% LT</td>
<td>79% LT</td>
<td>NWM</td>
</tr>
<tr>
<td>93% GT</td>
<td>77% LT</td>
<td>60% LT</td>
<td>WM</td>
<td></td>
</tr>
<tr>
<td>751% GT</td>
<td>341% GT</td>
<td>78% GT</td>
<td>NWF</td>
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</tr>
<tr>
<td>379% GT</td>
<td>148% GT</td>
<td>44% LT</td>
<td>WF</td>
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</table>
Figure 54. All Other Unintentional Injuries and Adverse Effects:
Trends in age-adjusted mortality rates by race, 1979-2001 with projections to 2010

1979 Non-white rate is 142% greater than the White rate
2001 Non-white rate is 4% less than the White rate
Figure 55. All Other Unintentional Injuries and Adverse Effects:
Disparity in mortality rates by race, 1979-2001 with projections to 2010

Race
98% decrease
$R^2 = 0.12$
$y = -16.58x + 373$
Influenza and Pneumonia
Figure 56. Influenza and Pneumonia: Trends in mortality rates by county, region, and state, 1979-2001 with projections to 2010

Carteret
- 25% decrease
- $R^2 = 0.09$
- $y = -0.31x + 27$

ENC
- 36% increase
- $R^2 = 0.26$
- $y = 0.34x + 21$

NC
- 38% increase
- $R^2 = 0.29$
- $y = 0.39x + 23$

1979 Carteret rate is 28% greater than ENC
2001 Carteret rate is 18% greater than ENC

Actual Deaths

|            | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 |
|------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|

Comparison of Fitted Rates in 1979

<table>
<thead>
<tr>
<th>Carteret</th>
<th>ENC</th>
<th>NC</th>
</tr>
</thead>
<tbody>
<tr>
<td>22% LT</td>
<td>16% LT</td>
<td>22% LT</td>
</tr>
<tr>
<td>28% GT</td>
<td>8% GT</td>
<td>28% GT</td>
</tr>
</tbody>
</table>

Comparison of Fitted Rates in 2001

<table>
<thead>
<tr>
<th>Carteret</th>
<th>ENC</th>
<th>NC</th>
</tr>
</thead>
<tbody>
<tr>
<td>15% LT</td>
<td>7% LT</td>
<td>15% LT</td>
</tr>
<tr>
<td>18% GT</td>
<td>10% GT</td>
<td>18% GT</td>
</tr>
<tr>
<td>7% GT</td>
<td>9% LT</td>
<td>7% GT</td>
</tr>
</tbody>
</table>

Carteret County

Center for Health Services Research and Development, ECU
Figure 57. Influenza and Pneumonia:
Trends in age-adjusted mortality rates by county, region, state, and nation,
1979-2001 with projections to 2010

1979 Carteret rate is 12% greater than ENC
2001 Carteret rate is 46% less than ENC
Figure 58. Influenza and Pneumonia: Trends in age-adjusted mortality rates by race and gender, 1979-2001 with projections to 2010

### Comparison of Fitted Rates in 1979
- **NWM**
  - 85% decrease
  - \( R^2 = 0.07 \)
  - \( y = -3.77x + 98 \)

- **WM**
  - 74% decrease
  - \( R^2 = 0.34 \)
  - \( y = -2.21x + 65 \)

- **NWF**
  - 59% decrease
  - \( R^2 = 0.04 \)
  - \( y = -0.69x + 26 \)

- **WF**
  - 14% decrease
  - \( R^2 = 0.01 \)
  - \( y = -0.14x + 22 \)

### Comparison of Fitted Rates in 2001
- **NWM**
  - 13% LT
  - 33% GT
  - 49% LT
  - 27% GT
  - 336% GT

- **WM**
  - 14% GT
  - 73% LT
  - 60% LT
  - 77% LT
  - 152% GT

- **NWF**
  - 14% LT
  - 86% LT
  - 14% LT
  - 14% LT
  - 192% GT

- **WF**
  - 14% LT
  - 36% LT
  - 36% LT
  - 56% GT
  - 16% GT

---

Carteret County

Center for Health Services Research and Development, ECU
Figure 59. Pneumonia and Influenza:
Trends in age-adjusted mortality rates by race, 1979-2001 with projections to 2010

