

North Carolina Vital Statistics

2019

Leading Causes of Death

Volume 2

January 2021



NC DEPARTMENT OF
**HEALTH AND
HUMAN SERVICES**



North Carolina Vital Statistics

2019

Leading Causes of Death

Volume 2

January 2021



NC DEPARTMENT OF
**HEALTH AND
HUMAN SERVICES**



State of North Carolina

Roy Cooper, Governor
www.nc.gov

Department of Health and Human Services

Mandy K Cohen, MD, MPH, Secretary
www.ncdhhs.gov

Elizabeth Cuervo Tilson, MD, MPH
State Health Director and Chief Medical Officer

Division of Public Health

Mark Benton
Assistant Secretary
www.publichealth.nc.gov

State Center for Health Statistics

ClarLynda Williams-Devane, Director
www.schhs.state.nc.us

Contributors:

Matt Avery
Reginald Daye
Dianne Enright
Zachary P. Schafer
Maia Bulger

January 2021

Table of Contents

	Page
Introduction	1
North Carolina's Leading Causes of Death	
Table A: Leading Causes of Death by Age Group, 2019	5
Table B: Leading Causes of Death by Race, 2019	7
Table C: Leading Causes of Death by Sex, 2019	8
Table D: Leading Causes of Death by Hispanicity, 2019	8
State and County Mortality Figures and Tables for 2019	
Table E: Mortality Statistics Summary for 2015–2019	11
Table F: Sex-Specific Mortality Statistics Summary for 2015–2019	11
Total Deaths—All Causes	13
Heart Disease	17
Cerebrovascular Disease	21
Cancer—All Sites	25
Cancer—Colon, Rectum and Anus	29
Cancer—Trachea, Bronchus and Lung	33
Cancer—Female Breast	37
Cancer—Prostate	41
Human Immunodeficiency Virus (HIV) Disease	45
Septicemia	49
Diabetes Mellitus	53
Pneumonia and Influenza	57
Chronic Lower Respiratory Diseases	61
Chronic Liver Disease and Cirrhosis	65
Nephritis, Nephrotic Syndrome and Nephrosis	69
Motor Vehicle Injuries	73
All Other Unintentional Injuries	77
Suicide	81
Homicide	85
Alzheimer's Disease	89
Infant Death Rates	93
Technical Notes	
Computation of Death Rates	99
Interpretation of Death Rates	100
Caution About Use of Rates	101
Appendices	
Appendix A—Comparability Ratios for the Major Causes of Death	105
Appendix B—List of Selected Causes of Death	106
Appendix C—List of 51 Selected Causes of Death	107
Appendix D—List of 72 Selected Causes of Infant Death	109
Appendix E—Statistical Primer: Age-Adjusted Death Rates	111

Introduction

North Carolina Vital Statistics, Volume 2: Leading Causes of Death describes North Carolina's total and cause-specific deaths at the state and county levels. More than a dozen of North Carolina's leading causes of death are depicted in tables and maps. In addition, major site-specific cancer deaths and total infant deaths are tabulated and mapped.

This edition includes the number of deaths and unadjusted death rates for 2019 and the number of deaths and unadjusted and age-adjusted death rates for 2015–2019. Beginning in 1999, causes of death were coded using the 10th revision of the International Classification of Diseases (ICD-10). For the years 1979 through 1998, the ninth revision of the ICD was used. We have not combined mortality data across these two revisions of the ICD due to comparability problems. “Comparability ratios” for the United States have been provided by the National Center for Health Statistics, providing numerical adjustments for comparing data across the ICD revisions. Appendix A shows these comparability ratios for the major causes of death presented in this volume.

Be sure to read the Technical Notes section of this report. This section explains some of the limitations of the data and addresses issues of interpretation. Many of the death rates presented here are based on small numbers and should be interpreted with caution.

A detailed breakout of cause-specific deaths by age, race, sex and county of residence can be found in the companion report *North Carolina Detailed Mortality Statistics*. This and other reports are available from the State Center for Health Statistics website at www.schs.state.nc.us.

If you have any questions regarding this report, contact us at (919) 733-4728 or address correspondence to:

State Center for Health Statistics
Division of Public Health
North Carolina Department of
Health and Human Services
1908 Mail Service Center
Raleigh, NC 27699-1900

Caution:

In assessing the relative mortality of a county, be particularly aware of rates based on a small number of deaths (fewer than 50 deaths). Read carefully the section on “Caution About Use of Rates” on page 101.

NORTH CAROLINA'S LEADING CAUSES OF DEATH

Table A:
Leading Causes of Death* by Age Group
North Carolina Residents, 2019

<i>All Ages</i>		
Rank	Cause	Number
1	Cancer	19,693
2	Diseases of the heart	19,661
3	Chronic lower respiratory diseases	5,411
4	Cerebrovascular disease	5,203
5	Other Unintentional injuries	4,683
6	Alzheimer's disease	4,508
7	Diabetes mellitus	3,127
8	Nephritis, nephrotic syndrome and nephrosis	2,121
9	Pneumonia and influenza	1,733
10	Motor vehicle injuries	1,608
All other causes (Residual)		27,933
Total Deaths—All Causes		95,951

<i>Infants (Age <1)</i>		
Rank	Cause	Number
1	Congenital anomalies (birth defects)	145
1	Short gestation - low birthweight	145
3	Maternal complications of pregnancy	61
4	Complications of placenta, cord, and membranes	32
4	Other unintentional injuries	32
6	Bacterial sepsis	29
7	Diseases of the circulatory system	23
8	Respiratory distress	19
9	Intrauterine hypoxia and birth asphyxia	16
9	Neonatal hemorrhage	16
All other causes (Residual)		292
Total Deaths—All Causes		810

<i>1–4 Years</i>		
Rank	Cause	Number
1	Other unintentional injuries	20
2	Motor vehicle injuries	16
3	Congenital anomalies (birth defects)	13
4	Cancer Diseases of the heart	10
5	Homicide	8
6	Diseases of the heart	6
7	Septicemia	4
8	Anemias	3
8	Cerebrovascular disease	3
8	Chronic lower respiratory diseases	3
8	In-situ/benign neoplasms	3
All other causes (Residual)		45
Total Deaths—All Causes		134

<i>5–14 Years</i>		
Rank	Cause	Number
1	Motor vehicle injuries	32
2	Other unintentional injuries	23
3	Cancer	22
4	Suicide	15
5	Homicide	11
6	Congenital anomalies (birth defects)	10
7	Diseases of the heart	5
7	Pneumonia and influenza	5
9	Septicemia	4
10	Chronic lower respiratory diseases	3
All other causes (Residual)		38
Total Deaths—All Causes		168

* Leading causes of death are generated from a list of 51 causes of death categories developed by the National Center for Health Statistics to promote comparability in analyses of mortality. For deaths under 1 year of age, a list of 72 causes of death was used. See Appendices for the ICD-10 codes for these lists of causes.

Table A: (cont.)
Leading Causes of Death* by Age Group
North Carolina Residents, 2019

15–24 Years			25–44 Years		
Rank	Cause	Number	Rank	Cause	Number
1	Motor vehicle injuries	251	1	Other unintentional injuries	1,398
2	Other unintentional injuries	231	2	Motor vehicle injuries	507
3	Homicide	196	3	Suicide	441
4	Suicide	181	4	Diseases of the heart	437
5	Cancer	44	5	Cancer	419
6	Diseases of the heart	27	6	Homicide	313
7	Congenital anomalies (birth defects)	17	7	Diabetes mellitus	125
8	Pneumonia and influenza	9	8	Chronic liver disease & cirrhosis	121
9	Diabetes mellitus	7	9	Cerebrovascular disease	74
9	Pregnancy, childbirth, and puerperium	7	10	Septicemia	55
All other causes (Residual)		124	All other causes (Residual)		1,093
Total Deaths—All Causes		1,094	Total Deaths—All Causes		4,983

45–64 Years			Ages 65 and Over		
Rank	Cause	Number	Rank	Cause	Number
1	Cancer	5,133	1	Diseases of the heart	15,493
2	Diseases of the heart	3,681	2	Cancer	14,334
3	Other unintentional injuries	1,112	3	Chronic lower respiratory diseases	4,499
4	Chronic lower respiratory diseases	878	4	Alzheimer's disease	4,455
5	Diabetes mellitus	877	5	Cerebrovascular disease	4,441
6	Chronic liver disease & cirrhosis	745	6	Diabetes mellitus	2,118
7	Cerebrovascular disease	670	7	Other unintentional injuries	1,867
8	Suicide	458	8	Nephritis, nephrotic syndrome and nephrosis	1,717
9	Motor vehicle injuries	445	9	Pneumonia and influenza	1,405
10	Nephritis, nephrotic syndrome and nephrosis	360	10	Septicemia	1,130
All other causes (Residual)		4,460	All other causes (Residual)		18,484
Total Deaths—All Causes		18,819	Total Deaths—All Causes		69,943

* Leading causes of death are generated from a list of 51 causes of death categories developed by the National Center for Health Statistics to promote comparability in analyses of mortality. For deaths under 1 year of age, a list of 72 causes of death was used. See Appendices for the ICD-10 codes for these lists of causes.

Table B:
Leading Causes of Death by Race*
North Carolina Residents, 2019

Note: Hispanic and Non-Hispanic deaths are in Table D on page 8.

<i>White, Non-Hispanic</i>		
Rank	Cause	Number
1	Diseases of the heart	15,070
2	Cancer	14,939
3	Chronic lower respiratory diseases	4,669
4	Cerebrovascular disease	3,826
5	Other unintentional injuries	3,710
6	Alzheimer's disease	3,637
7	Diabetes mellitus	1,992
8	Pneumonia and influenza	1,383
9	Nephritis, nephrotic syndrome and nephrosis	1,311
10	Chronic liver disease and cirrhosis	1,179
All other causes (Residual)		20,505
Total Deaths—All Causes		72,221

<i>African American, Non-Hispanic</i>		
Rank	Cause	Number
1	Cancer	4,240
2	Diseases of the heart	3,974
3	Cerebrovascular disease	1,177
4	Diabetes mellitus	1,012
5	Alzheimer's disease	743
6	Nephritis, nephrotic syndrome and nephrosis	725
7	Other unintentional injuries	720
8	Chronic lower respiratory diseases	646
9	Homicide	458
10	Motor vehicle injuries	426
All other causes (Residual)		5,948
Total Deaths—All Causes		20,069

<i>American Indian, Non-Hispanic</i>		
Rank	Cause	Number
1	Cancer	204
1	Diseases of the heart	204
3	Other unintentional injuries	81
4	Cerebrovascular disease	50
4	Chronic lower respiratory diseases	50
6	Alzheimer's disease	40
7	Diabetes mellitus	38
8	Motor vehicle injuries	32
9	Nephritis, nephrotic syndrome and nephrosis	29
10	Pneumonia and influenza	23
All other causes (Residual)		263
Total Deaths—All Causes		1,014

<i>All Other Races, Non-Hispanic</i>		
Rank	Cause	Number
1	Cancer	226
2	Diseases of the heart	173
3	Cerebrovascular disease	71
4	Other unintentional injuries	37
5	Alzheimer's disease	32
6	Diabetes mellitus	31
7	Suicide	27
8	Motor vehicle injuries	21
9	Chronic lower respiratory diseases	16
10	Nephritis, nephrotic syndrome and nephrosis	14
10	Conditions originating in the perinatal period	14
All other causes (Residual)		245
Total Deaths—All Causes		907

* Caution should be taken when comparing the number of deaths across racial groupings. Population size varies considerably from one racial group to another. The number of deaths for each group is to a large extent a reflection of that population size.

Table C:
Leading Causes of Death by Sex
North Carolina Residents, 2019

<i>Female</i>			<i>Male</i>		
Rank	Cause	Number	Rank	Cause	Number
1	Cancer	9,367	1	Diseases of the heart	10,637
2	Diseases of the heart	9,024	2	Cancer	10,596
3	Alzheimer's disease	3,213	3	Other unintentional injuries	2,927
4	Chronic lower respiratory diseases	2,959	4	Chronic lower respiratory diseases	2,452
5	Cerebrovascular disease	2,943	5	Cerebrovascular disease	2,260
6	Other unintentional injuries	1,756	6	Diabetes mellitus	1,735
7	Diabetes mellitus	1,392	7	Alzheimer's disease	1,295
8	Nephritis, nephrotic syndrome and nephrosis	1,046	8	Motor vehicle injuries Suicide	1,137
9	Pneumonia and influenza	943	9	Nephritis, nephrotic syndrome and nephrosis	1,075
10	Septicemia	812	10	Suicide	1,057
All other causes (Residual)		13,588	All other causes (Residual)		13,737
Total Deaths—All Causes		47,043	Total Deaths—All Causes		48,908

Table D:
Leading Causes of Death by Hispanicity
North Carolina Residents, 2019

<i>Hispanic</i>			<i>Non-Hispanic</i>		
Rank	Cause	Number	Rank	Cause	Number
1	Cancer	354	1	Cancer	19,609
2	Diseases of the heart	240	2	Diseases of the heart	19,421
3	Other unintentional injuries	135	3	Chronic lower respiratory diseases	5,381
4	Motor vehicle injuries	124	4	Cerebrovascular disease	5,124
5	Cerebrovascular disease	79	5	Other unintentional injuries	4,548
6	Homicide	58	6	Alzheimer's disease	4,452
7	Alzheimer's disease	56	7	Diabetes mellitus	3,073
7	Conditions originating in the perinatal period	56	8	Nephritis, nephrotic syndrome and nephrosis	2,079
9	Chronic liver disease and cirrhosis	55	9	Pneumonia and influenza	1,717
10	Diabetes mellitus	54	10	Septicemia	1,534
All other causes (Residual)		529	All other causes (Residual)		27,273
Total Deaths—All Causes		1,740	Total Deaths—All Causes		94,211

NOTE: Overall totals may not add up to the sum of the individual categories due to records with unknown gender or ethnicity.

**STATE AND
COUNTY MORTALITY
TABLES FOR 2019**

North Carolina Counties

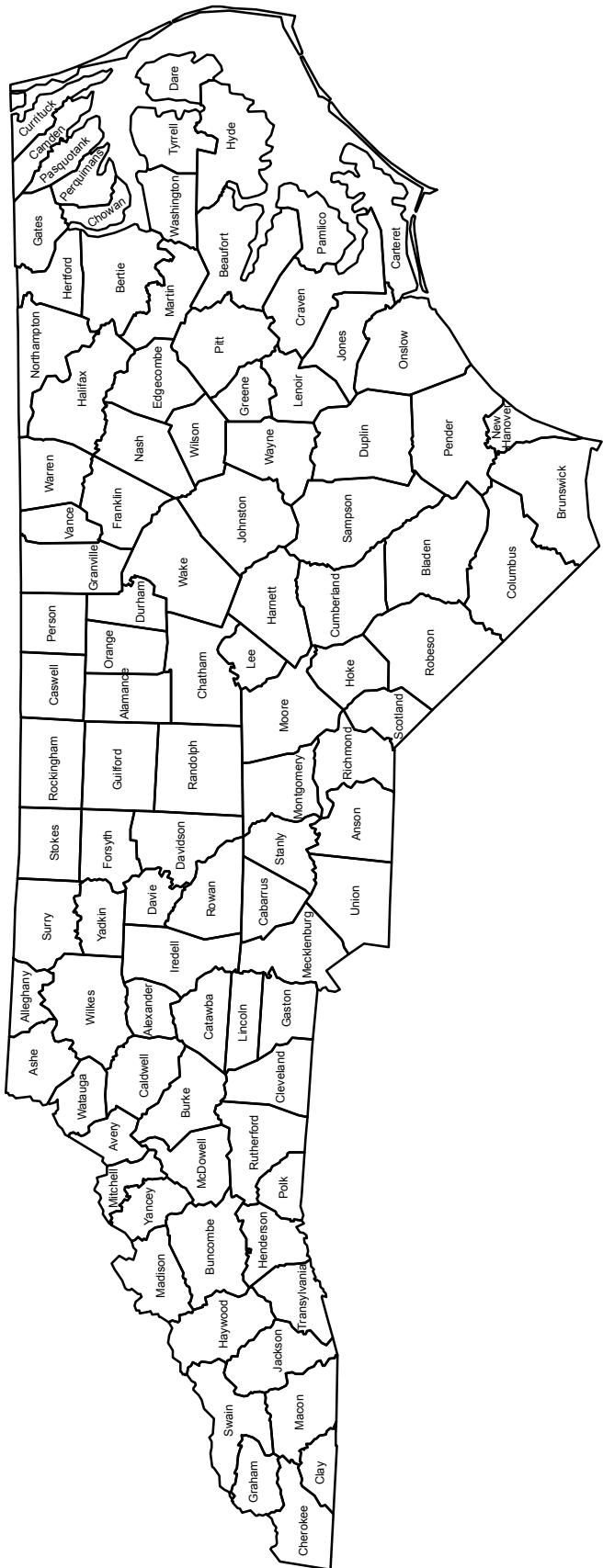


Table E:
North Carolina Resident Mortality Statistics
Summary for 2015–2019

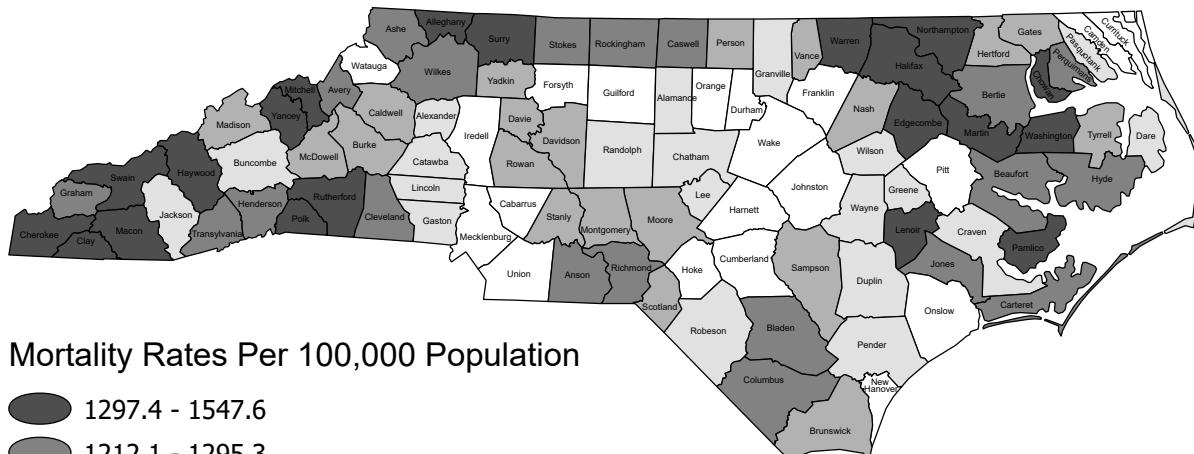
Leading Causes of Death	Number of Deaths 2019	Death Rate 2019	Number of Deaths 2015–2019	Unadjusted Death Rate 2015–2019	Age-Adjusted Death Rate 2015–2019
Diseases of Heart	19,661	187.5	94,498	184.1	157.3
Acute Myocardial Infarction	3,204	30.5	16,686	32.5	27.3
Other Ischemic Heart Disease	7,142	68.1	35,315	68.8	58.1
Hypertension	1,009	9.6	4,933	9.6	8.2
Cerebrovascular Disease	5,203	49.6	25,344	49.4	42.7
Atherosclerosis	122	1.2	651	1.3	1.1
Cancer	19,963	190.3	97,965	190.9	158.0
Lip, Oral Cavity and Pharynx	362	3.5	1,654	3.2	2.6
Stomach	327	3.1	1,729	3.4	2.8
Colon, Rectum and Anus	1,663	15.9	8,135	15.9	13.3
Liver	904	8.6	4,320	8.4	6.7
Pancreas	1,438	13.7	6,867	13.4	10.9
Larynx	128	1.2	662	1.3	1.0
Trachea, Bronchus and Lung	5,116	48.8	26,646	51.9	42.0
Malignant Melanoma of Skin	290	2.8	1,339	2.6	2.2
Bladder	522	5.0	2,501	4.9	4.1
Brain Tumors	494	4.7	2,457	4.8	4.1
Non-Hodgkins Lymphoma	620	5.9	3,017	5.9	5.0
Leukemia	784	7.5	3,612	7.0	6.1
Diabetes Mellitus	3,127	29.8	14,612	28.5	23.8
Pneumonia and Influenza	1,733	16.5	9,888	19.3	16.7
Chronic Lower Respiratory Diseases	5,411	51.6	26,861	52.3	44.0
Chronic Liver Disease and Cirrhosis	1,449	13.8	6,532	12.7	10.6
Septicemia	1,550	14.8	7,696	15.0	12.7
Nephritis, Nephrotic Syndrome and Nephrosis	2,121	20.2	9,922	19.3	16.5
Unintentional Motor Vehicle Injuries	1,608	15.3	7,775	15.1	14.7
All Other Unintentional Injuries	4,683	44.7	21,107	41.1	39.3
Suicide	1,368	13.0	7,173	14.0	13.4
Homicide	718	6.8	3,387	6.6	6.8
Alzheimer's disease	4,508	43.0	21,256	41.4	36.9
HIV disease	163	1.6	1,009	2.0	1.8
Total Deaths—All Causes	95,951	914.9	462,786	901.7	780.0

Table F:
North Carolina Resident Sex-Specific Mortality Statistics
Summary for 2015–2019

Sex-Specific Causes of Cancer Death	Number of Deaths 2019	Death Rate 2019	Number of Deaths 2015–2019	Unadjusted Death Rate 2015–2019	Age-Adjusted Death Rate 2015–2019
Female Breast	1,356	25.2	6,928	26.3	20.6
Cervix Uteri	116	2.2	593	2.3	1.9
Ovary	382	7.1	2,028	7.7	5.9
Prostate	1,032	20.2	4,786	19.2	19.5

NOTES: All death rates are per 100,000 population. The sex-specific death rates cannot be compared to the other leading causes of death because the denominators are sex-specific. Therefore, in ranking the causes of death—for example, in ranking the leading cancer sites—one must use the observed numbers of deaths. See Appendices for cause of death codes.

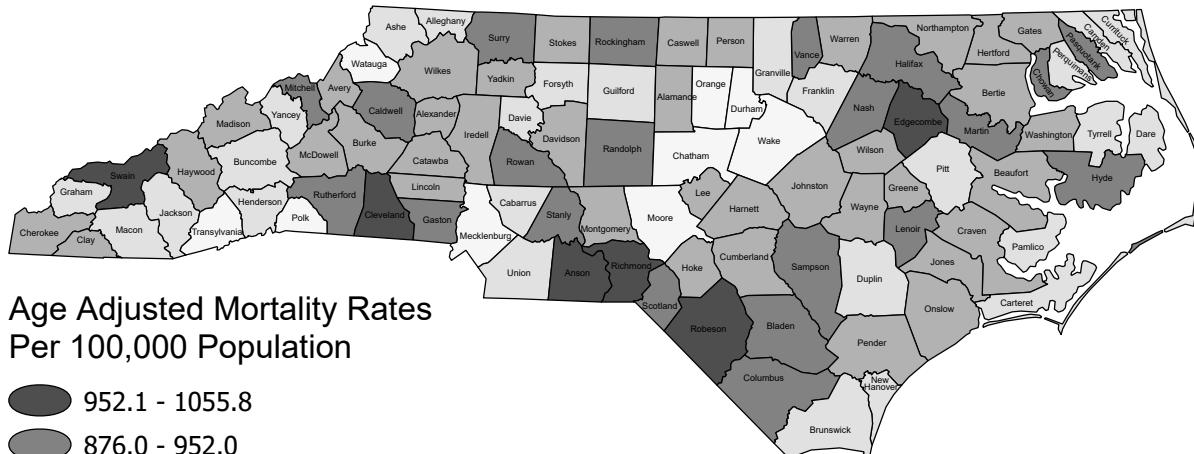
Total Deaths - All Causes



North Carolina
Resident Data
2015-2019

Figure 1.A

Total Deaths - All Causes



North Carolina
Resident Data
2015-2019

Figure 1.B

Table 1: Total Deaths—All Causes
North Carolina Resident Mortality Statistics Summary for 2019

Geographical Area:	Number of Deaths 2019	Death Rate 2019	Number of Deaths 2015–2019	Unadjusted Death Rate 2015–2019	Age-Adjusted Death Rate 2015–2019
NORTH CAROLINA	95,951	914.9	462,786	901.7	780.0
Alamance	1,837	1,083.7	8,544	1,046.3	827.3
Alexander	409	1,090.8	2,031	1,091.6	823.8
Alleghany	158	1,418.7	725	1,317.3	765.3
Anson	304	1,243.6	1,596	1,281.8	1,005.7
Ashe	370	1,360.1	1,707	1,270.9	760.3
Avery	242	1,378.4	1,061	1,212.2	813.2
Beaufort	584	1,242.7	3,055	1,295.4	862.1
Bertie	255	1,345.9	1,241	1,280.7	844.0
Bladen	421	1,286.6	2,108	1,262.0	903.0
Brunswick	1,621	1,135.0	7,401	1,122.9	707.8
Buncombe	2,611	999.7	13,375	1,041.3	751.0
Burke	1,070	1,182.5	5,203	1,156.6	832.7
Cabarrus	1,636	755.8	7,998	774.2	786.4
Caldwell	1,051	1,278.9	4,908	1,198.8	906.2
Camden	97	892.6	451	854.9	728.2
Carteret	891	1,282.5	4,227	1,224.0	776.7
Caswell	296	1,309.5	1,392	1,227.3	855.4
Catawba	1,643	1,029.8	8,495	1,078.0	870.7
Chatham	769	1,032.6	3,544	993.6	604.6
Cherokee	412	1,440.0	1,925	1,376.5	817.0
Chowan	227	1,628.1	992	1,407.4	894.5
Clay	156	1,389.0	783	1,430.6	803.0
Cleveland	1,276	1,302.7	6,186	1,271.8	1,017.1
Columbus	758	1,365.6	3,555	1,268.1	950.8
Craven	1,131	1,107.3	5,587	1,090.2	851.3
Cumberland	2,728	813.1	12,993	780.7	866.8
Currituck	213	767.2	1,132	858.8	787.5
Dare	355	959.2	1,777	981.2	733.1
Davidson	1,871	1,116.3	9,176	1,109.7	874.0
Davie	495	1,155.3	2,405	1,138.3	764.2
Duplin	564	960.1	2,749	932.4	718.5
Durham	2,185	679.7	10,332	662.6	677.9
Edgecombe	707	1,373.6	3,425	1,301.1	990.0
Forsyth	3,516	919.7	17,266	920.4	783.4
Franklin	658	944.2	3,056	921.0	788.9
Gaston	2,485	1,106.8	11,846	1,080.5	928.9
Gates	139	1,202.2	667	1,155.2	835.7
Graham	118	1,397.9	529	1,243.4	782.5
Granville	568	939.7	2,777	936.2	770.0
Greene	209	992.0	1,028	977.5	817.3
Guilford	4,741	882.6	22,608	856.6	760.8
Halifax	702	1,403.7	3,353	1,310.0	931.8
Harnett	1,064	782.5	5,109	772.4	845.2
Haywood	840	1,347.9	4,045	1,325.1	816.6
Henderson	1,463	1,246.0	7,134	1,241.6	714.0
Hertford	300	1,267.1	1,362	1,134.4	814.4
Hoke	376	680.7	1,743	646.1	850.7
Hyde	70	1,417.9	331	1,270.0	879.4
Iredell	1,618	890.0	7,891	899.1	814.8
Jackson	399	908.1	1,989	926.5	759.2

Table 1: Total Deaths—All Causes
North Carolina Resident Mortality Statistics Summary for 2019

Geographical Area:	Number of Deaths 2019	Death Rate 2019	Number of Deaths 2015–2019	Unadjusted Death Rate 2015–2019	Age-Adjusted Death Rate 2015–2019
Johnston	1,633	780.1	7,569	768.9	813.6
Jones	116	1,231.6	606	1,263.3	836.6
Lee	610	992.6	2,975	989.6	842.9
Lenoir	731	1,306.5	3,682	1,297.5	941.3
Lincoln	860	998.7	4,143	999.3	830.1
McDowell	531	1,160.5	2,643	1,168.8	838.8
Macon	471	1,313.5	2,365	1,358.7	777.3
Madison	275	1,264.1	1,296	1,205.6	812.2
Martin	296	1,319.1	1,571	1,375.1	915.7
Mecklenburg	6,459	581.7	31,286	582.3	668.1
Mitchell	239	1,597.2	1,161	1,547.6	941.2
Montgomery	348	1,280.7	1,559	1,144.2	837.0
Moore	1,165	1,154.8	5,718	1,175.4	692.2
Nash	1,131	1,199.4	5,448	1,158.8	922.6
New Hanover	2,136	911.0	9,977	875.4	718.6
Northhampton	266	1,365.3	1,349	1,352.6	812.0
Onslow	1,288	650.7	6,041	619.4	867.4
Orange	852	573.8	4,102	566.4	591.2
Pamlico	185	1,453.7	876	1,379.5	787.4
Pasquotank	442	1,109.9	2,166	1,096.3	910.6
Pender	632	1,002.2	2,971	983.8	807.6
Perquimans	159	1,181.0	833	1,240.5	745.2
Person	458	1,159.8	2,256	1,146.8	857.3
Pitt	1,393	770.7	6,557	735.0	759.6
Polk	306	1,476.5	1,525	1,483.7	684.9
Randolph	1,625	1,131.1	7,852	1,097.3	889.3
Richmond	587	1,309.4	2,877	1,278.8	1,025.5
Robeson	1,482	1,134.5	7,127	1,075.0	1,014.4
Rockingham	1,253	1,376.8	5,886	1,292.5	917.1
Rowan	1,634	1,150.0	8,232	1,173.5	937.2
Rutherford	877	1,308.4	4,342	1,303.9	906.6
Sampson	696	1,095.5	3,516	1,109.4	887.1
Scotland	409	1,174.5	2,024	1,154.1	916.7
Stanly	743	1,183.0	3,639	1,181.7	906.3
Stokes	550	1,206.4	2,853	1,246.4	862.4
Surry	1,000	1,393.1	4,777	1,327.5	932.6
Swain	220	1,541.6	996	1,396.9	1,055.8
Transylvania	453	1,317.4	2,140	1,267.2	640.2
Tyrrell	40	996.0*	230	1,123.4	770.0
Union	1,556	648.7	7,358	636.9	706.6
Vance	514	1,154.1	2,658	1,195.2	952.0
Wake	6,020	541.5	28,425	531.8	616.7
Warren	246	1,246.8	1,292	1,298.6	801.9
Washington	172	1,485.3	818	1,372.3	856.2
Watauga	408	726.3	1,779	647.8	600.3
Wayne	1,391	1,129.7	6,356	1,028.5	875.9
Wilkes	869	1,270.2	4,214	1,230.9	854.9
Wilson	925	1,130.8	4,457	1,094.6	867.0
Yadkin	455	1,208.0	2,243	1,193.0	851.3
Yancey	250	1,383.6	1,153	1,298.4	788.2

*Death rates with a small number (<50) of deaths in the numerator should be interpreted with caution. SEE TECHNICAL NOTES on page 101.

Heart Disease

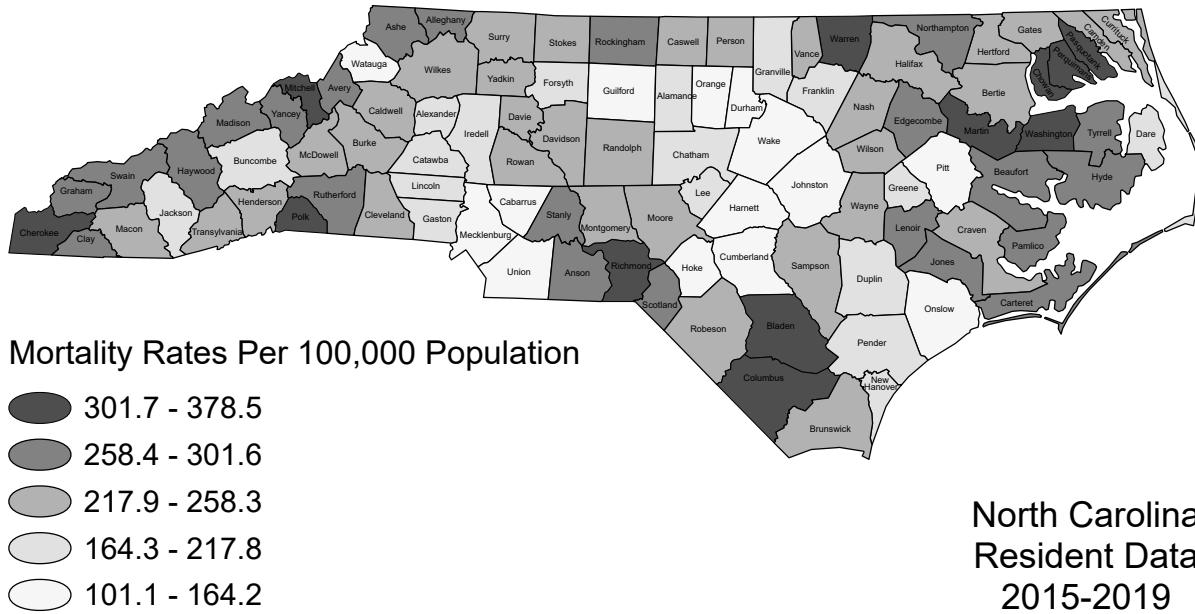


Figure 2.A

Heart Disease

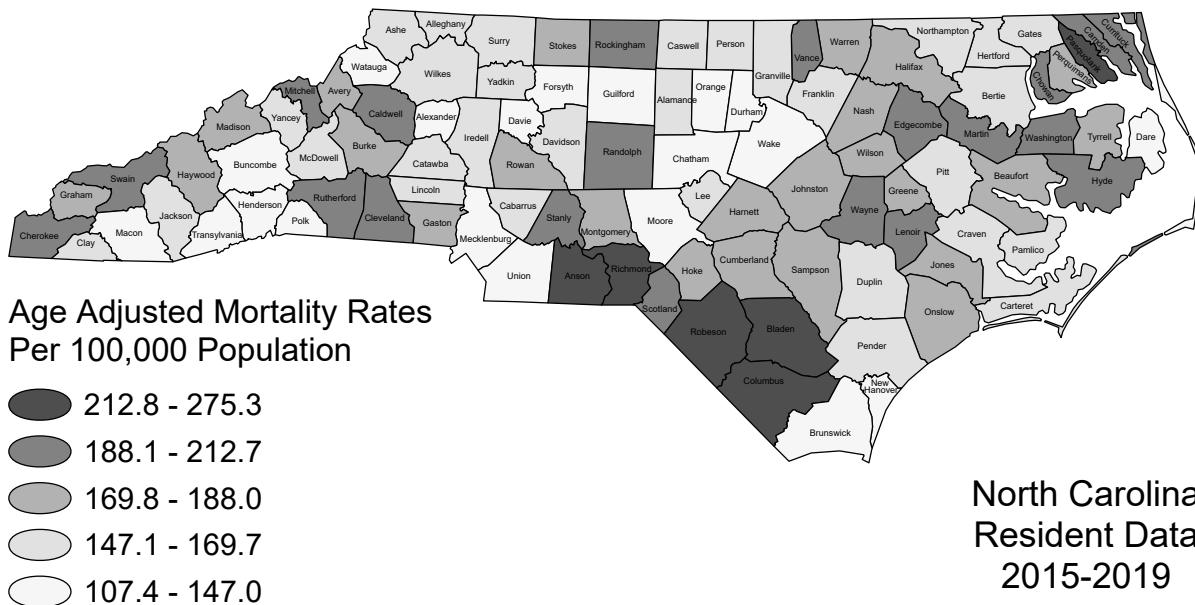


Figure 2.B

Table 2: Heart Disease
North Carolina Resident Mortality Statistics Summary for 2019

Geographical Area:	Number of Deaths 2019	Death Rate* 2019	Number of Deaths 2015–2019	Unadjusted Death Rate* 2015–2019	Age-Adjusted Death Rate* 2015–2019
NORTH CAROLINA	19,661	187.5	94,498	184.1	157.3
Alamance	411	242.5	1,713	209.8	162.2
Alexander	86	229.4	374	201.0	146.9
Alleghany	32	287.3*	157	285.3	152.4
Anson	65	265.9	366	293.9	225.7
Ashe	87	319.8	371	276.2	161.9
Avery	59	336.0	248	283.3	182.7
Beaufort	130	276.6	664	281.5	178.6
Bertie	47	248.1*	246	253.9	162.6
Bladen	93	284.2	548	328.1	225.6
Brunswick	339	237.4	1,618	245.5	146.7
Buncombe	572	219.0	2,646	206.0	142.6
Burke	217	239.8	1,108	246.3	171.8
Cabarrus	348	160.8	1,623	157.1	159.7
Caldwell	224	272.6	1,056	257.9	191.3
Camden	25	230.1*	123	233.2	197.5
Carteret	213	306.6	942	272.8	163.3
Caswell	76	336.2	279	246.0	168.6
Catawba	293	183.6	1,585	201.1	160.3
Chatham	151	202.8	673	188.7	107.4
Cherokee	98	342.5	487	348.2	197.0
Chowan	49	351.4*	218	309.3	189.5
Clay	34	302.7*	163	297.8	157.7
Cleveland	252	257.3	1,231	253.1	198.5
Columbus	199	358.5	1,061	378.5	275.3
Craven	222	217.4	1,136	221.7	166.5
Cumberland	570	169.9	2,725	163.7	184.8
Currituck	63	226.9	296	224.6	208.4
Dare	70	189.1	363	200.4	145.1
Davidson	360	214.8	1,813	219.3	168.6
Davie	100	233.4	473	223.9	143.6
Duplin	128	217.9	639	216.7	161.5
Durham	410	127.5	1,938	124.3	128.2
Edgecombe	140	272.0	743	282.3	206.2
Forsyth	666	174.2	3,296	175.7	147.0
Franklin	144	206.6	640	192.9	164.2
Gaston	458	204.0	2,304	210.2	179.4
Gates	31	268.1*	133	230.3	163.2
Graham	26	308.0*	124	291.5	171.4
Granville	103	170.4	557	187.8	153.5
Greene	45	213.6*	229	217.8	181.2
Guilford	890	165.7	4,118	156.0	136.4
Halifax	133	265.9	661	258.3	174.1
Harnett	197	144.9	1,086	164.2	184.0
Haywood	167	268.0	893	292.5	172.1
Henderson	309	263.2	1,471	256.0	137.8
Hertford	69	291.4	283	235.7	164.6
Hoke	71	128.5	361	133.8	180.9
Hyde	11	222.8*	74	283.9	190.4
Iredell	322	177.1	1,483	169.0	152.8
Jackson	93	211.7	403	187.7	149.2

Table 2: Heart Disease
North Carolina Resident Mortality Statistics Summary for 2019

Geographical Area:	Number of Deaths 2019	Death Rate* 2019	Number of Deaths 2015–2019	Unadjusted Death Rate* 2015–2019	Age-Adjusted Death Rate* 2015–2019
Johnston	331	158.1	1,613	163.9	177.8
Jones	20	212.3*	134	279.3	175.9
Lee	118	191.0	609	201.4	164.7
Lenoir	166	296.7	856	301.6	212.7
Lincoln	145	168.4	824	198.7	165.1
McDowell	95	207.6	541	239.2	166.7
Macon	94	262.1	447	256.8	139.0
Madison	73	335.6	283	263.3	171.5
Martin	70	311.9	365	319.5	211.6
Mecklenburg	1,235	111.2	5,909	110.0	128.1
Mitchell	64	427.7	245	326.6	190.6
Montgomery	71	261.3	327	240.0	175.9
Moore	215	213.1	1,153	237.0	132.3
Nash	249	264.1	1,139	242.3	188.0
New Hanover	428	182.5	1,984	174.1	138.7
Northhampton	53	272.0	291	291.8	161.0
Onslow	260	131.4	1,189	121.9	177.9
Orange	155	104.4	774	106.9	111.3
Pamlico	43	337.9*	181	285.0	150.2
Pasquotank	109	273.7	618	312.8	253.8
Pender	128	203.0	589	195.0	157.7
Perquimans	37	274.8*	223	332.1	185.4
Person	90	227.9	446	226.7	165.6
Pitt	311	172.1	1,440	161.4	165.5
Polk	73	352.2	364	354.1	146.3
Randolph	369	256.8	1,738	242.9	192.9
Richmond	125	278.8	695	308.9	244.1
Robeson	355	271.8	1,607	242.4	229.6
Rockingham	282	309.9	1,254	275.4	188.9
Rowan	356	250.5	1,636	233.2	180.2
Rutherford	196	292.4	950	285.3	193.0
Sampson	152	239.3	742	234.1	181.6
Scotland	108	310.1	460	262.3	205.0
Stanly	170	270.7	871	282.8	212.5
Stokes	125	274.2	587	256.4	170.5
Surry	185	257.7	889	247.0	168.4
Swain	42	294.3*	197	276.3	202.4
Transylvania	102	296.6	424	251.1	117.5
Tyrrell	10	249.0*	58	283.3	183.2
Union	295	123.0	1,405	121.6	136.6
Vance	111	249.2	558	250.9	191.5
Wake	1,145	103.0	5,402	101.1	119.2
Warren	48	243.3*	311	312.6	180.3
Washington	43	371.3*	184	308.7	189.7
Watauga	86	153.1	370	134.7	120.4
Wayne	310	251.8	1,412	228.5	190.9
Wilkes	163	238.3	843	246.2	164.0
Wilson	203	248.2	909	223.2	173.0
Yadkin	98	260.2	460	244.7	169.7
Yancey	51	282.3	250	281.5	169.1

*Death rates with a small number (<50) of deaths in the numerator should be interpreted with caution. SEE TECHNICAL NOTES on page 101.

Cerebrovascular Disease

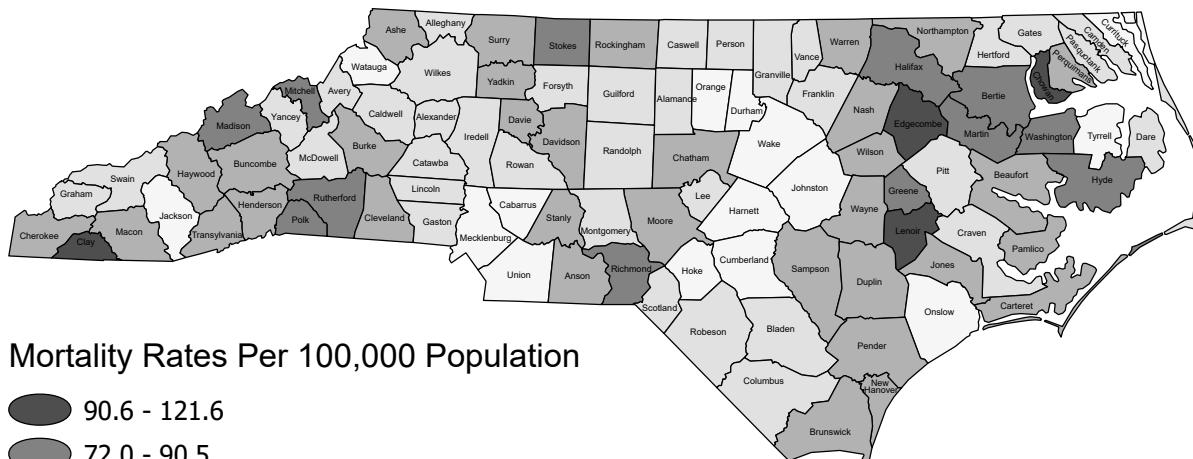


Figure 3.A

Cerebrovascular Disease

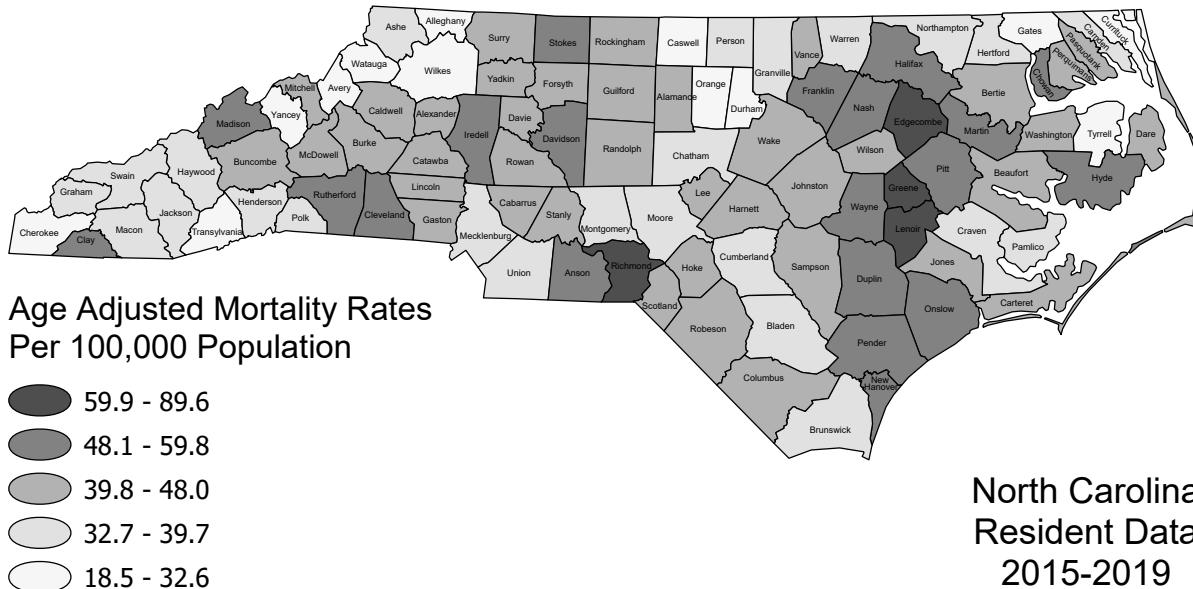


Figure 3.B

Table 3: Cerebrovascular Disease
North Carolina Resident Mortality Statistics Summary for 2019

Geographical Area:	Number of Deaths 2019	Death Rate* 2019	Number of Deaths 2015–2019	Unadjusted Death Rate* 2015–2019	Age-Adjusted Death Rate* 2015–2019
NORTH CAROLINA	5,203	49.6	25,344	49.4	42.7
Alamance	105	61.9	459	56.2	42.7
Alexander	19	50.7*	99	53.2	40.6
Alleghany	6	53.9*	29	52.7*	27.8*
Anson	14	57.3*	87	69.9	51.7
Ashe	17	62.5*	82	61.0	33.9
Avery	6	34.2*	43	49.1*	30.7*
Beaufort	32	68.1*	163	69.1	42.8
Bertie	15	79.2*	73	75.3	43.8
Bladen	18	55.0*	94	56.3	39.1
Brunswick	93	65.1	440	66.8	39.4
Buncombe	136	52.1	775	60.3	41.2
Burke	62	68.5	289	64.2	45.0
Cabarrus	86	39.7	416	40.3	41.6
Caldwell	48	58.4*	223	54.5	40.3
Camden	4	36.8*	24	45.5*	37.8*
Carteret	51	73.4	237	68.6	42.2
Caswell	10	44.2*	53	46.7	31.3
Catawba	80	50.1	402	51.0	40.7
Chatham	43	57.7*	215	60.3	34.9
Cherokee	11	38.4*	85	60.8	32.2
Chowan	14	100.4*	70	99.3	59.8
Clay	4	35.6*	54	98.7	48.9
Cleveland	53	54.1	300	61.7	48.7
Columbus	39	70.3*	163	58.1	42.5
Craven	42	41.1*	253	49.4	36.6
Cumberland	113	33.7	571	34.3	39.7
Currituck	6	21.6*	40	30.3*	31.5*
Dare	21	56.7*	102	56.3	42.4
Davidson	94	56.1	519	62.8	49.0
Davie	25	58.3*	142	67.2	43.6
Duplin	45	76.6*	212	71.9	53.7
Durham	95	29.6	490	31.4	32.6
Edgecombe	55	106.9	320	121.6	89.6
Forsyth	198	51.8	989	52.7	44.2
Franklin	42	60.3*	192	57.9	48.7
Gaston	119	53.0	583	53.2	45.7
Gates	9	77.8*	28	48.5*	32.1*
Graham	3	35.5*	23	54.1*	34.6*
Granville	29	48.0*	134	45.2	37.7
Greene	14	66.4*	83	78.9	65.8
Guilford	271	50.4	1,309	49.6	43.8
Halifax	40	80.0*	196	76.6	52.2
Harnett	54	39.7	251	37.9	43.1
Haywood	36	57.8*	188	61.6	35.4
Henderson	84	71.5	398	69.3	37.0
Hertford	9	38.0*	69	57.5	38.6
Hoke	19	34.4*	76	28.2	40.7
Hyde	0	0.0*	21	80.6*	55.3*
Iredell	90	49.5	459	52.3	49.3
Jackson	19	43.2*	88	41.0	33.8