1979 Non-white rate is 14% greater than the White rate
2001 Non-white rate is 33% less than the White rate

73% decrease
$R^2 = 0.11$
y = -1.48x + 45

54% decrease
$R^2 = 0.35$
y = -0.95x + 39
Figure 60. Influenza and Pneumonia: Disparity in mortality rates by race, 1979-2001 with projections to 2010
Cancer - Breast
Figure 61. Cancer — Breast:
Trends in mortality rates by county, region, and state,
1979-2001 with projections to 2010

1979 Carteret rate is 26% greater than ENC
2001 Carteret rate is 31% greater than ENC

Comparison of Fitted Rates in 1979
Carteret 26% GT ENC 31% GT Carteret
12% GT NC 35% GT NC

Comparison of Fitted Rates in 2001
Carteret 24% LT ENC 26% LT ENC
11% LT NC 3% GT NC

Actual Deaths

<table>
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<tr>
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<th>NC</th>
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<tr>
<td>12</td>
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</tr>
</tbody>
</table>

Carteret County
Figure 62. Cancer — Breast:
Trends in age-adjusted mortality rates by county, region, state, and nation,
1979-2001 with projections to 2010

Carteret 4% decrease
\[ R^2 = 0.00 \]
\[ y = -0.06x + 35 \]

ENC 1% increase
\[ R^2 = 0.00 \]
\[ y = 0.01x + 30 \]

NC 9% decrease
\[ R^2 = 0.11 \]
\[ y = -0.13x + 31 \]

US 9% decrease
\[ R^2 = 0.34 \]
\[ y = -0.15x + 33 \]

Comparison of Fitted Rates in 1979

<table>
<thead>
<tr>
<th>Carteret</th>
<th>ENC</th>
<th>NC</th>
<th>US</th>
</tr>
</thead>
<tbody>
<tr>
<td>16% LT</td>
<td>4% GT</td>
<td>12% GT</td>
<td>ENC</td>
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</table>

Comparison of Fitted Rates in 2001

<table>
<thead>
<tr>
<th>Carteret</th>
<th>ENC</th>
<th>NC</th>
<th>US</th>
</tr>
</thead>
<tbody>
<tr>
<td>10% GT</td>
<td>7% LT</td>
<td>0%</td>
<td>ENC</td>
</tr>
</tbody>
</table>

1979 Carteret rate is 16% greater than ENC
2001 Carteret rate is 10% greater than ENC
Figure 63. Cancer — Breast:
Trends in age-adjusted mortality rates by race, 1979-2001 with projections to 2010

Comparison of Fitted Rates in 1979

<table>
<thead>
<tr>
<th>Race</th>
<th>NWF</th>
<th>WF</th>
</tr>
</thead>
<tbody>
<tr>
<td>NWF</td>
<td>168% GT</td>
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</tr>
<tr>
<td>WF</td>
<td>63% LT</td>
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Comparison of Fitted Rates in 2001

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<th>WF</th>
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<tbody>
<tr>
<td>NWF</td>
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<tr>
<td>WF</td>
<td>56% GT</td>
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Figure 64. Cancer - Breast: Trends in age-adjusted mortality rates by race, 1979-2001 with projections to 2010

1979 Non-white rate is 60% less than the White rate
2001 Non-white rate is 73% greater than the White rate
Figure 65. Cancer — Breast: Disparity in mortality rates by race, 1979-2001 with projections to 2010

Race
62% decrease
$R^2 = 0.10$
y = -6.96x + 245
Appendix

Heart Disease
Stroke
Atherosclerosis
Cancer - Lip, Oral Cavity, and Pharynx
Cancer - Stomach
  Cancer - Colon, Rectum, and Anus
  Cancer - Liver
  Cancer - Pancreas
  Cancer - Larynx
  Cancer - Trachea, Bronchus, and Lung
  Cancer - Malignant Melanoma of Skin
  Cancer - Breast
  Cancer - Cervix Uteri
  Cancer - Ovary
  Cancer - Prostate
  Cancer - Bladder
  Cancer - Brain
  Cancer - Non-Hodgkin's Lymphoma
  Cancer - Leukemia
Human Immunodeficiency Virus (HIV) Disease
Septicemia
Diabetes Mellitus
Influenza and Pneumonia
Chronic Lower Respiratory Disease
Chronic Liver Disease and Cirrhosis
Nephritis, Nephrotic Syndrome, and Nephrosis
Unintentional Motor Vehicle Injuries
All Other Unintentional Injuries and Adverse Effects
Suicide
Homicide
Legal Intervention
Alzheimer's Disease