Table 3: Cerebrovascular Disease
North Carolina Resident Mortality Statistics Summary for 2019

Geographical Area:	Number of Deaths 2019	Death Rate* 2019	Number of Deaths 2015–2019	Unadjusted Death Rate* 2015–2019	Age-Adjusted Death Rate* 2015–2019
Johnston	96	45.9	379	38.5	43.4
Jones	3	31.9*	31	64.6*	40.5*
Lee	38	61.5*	156	51.6	41.8
Lenoir	53	94.7	274	96.6	66.8
Lincoln	45	52.3*	214	51.6	43.6
McDowell	30	65.6*	130	57.5	40.6
Macon	18	50.2*	113	64.9	34.3
Madison	13	59.8*	91	84.7	56.3
Martin	19	84.7*	92	80.5	52.9
Mecklenburg	371	33.4	1,713	31.9	37.9
Mitchell	12	80.2*	56	74.6	46.0
Montgomery	18	66.2*	75	55.0	38.0
Moore	56	55.5	322	66.2	35.6
Nash	78	82.7	313	66.6	52.6
New Hanover	146	62.3	783	68.7	55.5
Northhampton	9	46.2*	69	69.2	39.2
Onslow	65	32.8	336	34.4	52.7
Orange	43	29.0*	190	26.2	28.3
Pamlico	11	86.4*	40	63.0*	36.1*
Pasquotank	17	42.7*	102	51.6	42.5
Pender	43	68.2*	191	63.2	53.5
Perquimans	8	59.4*	47	70.0*	41.2*
Person	17	43.0*	92	46.8	34.6
Pitt	104	57.5	433	48.5	51.5
Polk	14	67.6*	93	90.5	37.5
Randolph	79	55.0	396	55.3	44.5
Richmond	35	78.1*	187	83.1	65.6
Robeson	81	62.0	325	49.0	47.0
Rockingham	74	81.3	296	65.0	44.6
Rowan	72	50.7	406	57.9	45.3
Rutherford	53	79.1	284	85.3	57.4
Sampson	36	56.7*	193	60.9	47.5
Scotland	15	43.1*	95	54.2	42.9
Stanly	33	52.5*	183	59.4	44.4
Stokes	25	54.8*	180	78.6	52.6
Surry	47	65.5*	229	63.6	42.5
Swain	6	42.0*	36	50.5*	38.2*
Transylvania	20	58.2*	111	65.7	30.7
Tyrrell	0	0.0*	6	29.3*	18.5*
Union	80	33.4	376	32.5	37.7
Vance	26	58.4*	122	54.9	42.6
Wake	427	38.4	1,771	33.1	40.6
Warren	11	55.7*	66	66.3	38.8
Washington	12	103.6*	49	82.2*	48.0*
Watauga	12	21.4*	74	26.9	24.7
Wayne	112	91.0	435	70.4	59.4
Wilkes	38	55.5*	163	47.6	31.3
Wilson	57	69.7	249	61.2	47.5
Yadkin	18	47.8*	120	63.8	43.4
Yancey	9	49.8*	46	51.8*	28.9*

*Death rates with a small number (<50) of deaths in the numerator should be interpreted with caution. SEE TECHNICAL NOTES on page 101.

Cancer - All Sites

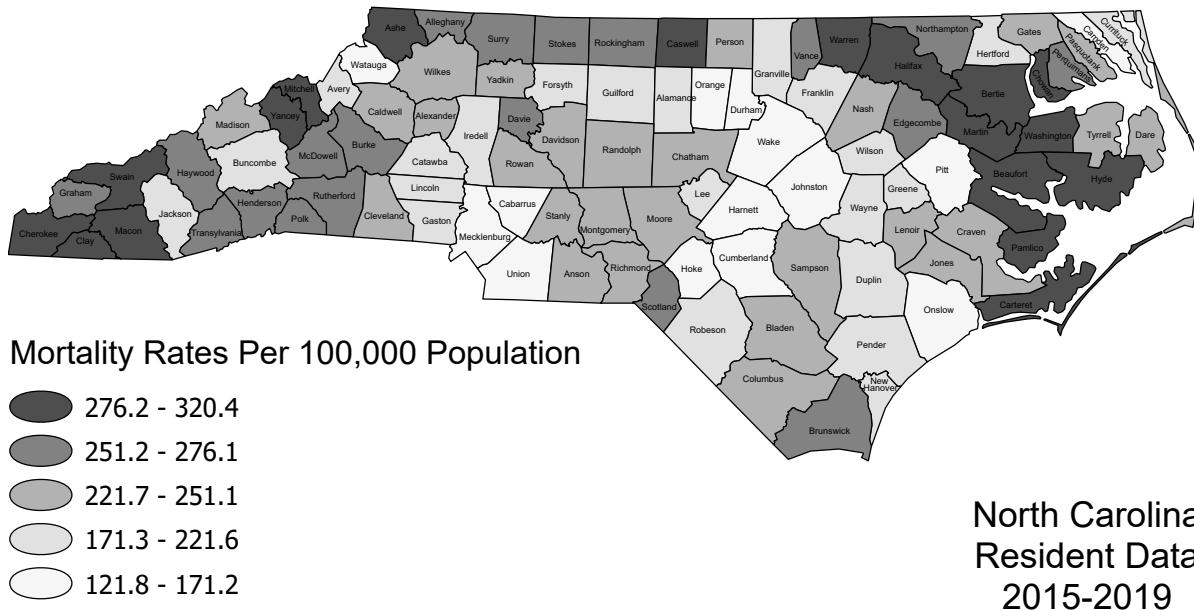


Figure 4.A

Cancer - All Sites

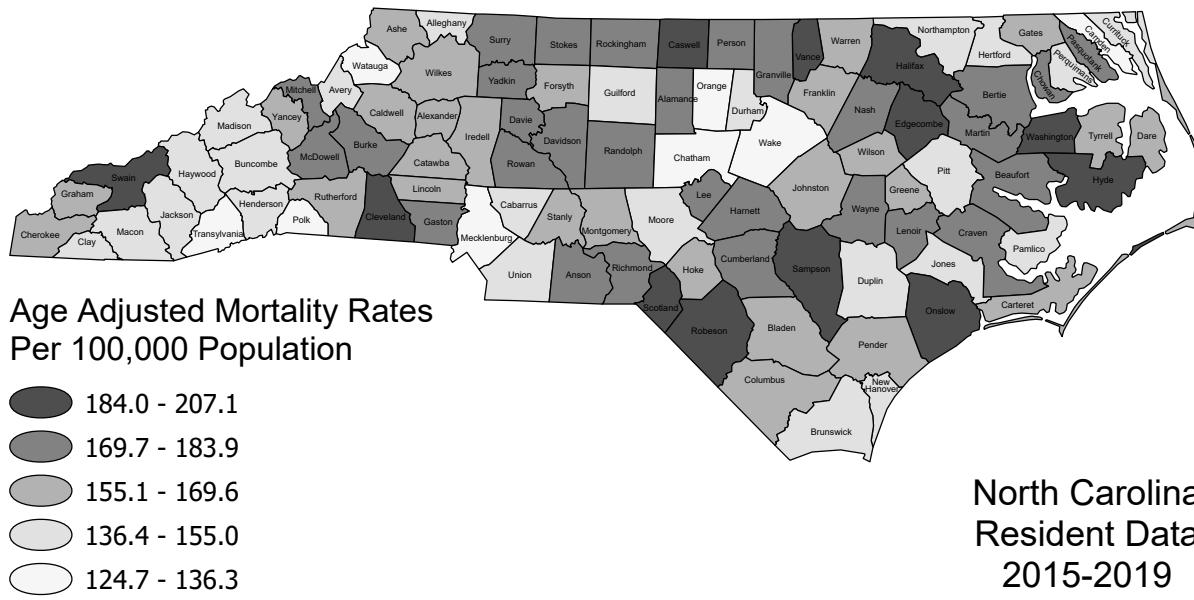


Figure 4.B

Table 4: Cancer—All Sites
North Carolina Resident Mortality Statistics Summary for 2019

Geographical Area:	Number of Deaths 2019	Death Rate* 2019	Number of Deaths 2015–2019	Unadjusted Death Rate* 2015–2019	Age-Adjusted Death Rate* 2015–2019
NORTH CAROLINA	19,963	190.3	97,965	190.9	158.0
Alamance	421	248.4	1,806	221.2	171.4
Alexander	81	216.0	417	224.1	158.5
Alleghany	38	341.2*	151	274.4	143.1
Anson	64	261.8	300	240.9	179.4
Ashe	87	319.8	389	289.6	163.5
Avery	42	239.2*	194	221.6	146.9
Beaufort	130	276.6	667	282.8	175.4
Bertie	56	295.6	271	279.7	177.4
Bladen	80	244.5	414	247.8	166.5
Brunswick	379	265.4	1,820	276.1	149.0
Buncombe	505	193.3	2,744	213.6	150.0
Burke	238	263.0	1,140	253.4	172.3
Cabarrus	307	141.8	1,594	154.3	150.0
Caldwell	209	254.3	990	241.8	169.6
Camden	19	174.8*	88	166.8	133.3
Carteret	208	299.4	979	283.5	168.8
Caswell	65	287.6	342	301.5	191.0
Catawba	343	215.0	1,669	211.8	162.7
Chatham	182	244.4	813	227.9	133.2
Cherokee	102	356.5	417	298.2	156.4
Chowan	42	301.2*	209	296.5	174.6
Clay	34	302.7*	158	288.7	145.8
Cleveland	252	257.3	1,213	249.4	185.2
Columbus	154	277.4	670	239.0	165.2
Craven	253	247.7	1,214	236.9	178.1
Cumberland	535	159.5	2,660	159.8	172.4
Currituck	47	169.3*	240	182.1	142.9
Dare	76	205.4	435	240.2	161.3
Davidson	420	250.6	1,989	240.5	178.7
Davie	120	280.1	554	262.2	171.5
Duplin	118	200.9	575	195.0	146.0
Durham	475	147.8	2,283	146.4	147.7
Edgecombe	137	266.2	698	265.2	188.6
Forsyth	729	190.7	3,568	190.2	157.9
Franklin	131	188.0	705	212.5	169.5
Gaston	490	218.2	2,339	213.3	173.6
Gates	25	216.2*	133	230.3	161.1
Graham	19	225.1*	113	265.6	157.5
Granville	133	220.0	651	219.5	170.3
Greene	50	237.3	213	202.5	160.2
Guilford	932	173.5	4,663	176.7	153.3
Halifax	151	301.9	741	289.5	195.3
Harnett	227	166.9	1,107	167.4	173.2
Haywood	162	260.0	808	264.7	154.9
Henderson	295	251.2	1,479	257.4	145.0
Hertford	55	232.3	259	215.7	148.1
Hoke	69	124.9	360	133.4	163.0
Hyde	13	263.3*	73	280.1	190.0
Iredell	339	186.5	1,649	187.9	158.9
Jackson	90	204.8	422	196.6	148.3

Table 4: Cancer—All Sites
North Carolina Resident Mortality Statistics Summary for 2019

Geographical Area:	Number of Deaths 2019	Death Rate* 2019	Number of Deaths 2015–2019	Unadjusted Death Rate* 2015–2019	Age-Adjusted Death Rate* 2015–2019
Johnston	335	160.0	1,685	171.2	165.4
Jones	24	254.8*	111	231.4	141.0
Lee	120	194.2	648	214.3	171.7
Lenoir	141	252.0	711	250.5	174.1
Lincoln	199	231.1	902	217.6	165.2
McDowell	124	271.0	584	258.3	178.8
Macon	100	278.9	503	289.0	152.4
Madison	47	216.0*	249	231.6	148.9
Martin	50	222.8	335	293.2	177.7
Mecklenburg	1,359	122.4	6,578	122.4	136.3
Mitchell	49	327.5*	228	303.9	177.4
Montgomery	69	253.9	316	231.9	160.7
Moore	259	256.7	1,212	249.1	146.4
Nash	220	233.3	1,129	240.1	180.0
New Hanover	424	180.8	2,133	187.2	147.4
Northhampton	53	272.0	266	266.7	154.0
Onslow	275	138.9	1,414	145.0	202.7
Orange	184	123.9	955	131.9	131.0
Pamlico	38	298.6*	191	300.8	155.0
Pasquotank	86	216.0	448	226.8	180.8
Pender	115	182.4	662	219.2	166.1
Perquimans	44	326.8*	182	271.0	152.6
Person	92	233.0	494	251.1	175.4
Pitt	284	157.1	1,349	151.2	150.7
Polk	59	284.7	282	274.4	129.5
Randolph	318	221.3	1,649	230.4	174.8
Richmond	121	269.9	544	241.8	181.5
Robeson	283	216.7	1,442	217.5	190.6
Rockingham	244	268.1	1,185	260.2	173.2
Rowan	346	243.5	1,680	239.5	183.9
Rutherford	160	238.7	854	256.5	167.9
Sampson	153	240.8	771	243.3	185.9
Scotland	83	238.3	453	258.3	195.1
Stanly	146	232.5	692	224.7	163.0
Stokes	107	234.7	620	270.9	177.5
Surry	208	289.8	980	272.3	182.4
Swain	43	301.3*	209	293.1	207.1
Transylvania	99	287.9	463	274.2	133.9
Tyrrell	10	249.0*	51	249.1	165.4
Union	368	153.4	1,689	146.2	148.1
Vance	109	244.8	588	264.4	199.2
Wake	1,334	120.0	6,513	121.8	134.6
Warren	50	253.4	280	281.4	165.9
Washington	31	267.7*	191	320.4	191.9
Watauga	88	156.6	392	142.7	124.7
Wayne	291	236.3	1,339	216.7	176.6
Wilkes	174	254.3	846	247.1	161.2
Wilson	169	206.6	852	209.2	157.1
Yadkin	92	244.2	472	251.1	173.1
Yancey	57	315.5	257	289.4	163.6

*Death rates with a small number (<50) of deaths in the numerator should be interpreted with caution. SEE TECHNICAL NOTES on page 101.

Cancer - Colon, Rectum, and Anus

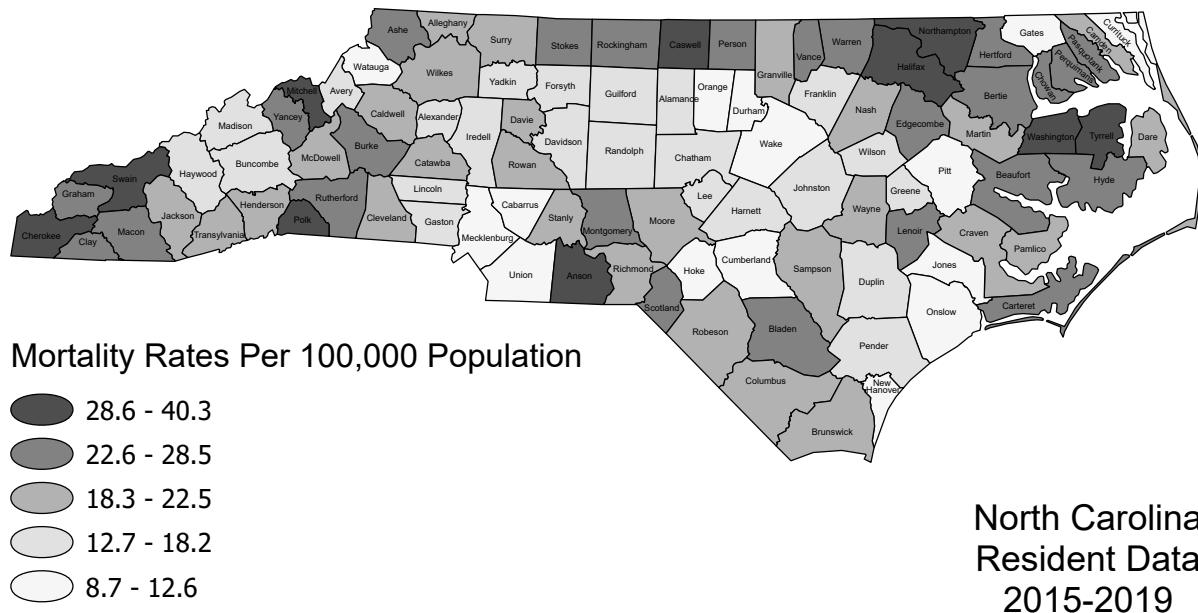


Figure 5.A

Cancer - Colon, Rectum, and Anus

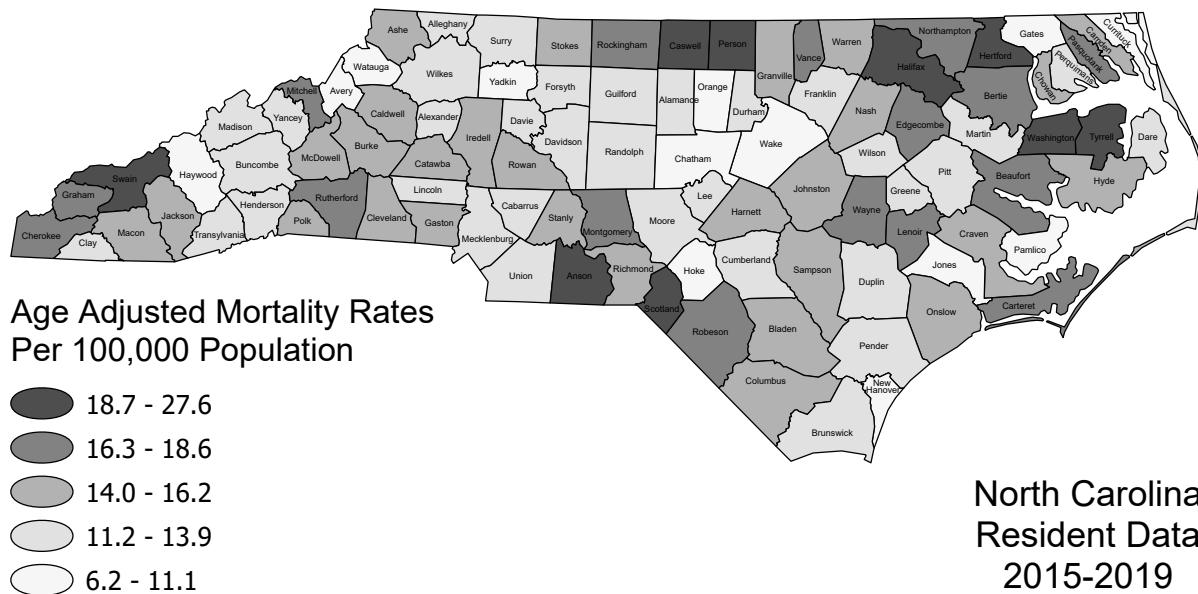


Figure 5.B

Table 5: Cancer—Colon, Rectum and Anus
North Carolina Resident Mortality Statistics Summary for 2019

Geographical Area:	Number of Deaths 2019	Death Rate* 2019	Number of Deaths 2015–2019	Unadjusted Death Rate* 2015–2019	Age-Adjusted Death Rate* 2015–2019
NORTH CAROLINA	1,663	15.9	8,135	15.9	13.3
Alamance	25	14.7*	136	16.7	12.9
Alexander	7	18.7*	33	17.7*	12.3*
Alleghany	3	26.9*	12	21.8*	11.6*
Anson	9	36.8*	41	32.9*	24.5*
Ashe	2	7.4*	35	26.1*	16.0*
Avery	2	11.4*	13	14.9*	9.9*
Beaufort	13	27.7*	60	25.4	17.7
Bertie	8	42.2*	25	25.8*	17.1*
Bladen	7	21.4*	40	23.9*	15.6*
Brunswick	39	27.3*	148	22.5	13.1
Buncombe	49	18.8*	232	18.1	12.8
Burke	14	15.5*	103	22.9	16.2
Cabarrus	28	12.9*	128	12.4	11.9
Caldwell	17	20.7*	82	20.0	14.2
Camden	4	36.8*	10	19.0*	14.1*
Carteret	20	28.8*	94	27.2	16.7
Caswell	11	48.7*	40	35.3*	23.9*
Catawba	28	17.5*	151	19.2	15.5
Chatham	10	13.4*	56	15.7	9.1
Cherokee	11	38.4*	43	30.7*	16.8*
Chowan	3	21.5*	19	27.0*	14.6*
Clay	1	8.9*	15	27.4*	13.7*
Cleveland	17	17.4*	94	19.3	14.3
Columbus	13	23.4*	62	22.1	16.1
Craven	15	14.7*	95	18.5	14.5
Cumberland	41	12.2*	200	12.0	13.0
Currituck	4	14.4*	16	12.1*	9.8*
Dare	3	8.1*	35	19.3*	13.2*
Davidson	30	17.9*	141	17.1	13.0
Davie	8	18.7*	43	20.4*	13.1*
Duplin	11	18.7*	49	16.6*	12.8*
Durham	42	13.1*	196	12.6	12.5
Edgecombe	13	25.3*	63	23.9	17.2
Forsyth	70	18.3	300	16.0	13.6
Franklin	9	12.9*	53	16.0	13.2
Gaston	32	14.3*	191	17.4	14.6
Gates	2	17.3*	5	8.7*	6.2*
Graham	1	11.8*	10	23.5*	18.0*
Granville	11	18.2*	60	20.2	15.8
Greene	3	14.2*	17	16.2*	13.5*
Guilford	72	13.4	383	14.5	12.5
Halifax	10	20.0*	79	30.9	21.1
Harnett	15	11.0*	93	14.1	15.3
Haywood	9	14.4*	54	17.7	10.8
Henderson	17	14.5*	107	18.6	12.0
Hertford	10	42.2*	33	27.5*	20.1*
Hoke	5	9.1*	25	9.3*	10.7*
Hyde	1	20.3*	6	23.0*	15.3*
Iredell	22	12.1*	150	17.1	15.1
Jackson	9	20.5*	41	19.1*	15.9*

Table 5: Cancer—Colon, Rectum and Anus
North Carolina Resident Mortality Statistics Summary for 2019

Geographical Area:	Number of Deaths 2019	Death Rate* 2019	Number of Deaths 2015–2019	Unadjusted Death Rate* 2015–2019	Age-Adjusted Death Rate* 2015–2019
Johnston	27	12.9*	159	16.2	15.5
Jones	0	0.0*	6	12.5*	7.4*
Lee	19	30.8*	55	18.2	13.9
Lenoir	12	21.4*	66	23.3	17.2
Lincoln	19	22.1*	71	17.1	12.7
McDowell	7	15.3*	48	21.2*	14.7*
Macon	8	22.3*	46	26.4*	16.2*
Madison	4	18.4*	19	17.7*	11.8*
Martin	4	17.8*	25	21.9*	13.0*
Mecklenburg	127	11.4	558	10.4	11.4
Mitchell	8	53.5*	22	29.3*	18.2*
Montgomery	9	33.1*	32	23.5*	16.9*
Moore	19	18.8*	90	18.5	12.0
Nash	16	17.0*	95	20.2	15.3
New Hanover	28	11.9*	123	10.8	8.6
Northhampton	5	25.7*	31	31.1*	17.0*
Onslow	24	12.1*	113	11.6	15.8
Orange	12	8.1*	76	10.5	10.4
Pamlico	8	62.9*	14	22.0*	10.8*
Pasquotank	12	30.1*	45	22.8*	18.6*
Pender	5	7.9*	49	16.2*	13.0*
Perquimans	7	52.0*	17	25.3*	12.9*
Person	4	10.1*	56	28.5	20.9
Pitt	22	12.2*	109	12.2	12.0
Polk	5	24.1*	33	32.1*	14.9*
Randolph	27	18.8*	119	16.6	12.7
Richmond	11	24.5*	47	20.9*	15.3*
Robeson	27	20.7*	129	19.5	18.0
Rockingham	29	31.9*	112	24.6	16.6
Rowan	33	23.2*	135	19.2	14.8
Rutherford	16	23.9*	80	24.0	16.5
Sampson	12	18.9*	62	19.6	15.2
Scotland	9	25.8*	47	26.8*	20.8*
Stanly	17	27.1*	67	21.8	15.6
Stokes	11	24.1*	52	22.7	15.7
Surry	22	30.6*	71	19.7	13.5
Swain	2	14.0*	23	32.3*	23.4*
Transylvania	7	20.4*	36	21.3*	12.0*
Tyrrell	0	0.0*	7	34.2*	21.2*
Union	28	11.7*	138	11.9	12.3
Vance	12	26.9*	55	24.7	18.6
Wake	94	8.5	504	9.4	10.3
Warren	7	35.5*	25	25.1*	15.8*
Washington	2	17.3*	24	40.3*	27.6*
Watauga	5	8.9*	24	8.7*	8.4*
Wayne	33	26.8*	123	19.9	16.6
Wilkes	19	27.8*	71	20.7	13.9
Wilson	11	13.4*	60	14.7	11.4
Yadkin	7	18.6*	28	14.9*	11.1*
Yancey	5	27.7*	21	23.6*	13.3*

*Death rates with a small number (<50) of deaths in the numerator should be interpreted with caution. SEE TECHNICAL NOTES on page 101.

Cancer - Trachea, Bronchus, and Lung

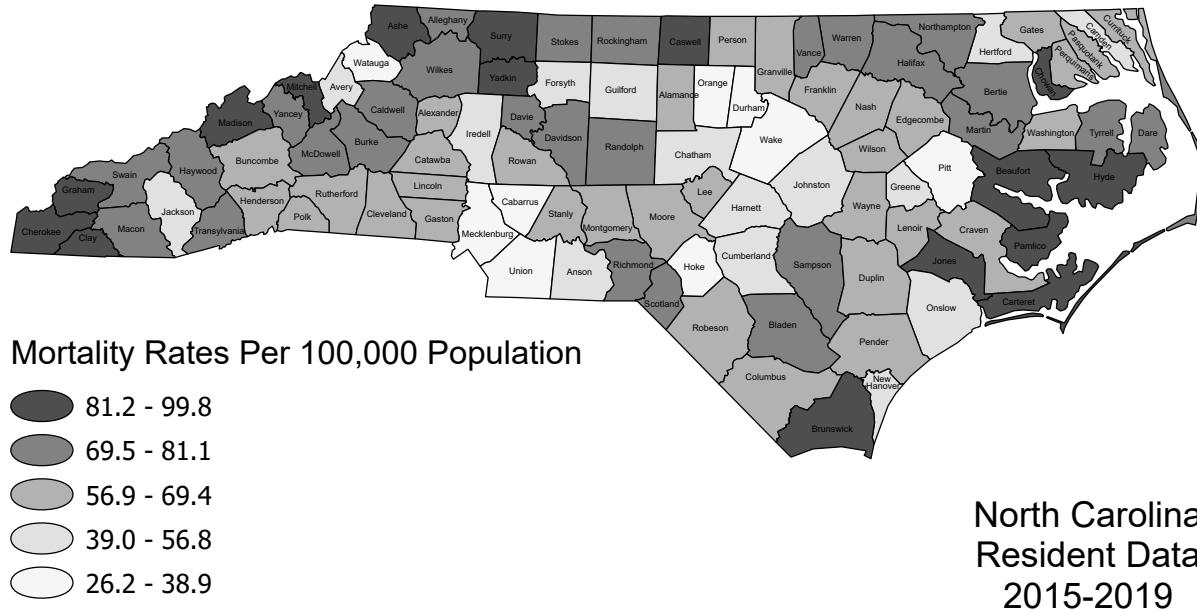


Figure 6.A

Cancer - Trachea, Bronchus, and Lung

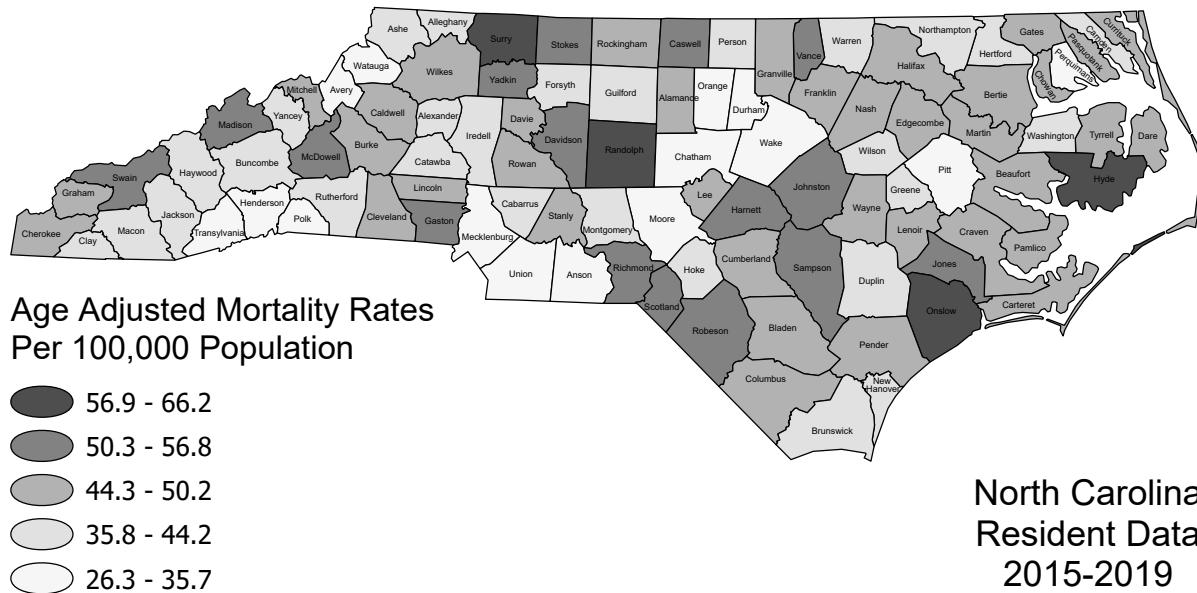


Figure 6.B

Table 6: Cancer—Trachea, Bronchus and Lung
North Carolina Resident Mortality Statistics Summary for 2019

Geographical Area:	Number of Deaths 2019	Death Rate* 2019	Number of Deaths 2015–2019	Unadjusted Death Rate* 2015–2019	Age-Adjusted Death Rate* 2015–2019
NORTH CAROLINA	5,116	48.8	26,646	51.9	42.0
Alamance	119	70.2	505	61.8	47.5
Alexander	23	61.3*	121	65.0	43.5
Alleghany	8	71.8*	40	72.7*	38.1*
Anson	12	49.1*	62	49.8	35.4
Ashe	30	110.3*	112	83.4	44.2
Avery	7	39.9*	41	46.8*	30.0*
Beaufort	35	74.5*	204	86.5	50.2
Bertie	13	68.6*	77	79.5	47.6
Bladen	27	82.5*	130	77.8	49.1
Brunswick	102	71.4	550	83.5	42.0
Buncombe	125	47.9	739	57.5	39.7
Burke	69	76.3	321	71.4	46.7
Cabarrus	67	31.0	402	38.9	37.1
Caldwell	58	70.6	299	73.0	49.5
Camden	4	36.8*	25	47.4*	37.6*
Carteret	64	92.1	300	86.9	49.6
Caswell	16	70.8*	104	91.7	56.8
Catawba	99	62.0	465	59.0	43.5
Chatham	25	33.6*	159	44.6	26.3
Cherokee	31	108.3*	126	90.1	45.7
Chowan	13	93.2*	62	88.0	49.2
Clay	10	89.0*	45	82.2*	36.8*
Cleveland	54	55.1	309	63.5	46.1
Columbus	49	88.3*	193	68.8	46.3
Craven	69	67.6	349	68.1	49.8
Cumberland	135	40.2	734	44.1	46.9
Currituck	18	64.8*	88	66.8	49.8
Dare	20	54.0*	132	72.9	46.3
Davidson	136	81.1	637	77.0	55.4
Davie	36	84.0*	162	76.7	48.4
Duplin	25	42.6*	171	58.0	41.6
Durham	92	28.6	484	31.0	31.7
Edgecombe	34	66.1*	176	66.9	46.9
Forsyth	193	50.5	979	52.2	42.7
Franklin	37	53.1*	199	60.0	45.7
Gaston	156	69.5	760	69.3	55.1
Gates	9	77.8*	39	67.5*	46.1*
Graham	5	59.2*	38	89.3*	49.0*
Granville	35	57.9*	179	60.3	46.8
Greene	10	47.5*	53	50.4	39.8
Guilford	225	41.9	1,221	46.3	39.9
Halifax	38	76.0*	188	73.5	47.7
Harnett	61	44.9	333	50.3	50.8
Haywood	52	83.4	236	77.3	43.5
Henderson	59	50.2	367	63.9	35.2
Hertford	9	38.0*	67	55.8	37.4
Hoke	14	25.3*	91	33.7	40.9
Hyde	6	121.5*	26	99.8*	66.2*
Iredell	102	56.1	464	52.9	42.9
Jackson	28	63.7*	122	56.8	41.7

Table 6: Cancer—Trachea, Bronchus and Lung
North Carolina Resident Mortality Statistics Summary for 2019

Geographical Area:	Number of Deaths 2019	Death Rate* 2019	Number of Deaths 2015–2019	Unadjusted Death Rate* 2015–2019	Age-Adjusted Death Rate* 2015–2019
Johnston	106	50.6	536	54.5	51.3
Jones	10	106.2*	43	89.6*	53.7*
Lee	29	46.9*	182	60.2	47.3
Lenoir	38	67.9*	195	68.7	45.8
Lincoln	59	68.5	264	63.7	47.3
McDowell	40	87.4*	170	75.2	51.5
Macon	26	72.5*	139	79.9	39.8
Madison	14	64.4*	88	81.9	53.2
Martin	11	49.0*	87	76.2	44.8
Mecklenburg	277	24.9	1,474	27.4	30.8
Mitchell	11	73.5*	63	84.0	44.7
Montgomery	16	58.9*	81	59.4	39.4
Moore	61	60.5	301	61.9	35.7
Nash	65	68.9	308	65.5	48.0
New Hanover	97	41.4	594	52.1	40.3
Northhampton	12	61.6*	71	71.2	39.2
Onslow	89	45.0	446	45.7	63.5
Orange	53	35.7	238	32.9	32.6
Pamlico	12	94.3*	61	96.1	47.5
Pasquotank	21	52.7*	129	65.3	50.2
Pender	31	49.2*	201	66.6	48.2
Perquimans	13	96.6*	43	64.0*	33.7*
Person	25	63.3*	129	65.6	43.4
Pitt	73	40.4	315	35.3	34.9
Polk	11	53.1*	65	63.2	31.0
Randolph	101	70.3	566	79.1	58.7
Richmond	35	78.1*	159	70.7	51.0
Robeson	81	62.0	444	67.0	56.4
Rockingham	68	74.7	343	75.3	49.0
Rowan	83	58.4	452	64.4	48.7
Rutherford	39	58.2*	231	69.4	43.6
Sampson	44	69.3*	233	73.5	54.4
Scotland	23	66.0*	132	75.3	53.2
Stanly	34	54.1*	197	64.0	45.5
Stokes	29	63.6*	182	79.5	50.7
Surry	63	87.8	323	89.8	58.9
Swain	9	63.1*	53	74.3	52.3
Transylvania	19	55.3*	122	72.2	33.0
Tyrrell	3	74.7*	15	73.3*	48.7*
Union	100	41.7	415	35.9	35.7
Vance	25	56.1*	157	70.6	51.4
Wake	262	23.6	1,400	26.2	29.3
Warren	11	55.7*	75	75.4	40.8
Washington	3	25.9*	41	68.8*	38.0*
Watauga	20	35.6*	94	34.2	29.1
Wayne	67	54.4	372	60.2	47.7
Wilkes	39	57.0*	261	76.2	48.5
Wilson	44	53.8*	243	59.7	43.5
Yadkin	29	77.0*	155	82.4	54.8
Yancey	21	116.2*	72	81.1	43.3

*Death rates with a small number (<50) of deaths in the numerator should be interpreted with caution. SEE TECHNICAL NOTES on page 101.

Cancer - Breast

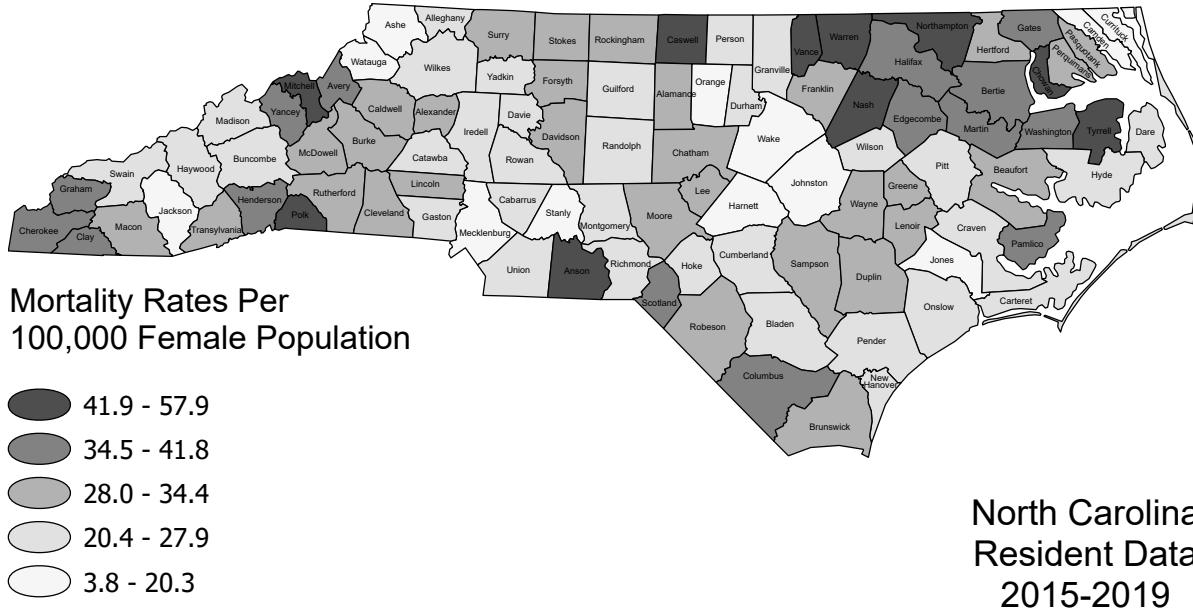


Figure 7.A

Cancer - Breast

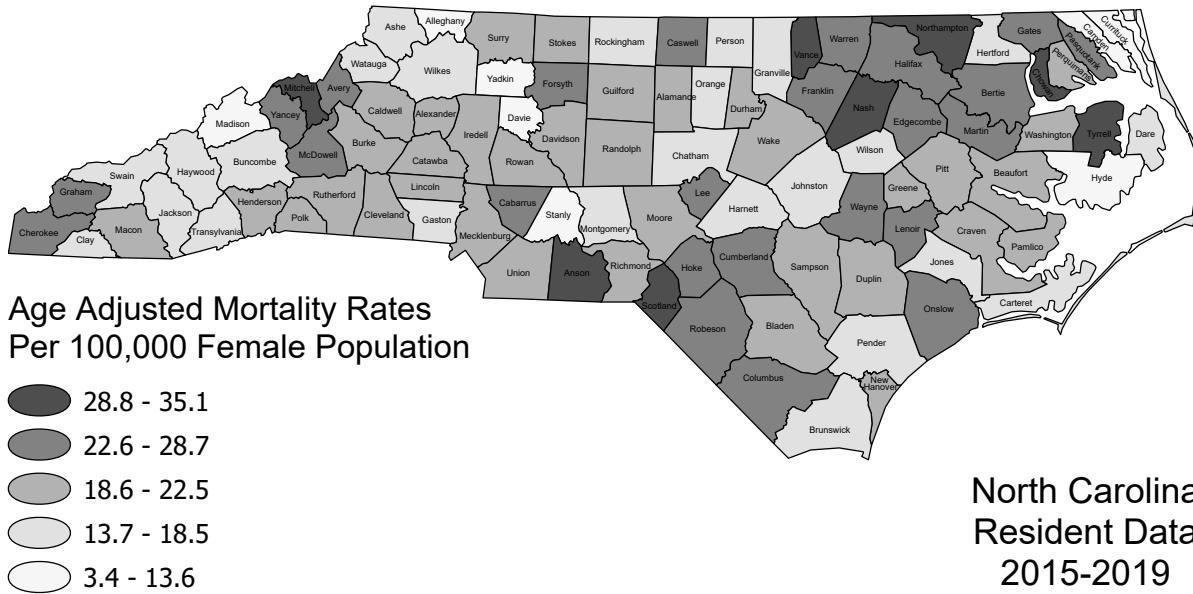


Figure 7.B

Table 7: Cancer—Female Breast
North Carolina Resident Mortality Statistics Summary for 2019

Geographical Area:	Number of Deaths 2019	Death Rate* 2019	Number of Deaths 2015–2019	Unadjusted Death Rate* 2015–2019	Age-Adjusted Death Rate* 2015–2019
NORTH CAROLINA	1,356	25.2	6,928	26.3	20.6
Alamance	29	32.6*	129	30.1	22.5
Alexander	6	32.6*	30	32.9*	22.3*
Alleghany	2	35.6*	7	25.2*	13.4*
Anson	9	75.5*	30	50.2*	34.0*
Ashe	2	14.4*	13	19.0*	14.6*
Avery	2	24.9*	14	35.1*	24.6*
Beaufort	7	28.4*	36	29.2*	19.1*
Bertie	5	53.6*	19	39.7*	22.8*
Bladen	4	23.3*	24	27.5*	19.9*
Brunswick	23	30.8*	111	32.4	17.5
Buncombe	29	21.3*	183	27.4	18.5
Burke	16	35.4*	67	29.8	20.3
Cabarrus	23	20.7*	143	27.0	24.2
Caldwell	17	40.9*	61	29.5	21.2
Camden	0	0.0*	1	3.8*	3.4*
Carteret	7	19.7*	49	27.9*	16.4*
Caswell	2	18.0*	25	44.8*	25.5*
Catawba	20	24.5*	111	27.5	20.2
Chatham	13	33.5*	59	31.7	18.1
Cherokee	8	54.5*	30	41.8*	24.5*
Chowan	0	0.0*	17	45.9*	31.9*
Clay	1	17.3*	11	39.3*	17.9*
Cleveland	18	35.4*	77	30.5	21.1
Columbus	11	39.3*	56	39.5	25.4
Craven	10	19.8*	67	26.5	19.8
Cumberland	54	31.9	225	26.9	25.7
Currituck	1	7.2*	6	9.0*	7.2*
Dare	4	21.2*	24	26.1*	16.7*
Davidson	20	23.4*	124	29.3	21.2
Davie	5	22.8*	24	22.2*	13.6*
Duplin	9	30.0*	43	28.4*	21.6*
Durham	34	20.2*	189	23.2	21.0
Edgecombe	9	32.5*	53	37.5	24.5
Forsyth	62	30.8	290	29.4	23.0
Franklin	9	25.6*	51	30.5	23.6
Gaston	30	25.8*	133	23.4	18.5
Gates	0	0.0*	12	40.9*	23.7*
Graham	0	0.0*	8	37.4*	26.1*
Granville	11	37.0*	37	25.4*	17.9*
Greene	6	63.0*	14	29.3*	21.5*
Guilford	74	26.2	352	25.3	20.8
Halifax	8	30.9*	48	36.1*	24.4*
Harnett	15	21.8*	63	18.9	17.9
Haywood	14	43.5*	43	27.2*	17.9*
Henderson	23	37.7*	122	40.9	21.5
Hertford	2	16.8*	18	29.6*	17.1*
Hoke	9	32.1*	34	24.9*	26.5*
Hyde	2	87.0*	3	25.3*	13.5*
Iredell	23	24.9*	117	26.3	20.4
Jackson	4	17.9*	21	19.2*	16.2*

Table 7: Cancer—Female Breast
North Carolina Resident Mortality Statistics Summary for 2019

Geographical Area:	Number of Deaths 2019	Death Rate* 2019	Number of Deaths 2015–2019	Unadjusted Death Rate* 2015–2019	Age-Adjusted Death Rate* 2015–2019
Johnston	16	15.0*	101	20.1	17.1
Jones	1	20.6*	5	20.3*	14.6*
Lee	10	31.6*	48	31.0*	23.2*
Lenoir	4	13.7*	48	32.4*	23.6*
Lincoln	6	13.8*	64	30.7	21.9
McDowell	6	26.1*	39	34.4*	23.0*
Macon	8	43.3*	30	33.5*	18.8*
Madison	2	18.1*	12	22.0*	13.1*
Martin	4	33.6*	25	41.2*	25.4*
Mecklenburg	115	19.9	567	20.3	19.8
Mitchell	5	66.0*	22	57.9*	35.1*
Montgomery	3	21.6*	19	27.2*	18.0*
Moore	18	34.5*	81	32.1	19.8
Nash	23	46.8*	112	45.8	33.4
New Hanover	30	24.4*	163	27.4	20.5
Northhampton	2	20.1*	23	45.0*	30.8*
Onslow	18	20.2*	100	23.0	26.6
Orange	17	21.9*	64	16.9	15.9
Pamlico	2	32.0*	11	35.4*	19.5*
Pasquotank	5	24.6*	34	33.7*	25.7*
Pender	6	19.0*	38	25.1*	18.0*
Perquimans	3	42.7*	11	31.6*	21.0*
Person	3	14.7*	26	25.6*	16.6*
Pitt	17	17.7*	107	22.6	20.7
Polk	6	55.6*	24	44.9*	20.5*
Randolph	17	23.3*	99	27.3	19.5
Richmond	8	35.0*	31	27.0*	21.2*
Robeson	19	28.1*	103	30.0	25.2
Rockingham	12	25.5*	69	29.3	18.1
Rowan	18	25.0*	95	26.8	19.0
Rutherford	9	26.0*	53	30.8	20.4
Sampson	11	34.1*	48	29.8*	21.8*
Scotland	8	45.6*	35	39.6*	30.7*
Stanly	4	12.7*	24	15.5*	11.7*
Stokes	7	30.1*	36	30.8*	18.9*
Surry	10	27.2*	62	33.6	19.8
Swain	4	53.8*	10	27.1*	16.8*
Transylvania	8	44.9*	30	34.4*	14.5*
Tyrrell	0	0.0*	5	54.7*	33.7*
Union	23	18.9*	127	21.7	20.7
Vance	11	46.3*	57	48.1	34.5
Wake	109	19.1	555	20.2	19.7
Warren	3	30.1*	22	43.9*	28.7*
Washington	2	32.7*	12	38.0*	21.0*
Watauga	3	10.6*	25	18.2*	16.1*
Wayne	16	25.3*	97	30.7	23.0
Wilkes	11	31.6*	47	27.0*	16.4*
Wilson	15	34.9*	51	23.8	16.8
Yadkin	2	10.5*	21	22.1*	13.5*
Yancey	4	43.6*	16	35.5*	27.6*

*Death rates with a small number (<50) of deaths in the numerator should be interpreted with caution. SEE TECHNICAL NOTES on page 101.

Cancer - Prostate

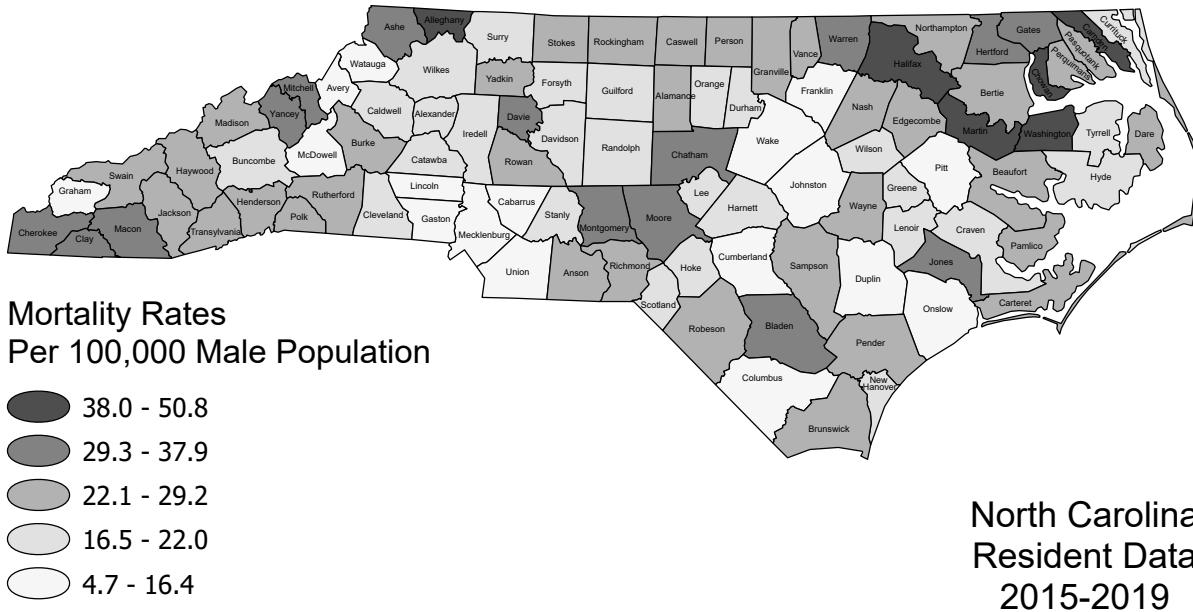


Figure 8.A

Cancer - Prostate

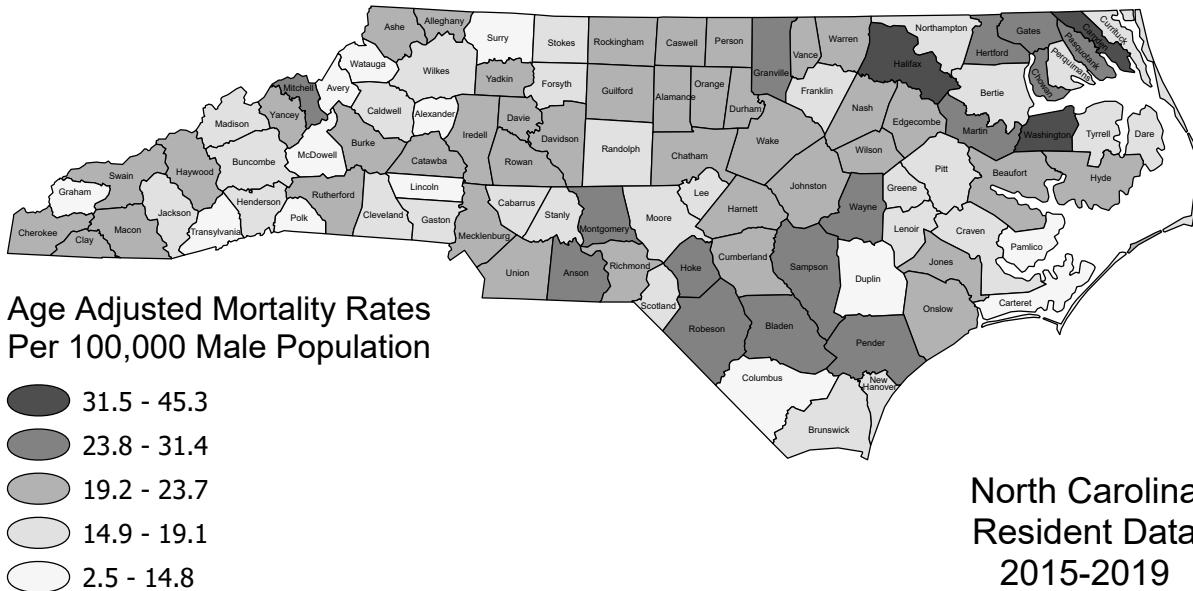


Figure 8.B

Table 8: Cancer—Prostate
North Carolina Resident Mortality Statistics Summary for 2019

Geographical Area:	Number of Deaths 2019	Death Rate* 2019	Number of Deaths 2015–2019	Unadjusted Death Rate* 2015–2019	Age-Adjusted Death Rate* 2015–2019
NORTH CAROLINA	1,032	20.2	4,786	19.2	19.5
Alamance	20	24.8*	87	22.4	20.2
Alexander	4	20.9*	16	16.9*	14.2*
Alleghany	6	108.7*	12	43.9*	22.3*
Anson	2	16.0*	16	24.7*	26.1*
Ashe	4	30.0*	24	36.3*	22.3*
Avery	2	21.0*	7	14.7*	11.3*
Beaufort	5	22.4*	32	28.5*	19.7*
Bertie	6	62.4*	12	24.5*	17.2*
Bladen	6	38.6*	24	30.1*	24.8*
Brunswick	22	32.3*	90	28.5	18.0
Buncombe	18	14.4*	123	20.0	16.1
Burke	10	22.1*	58	25.8	21.2
Cabarrus	10	9.5*	68	13.5	17.8
Caldwell	10	24.6*	44	21.7*	18.3*
Camden	2	36.9*	12	45.7*	45.3*
Carteret	8	23.5*	38	22.4*	14.3*
Caswell	5	43.5*	15	26.0*	20.1*
Catawba	19	24.4*	80	20.8	20.2
Chatham	13	36.5*	55	32.2	20.6
Cherokee	7	50.2*	24	35.3*	19.5*
Chowan	6	90.5*	17	50.8*	31.4*
Clay	2	36.6*	9	33.7*	21.8*
Cleveland	10	21.2*	46	19.7*	18.8*
Columbus	4	14.5*	20	14.4*	13.1*
Craven	7	13.6*	46	17.7*	15.4*
Cumberland	21	12.6*	111	13.4	19.9
Currituck	3	21.7*	13	19.9*	17.4*
Dare	6	33.1*	21	23.5*	18.3*
Davidson	26	31.7*	84	20.8	19.3
Davie	8	38.2*	31	30.1*	21.4*
Duplin	6	20.9*	20	13.9*	12.6*
Durham	31	20.2*	127	17.0	22.1
Edgecombe	4	16.8*	27	22.2*	20.4*
Forsyth	37	20.5*	167	18.8	18.7
Franklin	8	23.2*	27	16.4*	16.5*
Gaston	23	21.2*	83	15.7	15.8
Gates	1	17.5*	10	35.2*	28.1*
Graham	1	23.7*	1	4.7*	2.5*
Granville	8	26.1*	42	27.8*	28.8*
Greene	3	26.0*	10	17.4*	18.2*
Guilford	44	17.3*	261	20.9	21.6
Halifax	9	37.3*	54	43.9	34.6
Harnett	19	28.2*	57	17.4	23.3
Haywood	7	23.3*	43	29.2*	19.8*
Henderson	20	35.5*	77	27.9	16.6
Hertford	4	34.0*	19	32.0*	27.3*
Hoke	3	11.0*	24	18.0*	28.8*
Hyde	0	0.0*	3	21.1*	22.9*
Iredell	18	20.1*	87	20.1	21.1
Jackson	3	13.9*	24	22.8*	18.1*

Table 8: Cancer—Prostate
North Carolina Resident Mortality Statistics Summary for 2019

Geographical Area:	Number of Deaths 2019	Death Rate* 2019	Number of Deaths 2015–2019	Unadjusted Death Rate* 2015–2019	Age-Adjusted Death Rate* 2015–2019
Johnston	18	17.5*	70	14.5	19.2
Jones	0	0.0*	7	30.0*	22.0*
Lee	5	16.6*	29	19.6*	19.0*
Lenoir	6	22.4*	29	21.4*	17.9*
Lincoln	10	23.4*	31	15.1*	13.8*
McDowell	3	13.2*	18	15.9*	13.4*
Macon	4	23.0*	32	37.9*	21.8*
Madison	3	28.0*	13	24.6*	15.6*
Martin	3	28.5*	22	41.0*	26.8*
Mecklenburg	76	14.2	354	13.7	20.3
Mitchell	4	54.1*	13	35.1*	25.6*
Montgomery	4	30.1*	24	36.1*	28.3*
Moore	15	30.8*	70	29.9	17.3
Nash	15	33.2*	53	23.5	21.9
New Hanover	22	19.7*	108	19.9	18.2
Northhampton	3	31.5*	13	26.7*	17.0*
Onslow	14	12.9*	58	10.7	22.3
Orange	9	12.7*	59	17.1	21.2
Pamlico	0	0.0*	8	24.7*	11.8*
Pasquotank	3	15.4*	27	28.0*	26.6*
Pender	5	15.9*	39	25.9*	25.7*
Perquimans	3	46.5*	9	27.9*	15.9*
Person	8	41.9*	25	26.2*	20.7*
Pitt	7	8.3*	61	14.5	19.1
Polk	2	20.2*	12	24.3*	11.7*
Randolph	15	21.2*	60	17.0	16.1
Richmond	6	27.3*	27	24.5*	23.2*
Robeson	12	19.1*	74	23.2	26.6
Rockingham	9	20.5*	54	24.6	19.4
Rowan	24	34.2*	84	24.2	22.2
Rutherford	10	30.9*	40	24.9*	20.0*
Sampson	6	19.2*	44	28.2*	26.7*
Scotland	1	5.8*	16	18.4*	17.7*
Stanly	9	28.7*	26	16.9*	15.3*
Stokes	3	13.4*	26	23.2*	16.5*
Surry	9	25.7*	31	17.7*	14.4*
Swain	3	43.9*	9	26.1*	21.9*
Transylvania	5	30.2*	21	25.7*	12.2*
Tyrrell	0	0.0*	2	17.7*	15.7*
Union	14	11.8*	82	14.4	20.7
Vance	5	24.1*	24	23.1*	19.8*
Wake	86	15.9	344	13.2	19.6
Warren	1	10.2*	18	36.5*	23.7*
Washington	2	36.6*	14	49.9*	33.6*
Watauga	6	21.4*	22	16.0*	14.8*
Wayne	20	33.3*	70	23.2	24.4
Wilkes	7	20.8*	37	22.0*	17.1*
Wilson	8	20.6*	42	21.8*	20.3*
Yadkin	4	21.4*	22	23.7*	20.3*
Yancey	4	45.0*	15	34.3*	22.9*

*Death rates with a small number (<50) of deaths in the numerator should be interpreted with caution. SEE TECHNICAL NOTES on page 101.

Human Immunodeficiency Virus (HIV) Disease

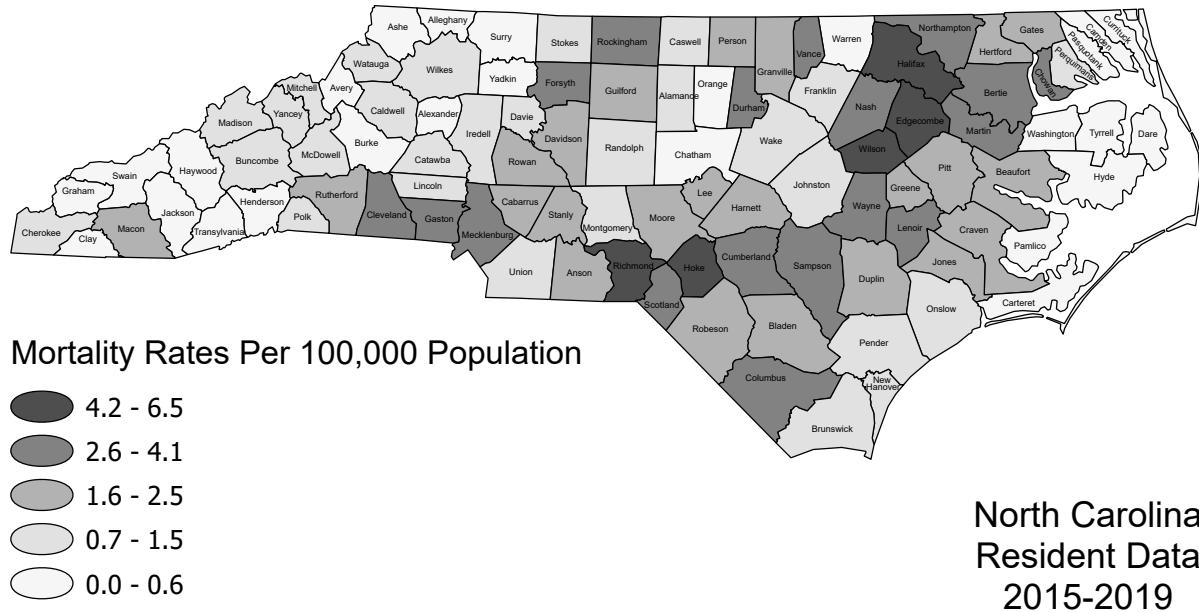


Figure 9.A

Human Immunodeficiency Virus (HIV) Disease

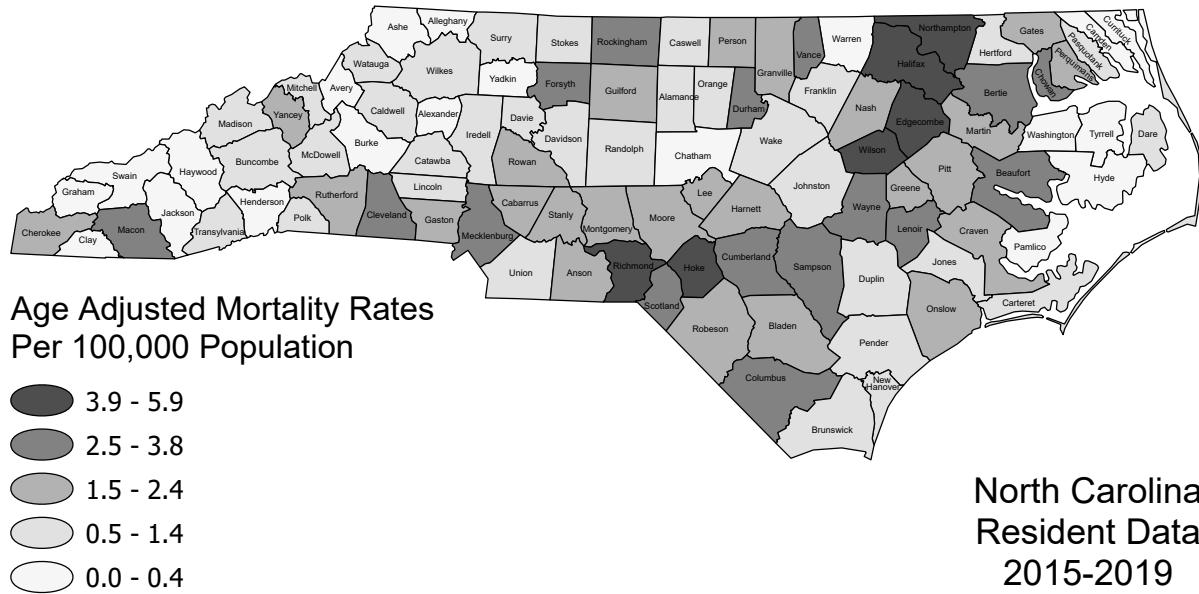


Figure 9.B

Table 9: Human Immunodeficiency Virus (HIV) Disease
North Carolina Resident Mortality Statistics Summary for 2019

Geographical Area:	Number of Deaths 2019	Death Rate* 2019	Number of Deaths 2015–2019	Unadjusted Death Rate* 2015–2019	Age-Adjusted Death Rate* 2015–2019
NORTH CAROLINA	163	1.6	1,009	2.0	1.8
Alamance	2	1.2*	10	1.2*	1.0*
Alexander	0	0.0*	0	0.0*	0.0*
Alleghany	0	0.0*	0	0.0*	0.0*
Anson	1	4.1*	3	2.4*	1.8*
Ashe	0	0.0*	0	0.0*	0.0*
Avery	0	0.0*	0	0.0*	0.0*
Beaufort	0	0.0*	6	2.5*	2.8*
Bertie	2	10.6*	4	4.1*	3.8*
Bladen	1	3.1*	4	2.4*	1.9*
Brunswick	0	0.0*	9	1.4*	1.4*
Buncombe	4	1.5*	16	1.2*	1.1*
Burke	2	2.2*	2	0.4*	0.3*
Cabarrus	2	0.9*	17	1.6*	1.5*
Caldwell	1	1.2*	4	1.0*	0.9*
Camden	0	0.0*	0	0.0*	0.0*
Carteret	0	0.0*	2	0.6*	0.6*
Caswell	0	0.0*	1	0.9*	0.8*
Catawba	2	1.3*	7	0.9*	0.8*
Chatham	0	0.0*	2	0.6*	0.4*
Cherokee	0	0.0*	2	1.4*	2.3*
Chowan	0	0.0*	2	2.8*	3.0*
Clay	0	0.0*	0	0.0*	0.0*
Cleveland	1	1.0*	15	3.1*	3.1*
Columbus	1	1.8*	9	3.2*	3.0*
Craven	4	3.9*	11	2.1*	2.0*
Cumberland	9	2.7*	56	3.4	3.5
Currituck	0	0.0*	0	0.0*	0.0*
Dare	0	0.0*	1	0.6*	0.5*
Davidson	2	1.2*	13	1.6*	1.2*
Davie	1	2.3*	2	0.9*	0.9*
Duplin	3	5.1*	5	1.7*	1.3*
Durham	4	1.2*	49	3.1*	3.0*
Edgecombe	2	3.9*	17	6.5*	5.9*
Forsyth	7	1.8*	58	3.1	2.7
Franklin	2	2.9*	5	1.5*	1.2*
Gaston	7	3.1*	30	2.7*	2.4*
Gates	0	0.0*	1	1.7*	1.5*
Graham	0	0.0*	0	0.0*	0.0*
Granville	0	0.0*	5	1.7*	1.5*
Greene	0	0.0*	2	1.9*	2.0*
Guilford	10	1.9*	58	2.2	2.0
Halifax	3	6.0*	15	5.9*	4.8*
Harnett	3	2.2*	16	2.4*	2.3*
Haywood	0	0.0*	1	0.3*	0.3*
Henderson	0	0.0*	2	0.3*	0.4*
Hertford	0	0.0*	2	1.7*	1.0*
Hoke	2	3.6*	12	4.4*	4.8*
Hyde	0	0.0*	0	0.0*	0.0*
Iredell	2	1.1*	11	1.3*	1.2*
Jackson	0	0.0*	1	0.5*	0.3*

Table 9: Human Immunodeficiency Virus (HIV) Disease
North Carolina Resident Mortality Statistics Summary for 2019

Geographical Area:	Number of Deaths 2019	Death Rate* 2019	Number of Deaths 2015–2019	Unadjusted Death Rate* 2015–2019	Age-Adjusted Death Rate* 2015–2019
Johnston	0	0.0*	8	0.8*	0.6*
Jones	0	0.0*	1	2.1*	1.1*
Lee	0	0.0*	7	2.3*	2.2*
Lenoir	1	1.8*	10	3.5*	3.6*
Lincoln	1	1.2*	3	0.7*	0.8*
McDowell	1	2.2*	2	0.9*	0.7*
Macon	0	0.0*	3	1.7*	2.6*
Madison	0	0.0*	1	0.9*	1.0*
Martin	1	4.5*	4	3.5*	2.2*
Mecklenburg	25	2.3*	164	3.1	2.9
Mitchell	0	0.0*	1	1.3*	0.7*
Montgomery	0	0.0*	2	1.5*	1.5*
Moore	1	1.0*	11	2.3*	2.0*
Nash	1	1.1*	13	2.8*	2.4*
New Hanover	1	0.4*	13	1.1*	1.1*
Northhampton	0	0.0*	3	3.0*	4.1*
Onslow	2	1.0*	14	1.4*	1.9*
Orange	0	0.0*	4	0.6*	0.6*
Pamlico	0	0.0*	0	0.0*	0.0*
Pasquotank	0	0.0*	1	0.5*	0.5*
Pender	0	0.0*	4	1.3*	1.0*
Perquimans	1	7.4*	1	1.5*	1.6*
Person	0	0.0*	4	2.0*	1.6*
Pitt	4	2.2*	15	1.7*	1.7*
Polk	0	0.0*	1	1.0*	1.0*
Randolph	1	0.7*	8	1.1*	0.9*
Richmond	3	6.7*	11	4.9*	4.3*
Robeson	4	3.1*	13	2.0*	1.8*
Rockingham	1	1.1*	13	2.9*	3.2*
Rowan	6	4.2*	11	1.6*	1.5*
Rutherford	1	1.5*	7	2.1*	2.2*
Sampson	1	1.6*	11	3.5*	3.4*
Scotland	0	0.0*	7	4.0*	3.5*
Stanly	1	1.6*	6	1.9*	2.0*
Stokes	0	0.0*	2	0.9*	0.8*
Surry	1	1.4*	2	0.6*	0.6*
Swain	0	0.0*	0	0.0*	0.0*
Transylvania	0	0.0*	1	0.6*	0.7*
Tyrrell	0	0.0*	0	0.0*	0.0*
Union	2	0.8*	10	0.9*	0.9*
Vance	1	2.2*	7	3.1*	3.0*
Wake	13	1.2*	77	1.4	1.3
Warren	0	0.0*	0	0.0*	0.0*
Washington	0	0.0*	0	0.0*	0.0*
Watauga	0	0.0*	2	0.7*	1.1*
Wayne	3	2.4*	19	3.1*	2.8*
Wilkes	1	1.5*	3	0.9*	0.9*
Wilson	5	6.1*	19	4.7*	4.1*
Yadkin	0	0.0*	1	0.5*	0.3*
Yancey	0	0.0*	1	1.1*	1.5*

*Death rates with a small number (<50) of deaths in the numerator should be interpreted with caution. SEE TECHNICAL NOTES on page 101.

Septicemia

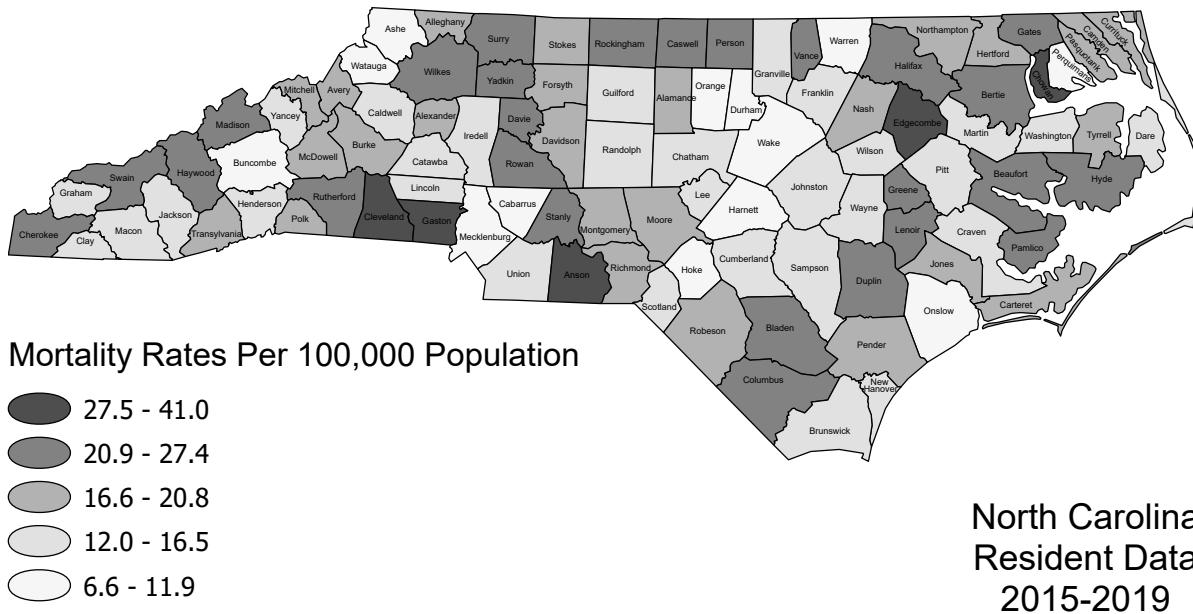


Figure 10.A

Septicemia

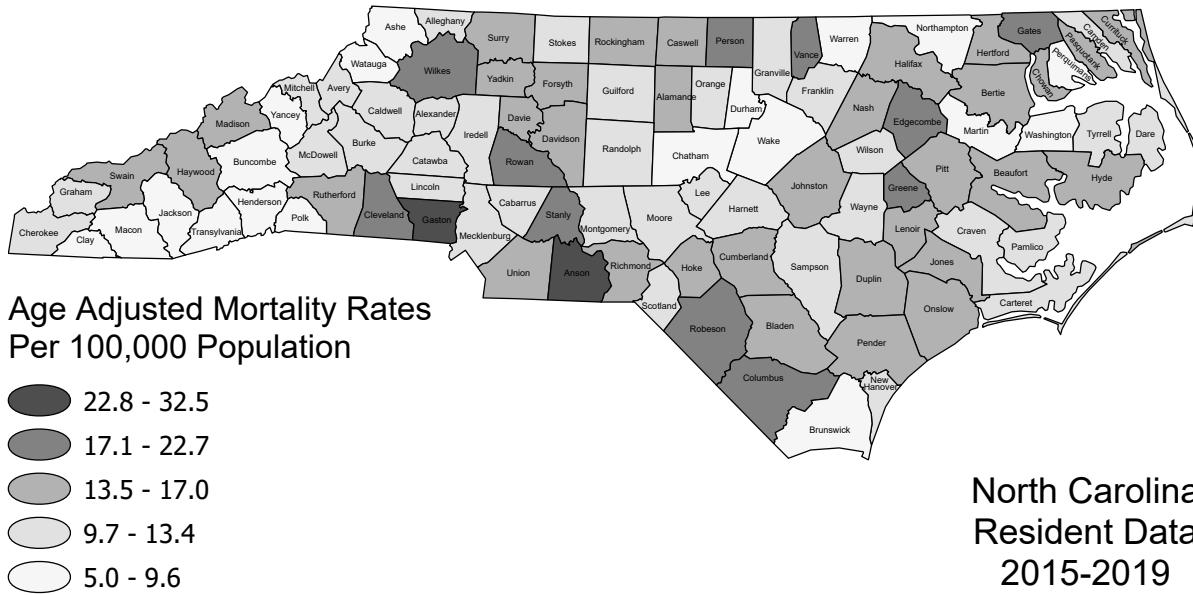


Figure 10.B

Table 10: Septicemia
North Carolina Resident Mortality Statistics Summary for 2019

Geographical Area:	Number of Deaths 2019	Death Rate* 2019	Number of Deaths 2015–2019	Unadjusted Death Rate* 2015–2019	Age-Adjusted Death Rate* 2015–2019
NORTH CAROLINA	1,550	14.8	7,696	15.0	12.7
Alamance	31	18.3*	164	20.1	15.4
Alexander	4	10.7*	32	17.2*	12.9*
Alleghany	1	9.0*	11	20.0*	10.6*
Anson	9	36.8*	51	41.0	32.5
Ashe	4	14.7*	13	9.7*	5.0*
Avery	4	22.8*	16	18.3*	11.4*
Beaufort	8	17.0*	58	24.6	15.6
Bertie	2	10.6*	21	21.7*	13.9*
Bladen	8	24.4*	43	25.7*	16.9*
Brunswick	27	18.9*	99	15.0	8.6
Buncombe	33	12.6*	140	10.9	7.7
Burke	18	19.9*	76	16.9	11.4
Cabarrus	28	12.9*	117	11.3	11.3
Caldwell	14	17.0*	58	14.2	10.6
Camden	2	18.4*	9	17.1*	12.3*
Carteret	10	14.4*	65	18.8	11.3
Caswell	8	35.4*	26	22.9*	14.9*
Catawba	20	12.5*	124	15.7	12.4
Chatham	8	10.7*	45	12.6*	7.1*
Cherokee	1	3.5*	34	24.3*	11.9*
Chowan	3	21.5*	21	29.8*	16.7*
Clay	3	26.7*	7	12.8*	8.7*
Cleveland	25	25.5*	139	28.6	22.0
Columbus	15	27.0*	71	25.3	18.6
Craven	17	16.6*	78	15.2	11.4
Cumberland	35	10.4*	233	14.0	15.4
Currituck	6	21.6*	22	16.7*	15.0*
Dare	3	8.1*	27	14.9*	11.7*
Davidson	26	15.5*	157	19.0	14.5
Davie	6	14.0*	49	23.2*	14.3*
Duplin	16	27.2*	63	21.4	16.7
Durham	22	6.8*	144	9.2	9.6
Edgecombe	11	21.4*	80	30.4	22.7
Forsyth	63	16.5	335	17.9	15.0
Franklin	8	11.5*	46	13.9*	11.7*
Gaston	116	51.7	363	33.1	28.0
Gates	2	17.3*	15	26.0*	17.6*
Graham	1	11.8*	6	14.1*	11.1*
Granville	10	16.5*	39	13.1*	10.2*
Greene	4	19.0*	26	24.7*	20.5*
Guilford	61	11.4	350	13.3	11.6
Halifax	12	24.0*	60	23.4	15.8
Harnett	16	11.8*	70	10.6	11.7
Haywood	16	25.7*	66	21.6	13.7
Henderson	16	13.6*	79	13.7	8.0
Hertford	6	25.3*	25	20.8*	14.8*
Hoke	6	10.9*	30	11.1*	14.8*
Hyde	3	60.8*	6	23.0*	13.5*
Iredell	16	8.8*	133	15.2	13.4
Jackson	5	11.4*	27	12.6*	9.4*

Table 10: Septicemia
North Carolina Resident Mortality Statistics Summary for 2019

Geographical Area:	Number of Deaths 2019	Death Rate* 2019	Number of Deaths 2015–2019	Unadjusted Death Rate* 2015–2019	Age-Adjusted Death Rate* 2015–2019
Johnston	38	18.2*	133	13.5	14.7
Jones	5	53.1*	10	20.8*	15.1*
Lee	6	9.7*	47	15.5*	13.4*
Lenoir	13	23.2*	64	22.6	16.6
Lincoln	12	13.9*	65	15.7	12.7
McDowell	13	28.4*	42	18.6*	12.7*
Macon	6	16.7*	25	14.4*	7.3*
Madison	9	41.4*	23	21.4*	14.3*
Martin	3	13.4*	15	13.1*	7.4*
Mecklenburg	85	7.7	509	9.5	10.9
Mitchell	7	46.8*	15	20.0*	12.9*
Montgomery	3	11.0*	24	17.6*	12.1*
Moore	19	18.8*	88	18.1	10.8
Nash	6	6.4*	89	18.9	14.3
New Hanover	46	19.6*	182	16.0	13.1
Northhampton	5	25.7*	18	18.0*	9.3*
Onslow	32	16.2*	102	10.5	15.4
Orange	15	10.1*	71	9.8	10.0
Pamlico	1	7.9*	14	22.0*	10.5*
Pasquotank	6	15.1*	36	18.2*	15.6*
Pender	13	20.6*	60	19.9	15.5
Perquimans	1	7.4*	8	11.9*	6.8*
Person	11	27.9*	46	23.4*	17.9*
Pitt	29	16.0*	128	14.3	15.2
Polk	1	4.8*	18	17.5*	7.2*
Randolph	25	17.4*	115	16.1	12.9
Richmond	8	17.8*	40	17.8*	14.1*
Robeson	20	15.3*	138	20.8	18.9
Rockingham	19	20.9*	111	24.4	17.0
Rowan	24	16.9*	165	23.5	18.6
Rutherford	13	19.4*	71	21.3	14.2
Sampson	10	15.7*	51	16.1	12.7
Scotland	4	11.5*	22	12.5*	10.5*
Stanly	15	23.9*	76	24.7	18.1
Stokes	8	17.5*	47	20.5*	13.0*
Surry	16	22.3*	83	23.1	16.1
Swain	5	35.0*	16	22.4*	16.0*
Transylvania	4	11.6*	32	18.9*	8.1*
Tyrrell	1	24.9*	4	19.5*	12.3*
Union	32	13.3*	164	14.2	16.0
Vance	9	20.2*	61	27.4	20.7
Wake	72	6.5	353	6.6	7.6
Warren	4	20.3*	11	11.1*	6.4*
Washington	0	0.0*	9	15.1*	7.8*
Watauga	5	8.9*	20	7.3*	6.6*
Wayne	28	22.7*	93	15.0	12.5
Wilkes	25	36.5*	91	26.6	18.0
Wilson	16	19.6*	67	16.5	13.2
Yadkin	6	15.9*	41	21.8*	15.8*
Yancey	7	38.7*	14	15.8*	9.2*

*Death rates with a small number (<50) of deaths in the numerator should be interpreted with caution. SEE TECHNICAL NOTES on page 101.

Diabetes Mellitus

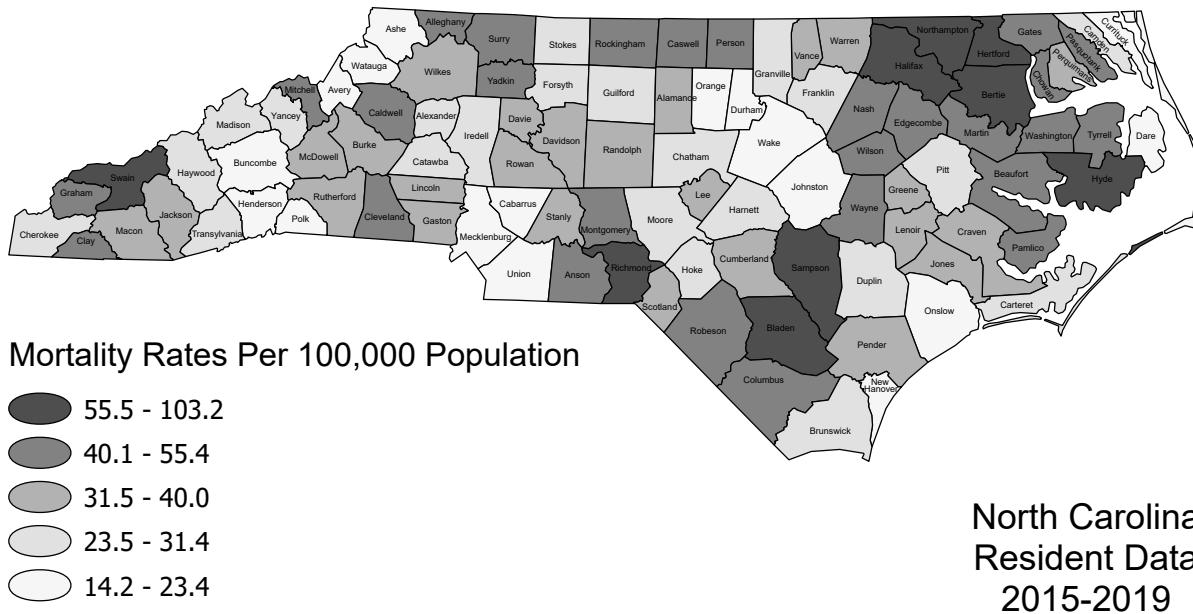


Figure 11.A

Diabetes Mellitus

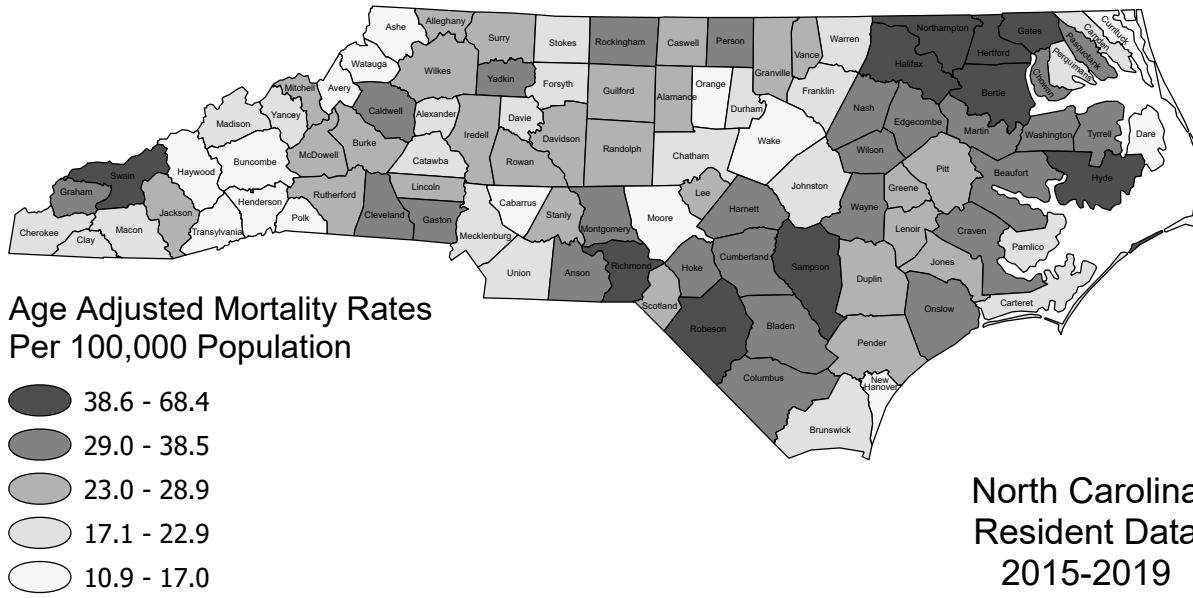


Figure 11.B

Table 11: Diabetes Mellitus
North Carolina Resident Mortality Statistics Summary for 2019

Geographical Area:	Number of Deaths 2019	Death Rate* 2019	Number of Deaths 2015–2019	Unadjusted Death Rate* 2015–2019	Age-Adjusted Death Rate* 2015–2019
NORTH CAROLINA	3,127	29.8	14,612	28.5	23.8
Alamance	46	27.1*	265	32.5	25.4
Alexander	14	37.3*	58	31.2	22.4
Alleghany	8	71.8*	26	47.2*	24.7*
Anson	8	32.7*	51	41.0	31.6
Ashe	2	7.4*	29	21.6*	14.1*
Avery	6	34.2*	20	22.8*	16.5*
Beaufort	25	53.2*	107	45.4	29.3
Bertie	19	100.3*	100	103.2	68.4
Bladen	24	73.3*	100	59.9	38.5
Brunswick	55	38.5	197	29.9	18.1
Buncombe	59	22.6	300	23.4	16.9
Burke	30	33.2*	163	36.2	24.4
Cabarrus	36	16.6*	186	18.0	17.0
Caldwell	48	58.4*	170	41.5	29.4
Camden	4	36.8*	14	26.5*	20.5*
Carteret	24	34.5*	107	31.0	18.3
Caswell	9	39.8*	49	43.2*	28.7*
Catawba	54	33.8	228	28.9	22.3
Chatham	28	37.6*	112	31.4	18.9
Cherokee	10	35.0*	42	30.0*	19.3*
Chowan	9	64.5*	35	49.7*	31.1*
Clay	8	71.2*	23	42.0*	21.4*
Cleveland	40	40.8*	235	48.3	37.3
Columbus	25	45.0*	117	41.7	30.4
Craven	38	37.2*	195	38.1	30.0
Cumberland	125	37.3	534	32.1	35.7
Currituck	3	10.8*	24	18.2*	15.5*
Dare	8	21.6*	34	18.8*	13.1*
Davidson	60	35.8	294	35.6	26.9
Davie	23	53.7*	68	32.2	20.6
Duplin	18	30.6*	92	31.2	23.9
Durham	63	19.6	294	18.9	18.6
Edgecombe	32	62.2*	125	47.5	34.8
Forsyth	120	31.4	516	27.5	22.9
Franklin	16	23.0*	86	25.9	20.0
Gaston	94	41.9	438	40.0	33.2
Gates	7	60.5*	32	55.4*	39.6*
Graham	4	47.4*	18	42.3*	31.4*
Granville	20	33.1*	90	30.3	23.6
Greene	8	38.0*	34	32.3*	25.9*
Guilford	163	30.3	725	27.5	24.0
Halifax	38	76.0*	170	66.4	45.9
Harnett	39	28.7*	201	30.4	32.7
Haywood	24	38.5*	79	25.9	16.0
Henderson	27	23.0*	127	22.1	13.4
Hertford	12	50.7*	80	66.6	45.6
Hoke	20	36.2*	68	25.2	31.1
Hyde	3	60.8*	16	61.4*	40.8*
Iredell	55	30.3	256	29.2	24.0
Jackson	14	31.9*	69	32.1	27.4

Table 11: Diabetes Mellitus
North Carolina Resident Mortality Statistics Summary for 2019

Geographical Area:	Number of Deaths 2019	Death Rate* 2019	Number of Deaths 2015–2019	Unadjusted Death Rate* 2015–2019	Age-Adjusted Death Rate* 2015–2019
Johnston	43	20.5*	225	22.9	22.7
Jones	8	84.9*	19	39.6*	24.9*
Lee	19	30.8*	98	32.4	25.9
Lenoir	23	41.1*	113	39.8	28.4
Lincoln	24	27.9*	134	32.3	24.6
McDowell	19	41.5*	78	34.5	24.3
Macon	17	47.4*	67	38.5	21.7
Madison	4	18.4*	28	26.0*	19.0*
Martin	15	66.8*	62	54.3	34.3
Mecklenburg	214	19.3	926	17.2	18.8
Mitchell	8	53.5*	35	46.7*	28.9*
Montgomery	8	29.4*	59	43.3	29.5
Moore	34	33.7*	134	27.5	16.8
Nash	53	56.2	193	41.1	31.7
New Hanover	47	20.0*	220	19.3	15.4
Northhampton	14	71.9*	79	79.2	45.3
Onslow	51	25.8	213	21.8	31.4
Orange	18	12.1*	103	14.2	14.7
Pamlico	4	31.4*	30	47.2*	22.8*
Pasquotank	17	42.7*	84	42.5	34.1
Pender	23	36.5*	97	32.1	23.9
Perquimans	3	22.3*	25	37.2*	21.3*
Person	16	40.5*	85	43.2	30.6
Pitt	59	32.6	244	27.3	27.5
Polk	8	38.6*	24	23.3*	10.9*
Randolph	49	34.1*	230	32.1	25.0
Richmond	31	69.2*	132	58.7	44.9
Robeson	54	41.3	294	44.3	40.6
Rockingham	40	44.0*	198	43.5	30.2
Rowan	40	28.2*	256	36.5	27.5
Rutherford	26	38.8*	118	35.4	25.1
Sampson	32	50.4*	201	63.4	49.2
Scotland	17	48.8*	62	35.4	26.6
Stanly	14	22.3*	100	32.5	24.0
Stokes	16	35.1*	61	26.6	18.1
Surry	38	52.9*	148	41.1	28.5
Swain	11	77.1*	44	61.7*	45.5*
Transylvania	8	23.3*	44	26.1*	12.9*
Tyrrell	1	24.9*	10	48.8*	33.5*
Union	41	17.1*	216	18.7	19.3
Vance	14	31.4*	78	35.1	26.1
Wake	159	14.3	830	15.5	17.0
Warren	5	25.3*	37	37.2*	21.4*
Washington	8	69.1*	29	48.6*	30.6*
Watauga	11	19.6*	46	16.8*	15.4*
Wayne	51	41.4	279	45.1	37.5
Wilkes	28	40.9*	124	36.2	25.2
Wilson	41	50.1*	181	44.5	35.1
Yadkin	15	39.8*	95	50.5	35.2
Yancey	3	16.6*	25	28.2*	21.5*

*Death rates with a small number (<50) of deaths in the numerator should be interpreted with caution. SEE TECHNICAL NOTES on page 101.

Pneumonia and Influenza

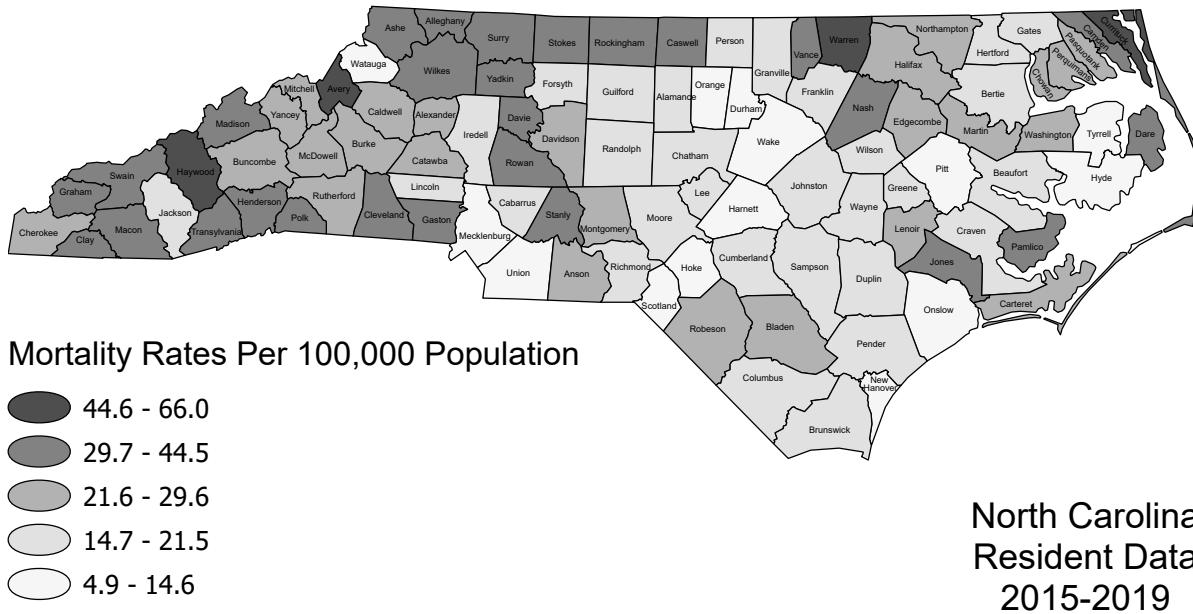


Figure 12.A

Pneumonia and Influenza

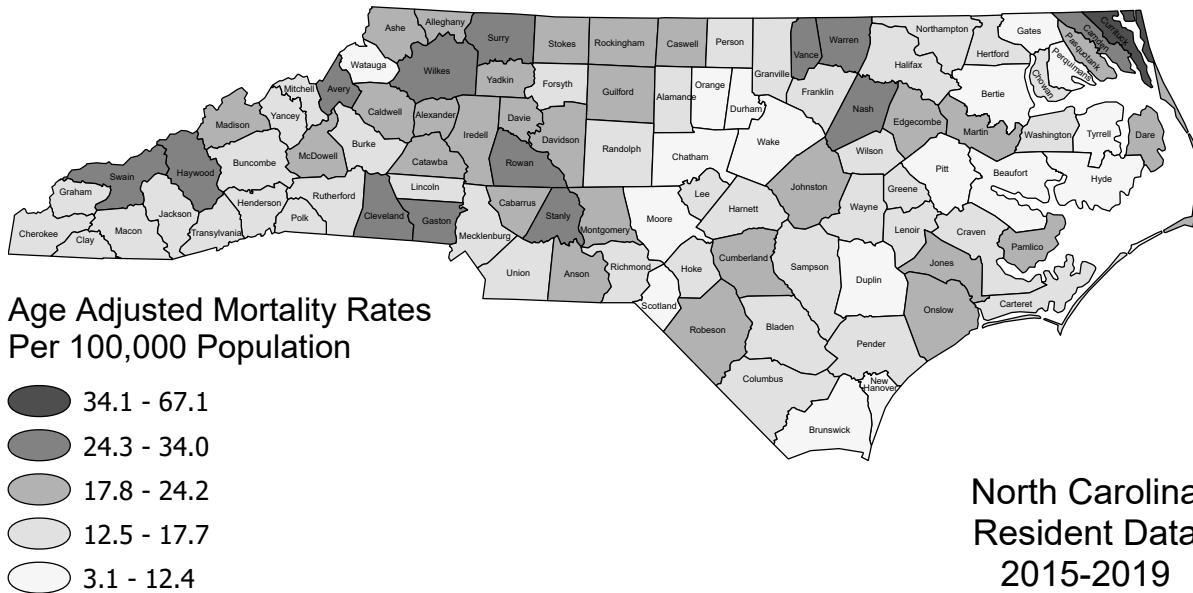


Figure 12.B

Table 12: Pneumonia and Influenza
North Carolina Resident Mortality Statistics Summary for 2019

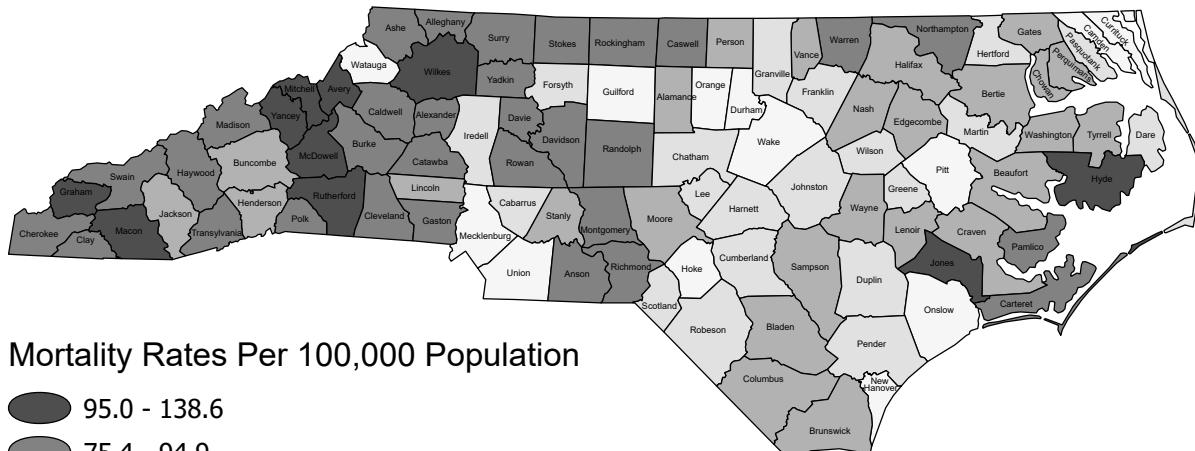
Geographical Area:	Number of Deaths 2019	Death Rate* 2019	Number of Deaths 2015–2019	Unadjusted Death Rate* 2015–2019	Age-Adjusted Death Rate* 2015–2019
NORTH CAROLINA	1,733	16.5	9,888	19.3	16.7
Alamance	31	18.3*	166	20.3	15.6
Alexander	5	13.3*	53	28.5	21.8
Alleghany	6	53.9*	21	38.2*	22.9*
Anson	6	24.5*	36	28.9*	21.8*
Ashe	9	33.1*	49	36.5*	20.8*
Avery	9	51.3*	45	51.4*	33.9*
Beaufort	7	14.9*	43	18.2*	11.6*
Bertie	2	10.6*	16	16.5*	10.3*
Bladen	10	30.6*	39	23.3*	15.5*
Brunswick	25	17.5*	112	17.0	10.4
Buncombe	56	21.4	294	22.9	15.6
Burke	18	19.9*	109	24.2	17.2
Cabarrus	41	18.9*	202	19.6	19.8
Caldwell	19	23.1*	111	27.1	20.5
Camden	4	36.8*	16	30.3*	27.4*
Carteret	13	18.7*	78	22.6	13.7
Caswell	3	13.3*	38	33.5*	22.2*
Catawba	37	23.2*	216	27.4	22.5
Chatham	7	9.4*	74	20.7	11.9
Cherokee	11	38.4*	34	24.3*	12.8*
Chowan	2	14.3*	17	24.1*	13.5*
Clay	4	35.6*	17	31.1*	14.7*
Cleveland	25	25.5*	146	30.0	24.8
Columbus	14	25.2*	57	20.3	14.6
Craven	22	21.5*	106	20.7	15.9
Cumberland	47	14.0*	288	17.3	20.0
Currituck	13	46.8*	87	66.0	67.1
Dare	12	32.4*	55	30.4	23.2
Davidson	43	25.7*	222	26.8	21.2
Davie	7	16.3*	70	33.1	20.6
Duplin	11	18.7*	49	16.6*	12.4*
Durham	24	7.5*	139	8.9	9.2
Edgecombe	10	19.4*	63	23.9	18.7
Forsyth	66	17.3	396	21.1	17.5
Franklin	11	15.8*	55	16.6	13.6
Gaston	52	23.2	333	30.4	26.3
Gates	2	17.3*	10	17.3*	11.8*
Graham	4	47.4*	13	30.6*	16.7*
Granville	7	11.6*	52	17.5	14.5
Greene	4	19.0*	16	15.2*	13.2*
Guilford	109	20.3	559	21.2	18.6
Halifax	8	16.0*	63	24.6	16.9
Harnett	14	10.3*	79	11.9	13.6
Haywood	36	57.8*	144	47.2	27.3
Henderson	28	23.8*	190	33.1	17.6
Hertford	5	21.1*	24	20.0*	13.5*
Hoke	4	7.2*	31	11.5*	16.2*
Hyde	1	20.3*	3	11.5*	7.3*
Iredell	30	16.5*	189	21.5	19.9
Jackson	13	29.6*	41	19.1*	15.4*

Table 12: Pneumonia and Influenza
North Carolina Resident Mortality Statistics Summary for 2019

Geographical Area:	Number of Deaths 2019	Death Rate* 2019	Number of Deaths 2015–2019	Unadjusted Death Rate* 2015–2019	Age-Adjusted Death Rate* 2015–2019
Johnston	38	18.2*	160	16.3	18.3
Jones	0	0.0*	16	33.4*	23.8*
Lee	10	16.2*	51	16.9	13.4
Lenoir	9	16.1*	65	22.9	16.5
Lincoln	10	11.6*	64	15.4	13.1
McDowell	12	26.2*	67	29.6	20.9
Macon	13	36.3*	57	32.7	16.6
Madison	6	27.6*	37	34.4*	22.0*
Martin	2	8.9*	33	28.9*	19.7*
Mecklenburg	88	7.9	586	10.9	13.1
Mitchell	2	13.4*	22	29.3*	15.9*
Montgomery	7	25.8*	38	27.9*	20.3*
Moore	15	14.9*	95	19.5	10.3
Nash	25	26.5*	157	33.4	26.4
New Hanover	44	18.8*	166	14.6	11.8
Northhampton	5	25.7*	25	25.1*	13.5*
Onslow	26	13.1*	126	12.9	19.0
Orange	14	9.4*	59	8.1	8.8
Pamlico	5	39.3*	28	44.1*	23.5*
Pasquotank	12	30.1*	52	26.3	21.9
Pender	18	28.5*	56	18.5	14.8
Perquimans	2	14.9*	15	22.3*	12.2*
Person	3	7.6*	37	18.8*	13.8*
Pitt	11	6.1*	82	9.2	9.8
Polk	5	24.1*	40	38.9*	15.7*
Randolph	18	12.5*	133	18.6	15.0
Richmond	6	13.4*	44	19.6*	15.9*
Robeson	34	26.0*	149	22.5	21.6
Rockingham	20	22.0*	142	31.2	21.4
Rowan	57	40.1	273	38.9	30.4
Rutherford	13	19.4*	80	24.0	17.7
Sampson	10	15.7*	65	20.5	16.3
Scotland	1	2.9*	24	13.7*	11.0*
Stanly	17	27.1*	103	33.4	25.3
Stokes	11	24.1*	76	33.2	22.1
Surry	17	23.7*	134	37.2	25.9
Swain	4	28.0*	25	35.1*	25.5*
Transylvania	7	20.4*	51	30.2	13.9
Tyrrell	0	0.0*	1	4.9*	3.1*
Union	22	9.2*	142	12.3	14.3
Vance	22	49.4*	99	44.5	34.0
Wake	66	5.9	436	8.2	9.8
Warren	8	40.5*	49	49.3*	27.1*
Washington	5	43.2*	17	28.5*	15.7*
Watauga	5	8.9*	32	11.7*	11.2*
Wayne	26	21.1*	115	18.6	15.5
Wilkes	13	19.0*	124	36.2	25.4
Wilson	10	12.2*	83	20.4	15.5
Yadkin	9	23.9*	67	35.6	24.2
Yancey	3	16.6*	24	27.0*	15.7*

*Death rates with a small number (<50) of deaths in the numerator should be interpreted with caution. SEE TECHNICAL NOTES on page 101.

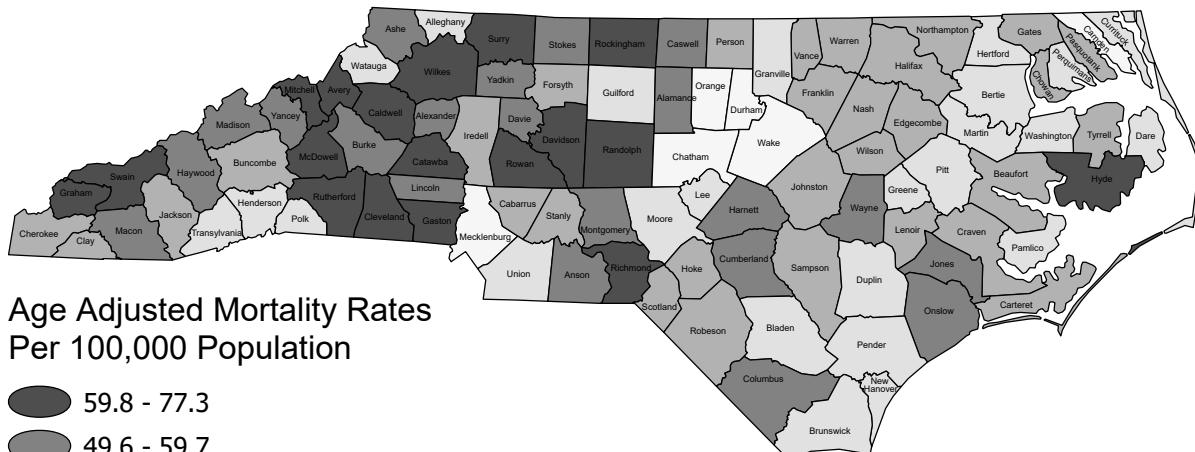
Chronic Lower Respiratory Diseases



North Carolina
Resident Data
2015-2019

Figure 13.A

Chronic Lower Respiratory Diseases



North Carolina
Resident Data
2015-2019

Figure 13.B

Table 13: Chronic Lower Respiratory Diseases
North Carolina Resident Mortality Statistics Summary for 2019

Geographical Area:	Number of Deaths 2019	Death Rate* 2019	Number of Deaths 2015–2019	Unadjusted Death Rate* 2015–2019	Age-Adjusted Death Rate* 2015–2019
NORTH CAROLINA	5,411	51.6	26,861	52.3	44.0
Alamance	114	67.3	533	65.3	50.6
Alexander	24	64.0*	160	86.0	59.7
Alleghany	9	80.8*	44	79.9*	40.2*
Anson	20	81.8*	95	76.3	56.7
Ashe	27	99.3*	124	92.3	51.7
Avery	30	170.9*	99	113.1	71.9
Beaufort	29	61.7*	171	72.5	43.3
Bertie	18	95.0*	58	59.9	36.6
Bladen	24	73.3*	105	62.9	40.8
Brunswick	93	65.1	476	72.2	40.4
Buncombe	153	58.6	833	64.9	44.8
Burke	89	98.4	388	86.3	58.2
Cabarrus	96	44.4	486	47.0	47.8
Caldwell	74	90.0	382	93.3	65.9
Camden	2	18.4*	15	28.4*	25.5*
Carteret	49	70.5*	282	81.7	46.8
Caswell	15	66.4*	87	76.7	51.4
Catawba	133	83.4	689	87.4	67.6
Chatham	36	48.3*	150	42.1	24.3
Cherokee	26	90.9*	124	88.7	44.7
Chowan	12	86.1*	51	72.4	42.3
Clay	9	80.1*	51	93.2	46.2
Cleveland	98	100.1	440	90.5	68.9
Columbus	44	79.3*	211	75.3	52.2
Craven	53	51.9	331	64.6	47.6
Cumberland	150	44.7	741	44.5	50.6
Currituck	7	25.2*	54	41.0	36.6
Dare	23	62.1*	92	50.8	36.9
Davidson	144	85.9	699	84.5	62.3
Davie	49	114.4*	170	80.5	51.1
Duplin	24	40.9*	136	46.1	33.4
Durham	87	27.1	401	25.7	26.6
Edgecombe	33	64.1*	156	59.3	42.8
Forsyth	179	46.8	1,027	54.7	45.3
Franklin	37	53.1*	181	54.5	46.2
Gaston	178	79.3	891	81.3	68.0
Gates	8	69.2*	43	74.5*	47.8*
Graham	13	154.0*	49	115.2*	65.1*
Granville	28	46.3*	146	49.2	39.6
Greene	7	33.2*	46	43.7*	34.3*
Guilford	203	37.8	982	37.2	32.4
Halifax	35	70.0*	173	67.6	44.5
Harnett	66	48.5	318	48.1	53.0
Haywood	48	77.0*	280	91.7	51.1
Henderson	74	63.0	388	67.5	36.1
Hertford	21	88.7*	59	49.1	32.5
Hoke	25	45.3*	96	35.6	48.4
Hyde	5	101.3*	26	99.8*	65.6*
Iredell	109	60.0	498	56.7	49.1
Jackson	25	56.9*	139	64.7	48.6

Table 13: Chronic Lower Respiratory Diseases
North Carolina Resident Mortality Statistics Summary for 2019

Geographical Area:	Number of Deaths 2019	Death Rate* 2019	Number of Deaths 2015–2019	Unadjusted Death Rate* 2015–2019	Age-Adjusted Death Rate* 2015–2019
Johnston	81	38.7	456	46.3	48.1
Jones	10	106.2*	47	98.0*	58.4*
Lee	30	48.6*	141	46.6	37.6
Lenoir	31	55.4*	188	66.2	45.4
Lincoln	64	74.3	305	73.6	56.8
McDowell	38	83.0*	224	99.1	65.5
Macon	32	89.2*	187	107.4	52.6
Madison	21	96.5*	97	90.2	55.0
Martin	14	62.4*	62	54.3	33.8
Mecklenburg	251	22.6	1,321	24.6	30.0
Mitchell	16	106.9*	104	138.6	77.3
Montgomery	24	88.3*	111	81.5	55.5
Moore	60	59.5	320	65.8	35.9
Nash	51	54.1	290	61.7	46.4
New Hanover	101	43.1	463	40.6	31.8
Northhampton	14	71.9*	77	77.2	43.4
Onslow	98	49.5	374	38.3	56.0
Orange	36	24.2*	172	23.8	24.6
Pamlico	10	78.6*	54	85.0	40.0
Pasquotank	24	60.3*	102	51.6	42.1
Pender	39	61.8*	145	48.0	36.0
Perquimans	6	44.6*	45	67.0*	35.4*
Person	29	73.4*	133	67.6	46.9
Pitt	55	30.4	291	32.6	33.6
Polk	16	77.2*	85	82.7	34.2
Randolph	116	80.7	584	81.6	62.8
Richmond	36	80.3*	197	87.6	67.0
Robeson	62	47.5	339	51.1	45.7
Rockingham	85	93.4	432	94.9	62.4
Rowan	95	66.9	557	79.4	61.0
Rutherford	85	126.8	369	110.8	72.1
Sampson	40	63.0*	192	60.6	46.9
Scotland	21	60.3*	95	54.2	41.3
Stanly	53	84.4	203	65.9	47.1
Stokes	40	87.7*	192	83.9	54.6
Surry	61	85.0	337	93.6	61.4
Swain	20	140.1*	67	94.0	66.5
Transylvania	30	87.2*	137	81.1	37.1
Tyrrell	4	99.6*	15	73.3*	49.5*
Union	65	27.1	376	32.5	37.3
Vance	32	71.9*	134	60.3	46.4
Wake	241	21.7	1,196	22.4	27.1
Warren	19	96.3*	85	85.4	48.7
Washington	10	86.4*	39	65.4*	36.3*
Watauga	28	49.8*	110	40.1	35.7
Wayne	65	52.8	383	62.0	51.0
Wilkes	92	134.5	357	104.3	67.0
Wilson	53	64.8	234	57.5	43.2
Yadkin	32	85.0*	166	88.3	58.5
Yancey	20	110.7*	95	107.0	58.5

*Death rates with a small number (<50) of deaths in the numerator should be interpreted with caution. SEE TECHNICAL NOTES on page 101.

Chronic Liver Disease and Cirrhosis

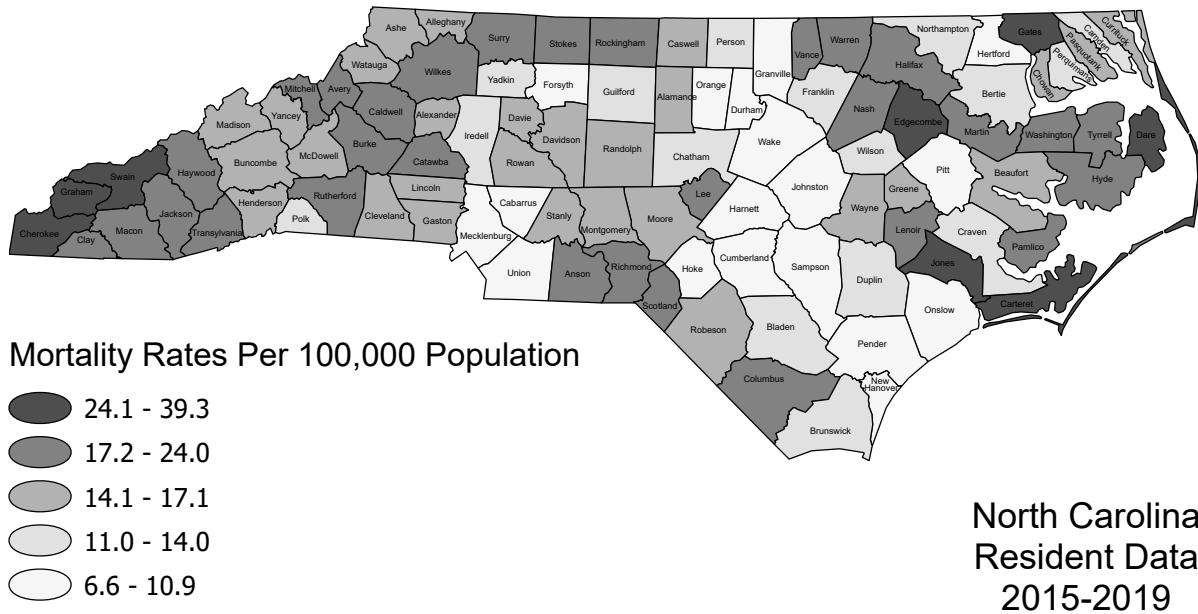


Figure 14.A

Chronic Liver Disease and Cirrhosis

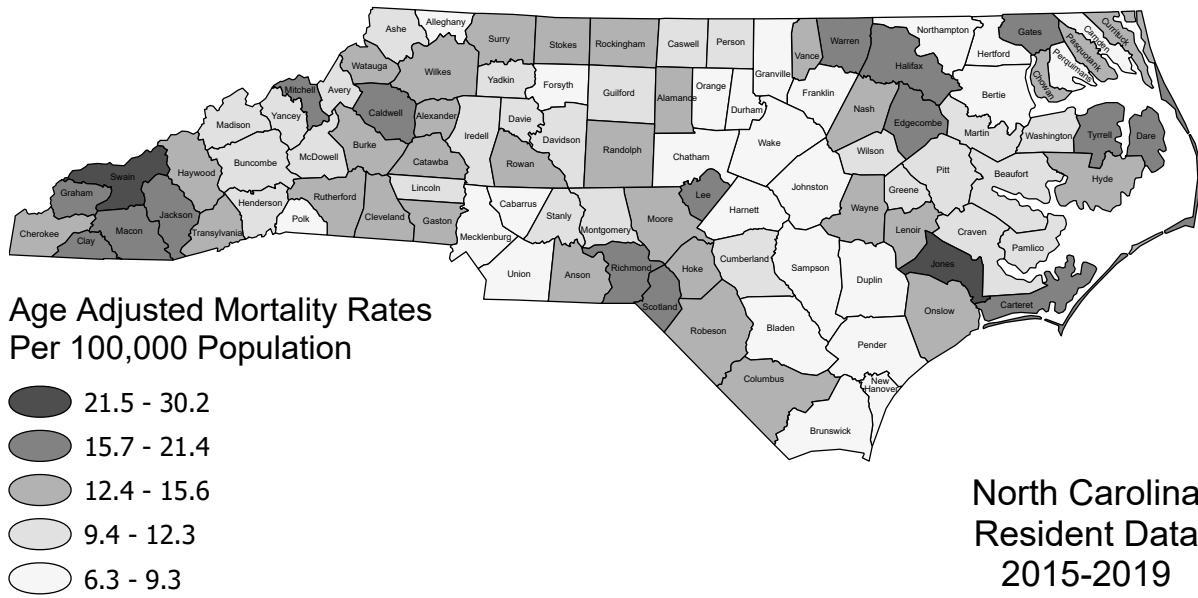


Figure 14.B

Table 14: Chronic Liver Disease and Cirrhosis
North Carolina Resident Mortality Statistics Summary for 2019

Geographical Area:	Number of Deaths 2019	Death Rate* 2019	Number of Deaths 2015–2019	Unadjusted Death Rate* 2015–2019	Age-Adjusted Death Rate* 2015–2019
NORTH CAROLINA	1,449	13.8	6,532	12.7	10.6
Alamance	27	15.9*	131	16.0	12.9
Alexander	7	18.7*	31	16.7*	13.4*
Alleghany	2	18.0*	8	14.5*	9.1*
Anson	3	12.3*	23	18.5*	15.1*
Ashe	7	25.7*	21	15.6*	11.6*
Avery	0	0.0*	16	18.3*	12.2*
Beaufort	6	12.8*	37	15.7*	11.6*
Bertie	4	21.1*	12	12.4*	7.1*
Bladen	4	12.2*	21	12.6*	8.3*
Brunswick	17	11.9*	89	13.5	9.1
Buncombe	37	14.2*	188	14.6	11.7
Burke	18	19.9*	88	19.6	15.1
Cabarrus	18	8.3*	99	9.6	8.4
Caldwell	28	34.1*	96	23.4	18.5
Camden	0	0.0*	6	11.4*	8.6*
Carteret	20	28.8*	90	26.1	16.9
Caswell	3	13.3*	18	15.9*	11.0*
Catawba	40	25.1*	146	18.5	14.8
Chatham	11	14.8*	41	11.5*	7.8*
Cherokee	6	21.0*	38	27.2*	15.6*
Chowan	2	14.3*	12	17.0*	12.4*
Clay	1	8.9*	10	18.3*	16.6*
Cleveland	14	14.3*	79	16.2	13.4
Columbus	11	19.8*	52	18.5	14.7
Craven	23	22.5*	67	13.1	11.3
Cumberland	34	10.1*	174	10.5	10.9
Currituck	9	32.4*	20	15.2*	12.8*
Dare	8	21.6*	48	26.5*	18.7*
Davidson	19	11.3*	128	15.5	11.6
Davie	2	4.7*	30	14.2*	10.2*
Duplin	9	15.3*	35	11.9*	9.3*
Durham	36	11.2*	107	6.9	6.3
Edgecombe	15	29.1*	64	24.3	18.2
Forsyth	48	12.6*	195	10.4	8.6
Franklin	9	12.9*	41	12.4*	9.3*
Gaston	42	18.7*	183	16.7	13.7
Gates	3	25.9*	15	26.0*	17.7*
Graham	0	0.0*	13	30.6*	21.4*
Granville	5	8.3*	28	9.4*	7.3*
Greene	2	9.5*	17	16.2*	12.3*
Guilford	79	14.7	361	13.7	11.9
Halifax	14	28.0*	56	21.9	17.1
Harnett	17	12.5*	64	9.7	9.2
Haywood	15	24.1*	61	20.0	14.8
Henderson	18	15.3*	88	15.3	10.7
Hertford	2	8.4*	12	10.0*	8.0*
Hoke	5	9.1*	29	10.7*	12.4*
Hyde	3	60.8*	5	19.2*	13.0*
Iredell	25	13.8*	110	12.5	10.0
Jackson	11	25.0*	47	21.9*	20.8*

Table 14: Chronic Liver Disease and Cirrhosis
North Carolina Resident Mortality Statistics Summary for 2019

Geographical Area:	Number of Deaths 2019	Death Rate* 2019	Number of Deaths 2015–2019	Unadjusted Death Rate* 2015–2019	Age-Adjusted Death Rate* 2015–2019
Johnston	21	10.0*	79	8.0	7.5
Jones	0	0.0*	16	33.4*	25.5*
Lee	17	27.5*	60	19.8	16.9
Lenoir	13	23.2*	57	20.1	13.8
Lincoln	21	24.4*	62	15.0	11.1
McDowell	8	17.5*	37	16.4*	11.1*
Macon	10	27.9*	41	23.6*	16.0*
Madison	4	18.4*	16	14.9*	12.2*
Martin	3	13.4*	21	18.4*	10.6*
Mecklenburg	89	8.0	420	7.8	7.9
Mitchell	4	26.7*	18	24.0*	16.5*
Montgomery	5	18.4*	21	15.4*	11.0*
Moore	24	23.8*	83	17.1	12.5
Nash	21	22.3*	89	18.9	15.0
New Hanover	30	12.8*	112	9.8	8.5
Northhampton	4	20.5*	14	14.0*	9.2*
Onslow	27	13.6*	91	9.3	12.5
Orange	12	8.1*	63	8.7	8.1
Pamlico	4	31.4*	12	18.9*	11.8*
Pasquotank	5	12.6*	30	15.2*	12.4*
Pender	5	7.9*	32	10.6*	8.0*
Perquimans	1	7.4*	8	11.9*	7.8*
Person	4	10.1*	25	12.7*	10.7*
Pitt	23	12.7*	97	10.9	10.4
Polk	1	4.8*	12	11.7*	8.1*
Randolph	24	16.7*	119	16.6	12.6
Richmond	10	22.3*	49	21.8*	18.0*
Robeson	16	12.2*	100	15.1	13.6
Rockingham	21	23.1*	90	19.8	12.9
Rowan	32	22.5*	115	16.4	13.2
Rutherford	13	19.4*	66	19.8	13.4
Sampson	6	9.4*	33	10.4*	8.3*
Scotland	3	8.6*	36	20.5*	16.5*
Stanly	10	15.9*	44	14.3*	10.7*
Stokes	10	21.9*	48	21.0*	14.5*
Surry	9	12.5*	73	20.3	14.1
Swain	9	63.1*	28	39.3*	30.2*
Transylvania	7	20.4*	33	19.5*	13.6*
Tyrrell	0	0.0*	4	19.5*	17.5*
Union	19	7.9*	106	9.2	8.2
Vance	7	15.7*	40	18.0*	13.5*
Wake	95	8.5	352	6.6	6.5
Warren	4	20.3*	22	22.1*	18.0*
Washington	2	17.3*	12	20.1*	11.3*
Watauga	9	16.0*	40	14.6*	13.7*
Wayne	21	17.1*	95	15.4	13.0
Wilkes	7	10.2*	65	19.0	14.6
Wilson	9	11.0*	55	13.5	10.3
Yadkin	6	15.9*	26	13.8*	9.9*
Yancey	5	27.7*	15	16.9*	10.8*

*Death rates with a small number (<50) of deaths in the numerator should be interpreted with caution. SEE TECHNICAL NOTES on page 101.

Nephritis, Nephrotic Syndrome and Nephrosis

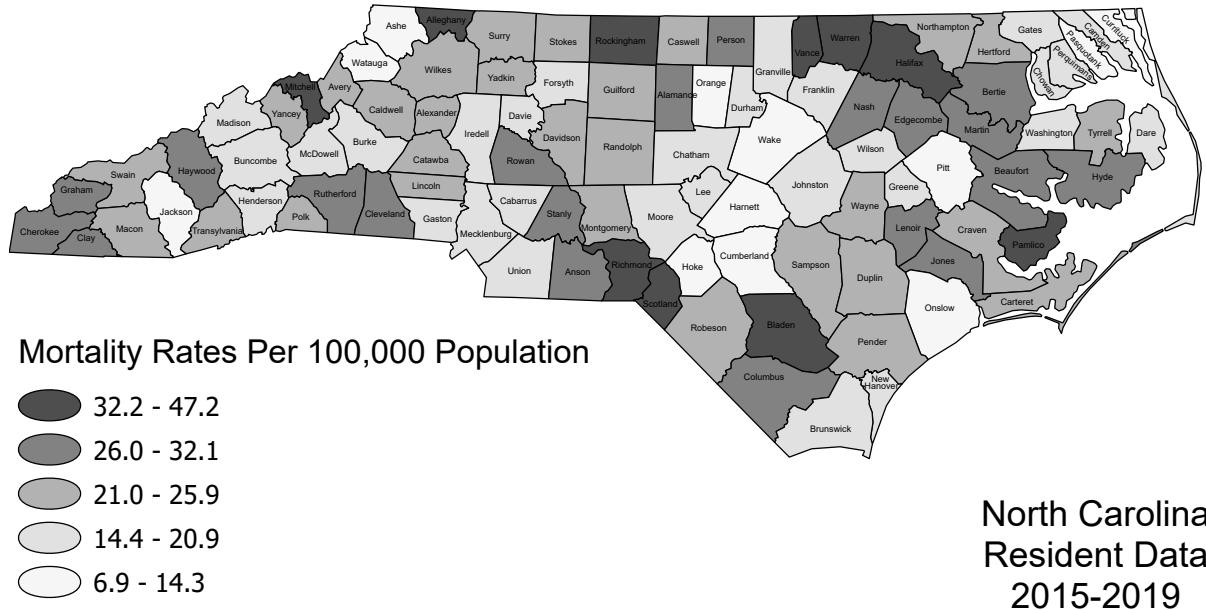


Figure 15.A

Nephritis, Nephrotic Syndrome and Nephrosis

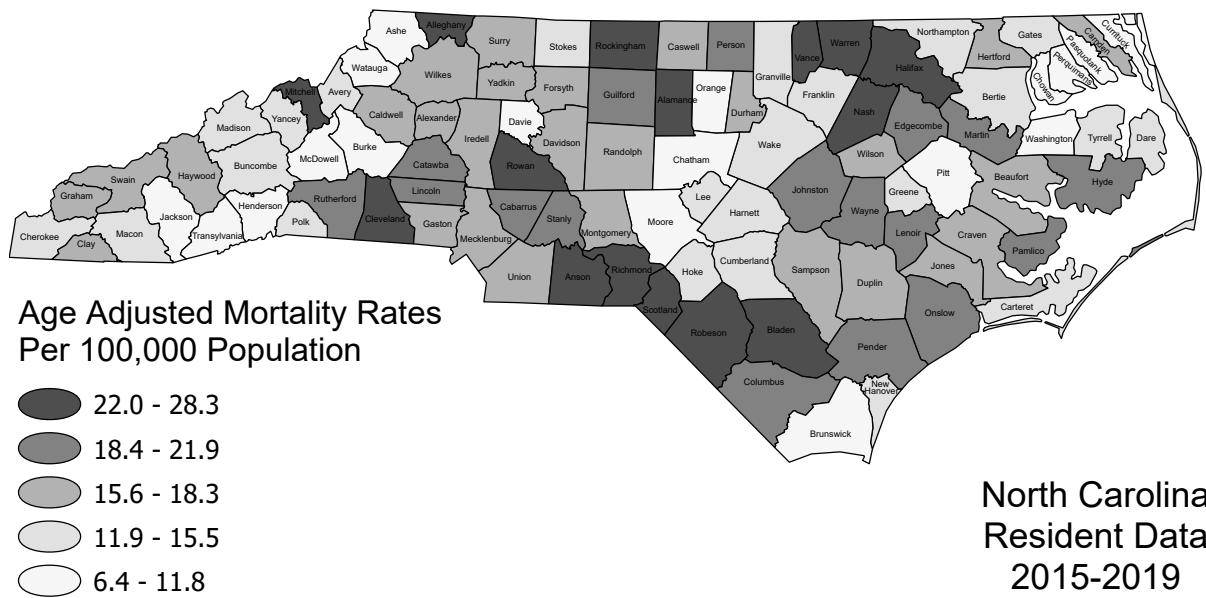


Figure 15.B

Table 15: Nephritis, Nephrotic Syndrome and Nephrosis

North Carolina Resident Mortality Statistics Summary for 2019

Geographical Area:	Number of Deaths 2019	Death Rate* 2019	Number of Deaths 2015–2019	Unadjusted Death Rate* 2015–2019	Age-Adjusted Death Rate* 2015–2019
NORTH CAROLINA	2,121	20.2	9,922	19.3	16.5
Alamance	29	17.1*	235	28.8	22.6
Alexander	6	16.0*	45	24.2*	17.1*
Alleghany	7	62.9*	26	47.2*	24.2*
Anson	9	36.8*	39	31.3*	23.6*
Ashe	3	11.0*	19	14.1*	7.9*
Avery	3	17.1*	20	22.8*	14.2*
Beaufort	15	31.9*	65	27.6	16.5
Bertie	12	63.3*	26	26.8*	15.2*
Bladen	15	45.8*	58	34.7	24.6
Brunswick	23	16.1*	129	19.6	11.6
Buncombe	46	17.6*	251	19.5	13.5
Burke	21	23.2*	75	16.7	11.6
Cabarrus	51	23.6	198	19.2	19.7
Caldwell	18	21.9*	94	23.0	16.7
Camden	2	18.4*	10	19.0*	15.7*
Carteret	15	21.6*	85	24.6	15.0
Caswell	7	31.0*	28	24.7*	16.9*
Catawba	33	20.7*	204	25.9	20.3
Chatham	11	14.8*	57	16.0	8.9
Cherokee	7	24.5*	43	30.7*	15.5*
Chowan	2	14.3*	11	15.6*	9.7*
Clay	5	44.5*	17	31.1*	16.2*
Cleveland	46	47.0*	156	32.1	25.0
Columbus	17	30.6*	75	26.8	19.9
Craven	28	27.4*	113	22.1	16.7
Cumberland	44	13.1*	214	12.9	14.4
Currituck	2	7.2*	12	9.1*	7.9*
Dare	6	16.2*	34	18.8*	14.0*
Davidson	38	22.7*	182	22.0	16.9
Davie	3	7.0*	32	15.1*	10.2*
Duplin	17	28.9*	73	24.8	18.1
Durham	50	15.6	237	15.2	15.9
Edgecombe	19	36.9*	77	29.3	20.7
Forsyth	80	20.9	378	20.1	16.7
Franklin	10	14.4*	61	18.4	15.4
Gaston	56	24.9	206	18.8	15.8
Gates	2	17.3*	11	19.1*	12.3*
Graham	4	47.4*	12	28.2*	18.3*
Granville	11	18.2*	52	17.5	14.5
Greene	7	33.2*	16	15.2*	12.9*
Guilford	126	23.5	597	22.6	20.1
Halifax	19	38.0*	87	34.0	23.5
Harnett	25	18.4*	83	12.5	14.0
Haywood	23	36.9*	91	29.8	17.4
Henderson	22	18.7*	118	20.5	11.5
Hertford	6	25.3*	28	23.3*	16.7*
Hoke	7	12.7*	28	10.4*	14.3*
Hyde	3	60.8*	7	26.9*	19.4*
Iredell	26	14.3*	153	17.4	15.7
Jackson	3	6.8*	28	13.0*	11.5*

Table 15: Nephritis, Nephrotic Syndrome and Nephrosis
North Carolina Resident Mortality Statistics Summary for 2019

Geographical Area:	Number of Deaths 2019	Death Rate* 2019	Number of Deaths 2015–2019	Unadjusted Death Rate* 2015–2019	Age-Adjusted Death Rate* 2015–2019
Johnston	40	19.1*	180	18.3	19.7
Jones	5	53.1*	14	29.2*	17.6*
Lee	11	17.8*	54	17.9	14.4
Lenoir	24	42.9*	90	31.7	21.9
Lincoln	16	18.6*	94	22.7	18.8
McDowell	5	10.9*	36	15.9*	11.4*
Macon	7	19.5*	43	24.7*	13.9*
Madison	5	23.0*	22	20.5*	14.0*
Martin	9	40.1*	35	30.6*	20.3*
Mecklenburg	145	13.1	804	15.0	17.6
Mitchell	3	20.0*	27	36.0*	22.4*
Montgomery	7	25.8*	34	25.0*	17.9*
Moore	25	24.8*	101	20.8	11.1
Nash	28	29.7*	140	29.8	22.6
New Hanover	47	20.0*	215	18.9	15.1
Northhampton	6	30.8*	25	25.1*	13.6*
Onslow	38	19.2*	139	14.3	21.0
Orange	13	8.8*	73	10.1	10.6
Pamlico	6	47.1*	24	37.8*	20.4*
Pasquotank	6	15.1*	21	10.6*	8.9*
Pender	15	23.8*	75	24.8	19.8
Perquimans	1	7.4*	12	17.9*	10.6*
Person	15	38.0*	57	29.0	21.0
Pitt	23	12.7*	92	10.3	10.5
Polk	6	29.0*	25	24.3*	12.6*
Randolph	41	28.5*	155	21.7	17.1
Richmond	11	24.5*	81	36.0	28.3
Robeson	42	32.2*	171	25.8	23.3
Rockingham	26	28.6*	152	33.4	23.0
Rowan	39	27.4*	204	29.1	23.1
Rutherford	20	29.8*	104	31.2	19.9
Sampson	12	18.9*	73	23.0	17.7
Scotland	16	45.9*	59	33.6	26.4
Stanly	18	28.7*	85	27.6	20.3
Stokes	13	28.5*	52	22.7	14.3
Surry	21	29.3*	92	25.6	17.7
Swain	5	35.0*	17	23.8*	17.1*
Transylvania	6	17.4*	40	23.7*	11.8*
Tyrrell	1	24.9*	5	24.4*	15.2*
Union	42	17.5*	184	15.9	18.0
Vance	14	31.4*	76	34.2	26.3
Wake	145	13.0	598	11.2	13.1
Warren	4	20.3*	34	34.2*	22.6*
Washington	1	8.6*	11	18.5*	10.7*
Watauga	3	5.3*	19	6.9*	6.4*
Wayne	30	24.4*	143	23.1	19.4
Wilkes	20	29.2*	85	24.8	15.9
Wilson	21	25.7*	85	20.9	15.6
Yadkin	11	29.2*	46	24.5*	17.6*
Yancey	13	71.9*	23	25.9*	15.2*

*Death rates with a small number (<50) of deaths in the numerator should be interpreted with caution. SEE TECHNICAL NOTES on page 101.

Motor Vehicle Injuries

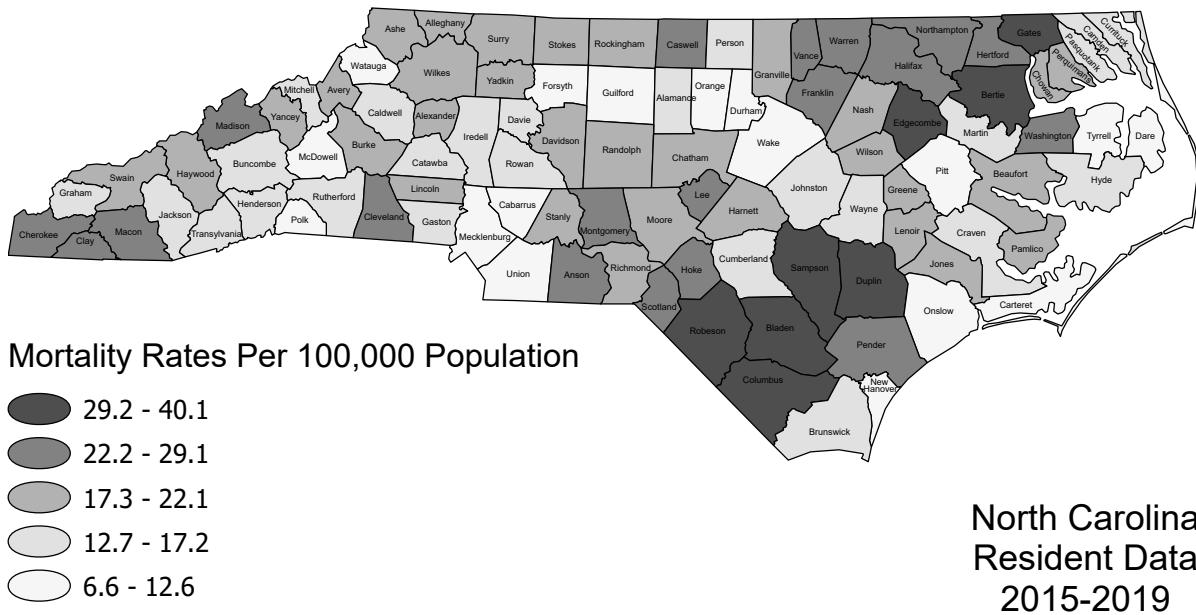


Figure 16.A

Motor Vehicle Injuries

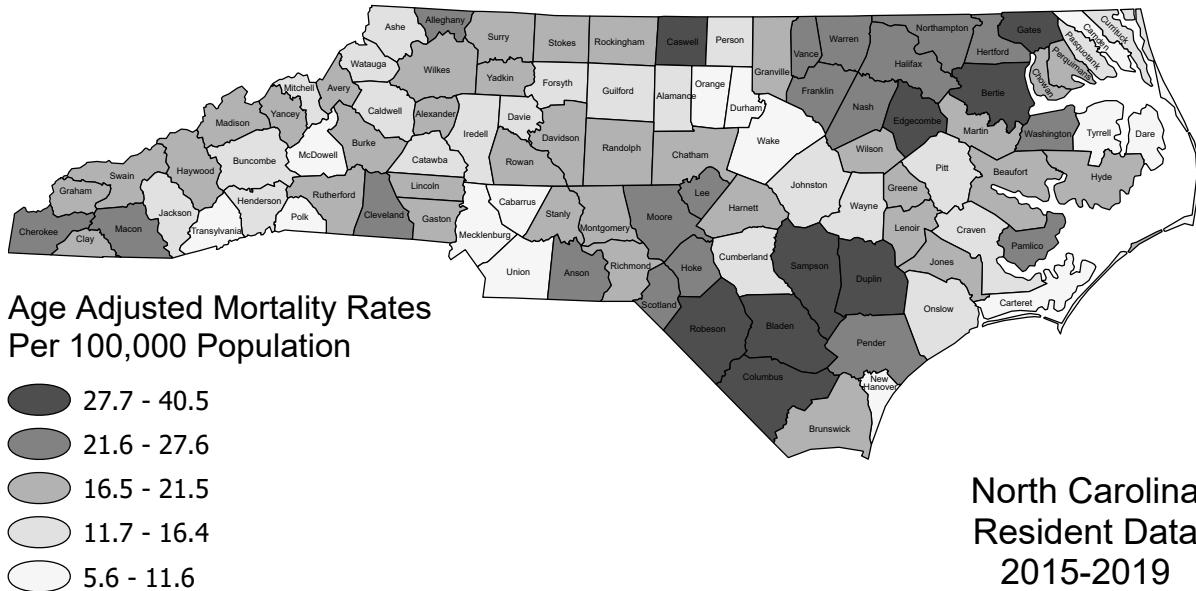


Figure 16.B

Table 16: Motor Vehicle Injuries
North Carolina Resident Mortality Statistics Summary for 2019

Geographical Area:	Number of Deaths 2019	Death Rate* 2019	Number of Deaths 2015–2019	Unadjusted Death Rate* 2015–2019	Age-Adjusted Death Rate* 2015–2019
NORTH CAROLINA	1,608	15.3	7,775	15.1	14.7
Alamance	24	14.2*	115	14.1	13.1
Alexander	7	18.7*	38	20.4*	20.3*
Alleghany	2	18.0*	11	20.0*	23.4*
Anson	3	12.3*	30	24.1*	22.2*
Ashe	7	25.7*	25	18.6*	15.7*
Avery	3	17.1*	17	19.4*	17.9*
Beaufort	9	19.2*	44	18.7*	19.2*
Bertie	5	26.4*	37	38.2*	36.4*
Bladen	17	52.0*	67	40.1	40.5
Brunswick	31	21.7*	113	17.1	19.1
Buncombe	29	11.1*	168	13.1	12.2
Burke	17	18.8*	82	18.2	18.0
Cabarrus	29	13.4*	115	11.1	11.2
Caldwell	11	13.4*	65	15.9	16.4
Camden	1	9.2*	7	13.3*	10.6*
Carteret	12	17.3*	38	11.0*	10.4*
Caswell	9	39.8*	33	29.1*	30.5*
Catawba	16	10.0*	114	14.5	14.0
Chatham	16	21.5*	74	20.7	21.2
Cherokee	6	21.0*	34	24.3*	24.4*
Chowan	6	43.0*	14	19.9*	20.0*
Clay	2	17.8*	13	23.8*	20.6*
Cleveland	17	17.4*	118	24.3	23.6
Columbus	13	23.4*	85	30.3	30.7
Craven	18	17.6*	84	16.4	15.9
Cumberland	68	20.3	269	16.2	15.9
Currituck	5	18.0*	19	14.4*	14.5*
Dare	2	5.4*	12	6.6*	7.2*
Davidson	19	11.3*	150	18.1	18.6
Davie	8	18.7*	28	13.3*	12.6*
Duplin	25	42.6*	98	33.2	33.1
Durham	38	11.8*	172	11.0	10.8
Edgecombe	21	40.8*	84	31.9	33.6
Forsyth	49	12.8*	232	12.4	12.0
Franklin	17	24.4*	79	23.8	23.7
Gaston	29	12.9*	186	17.0	16.7
Gates	3	25.9*	21	36.4*	36.4*
Graham	2	23.7*	7	16.5*	17.9*
Granville	11	18.2*	64	21.6	19.6
Greene	5	23.7*	20	19.0*	18.0*
Guilford	74	13.8	327	12.4	12.2
Halifax	18	36.0*	68	26.6	27.1
Harnett	29	21.3*	139	21.0	21.3
Haywood	9	14.4*	60	19.7	16.8
Henderson	14	11.9*	81	14.1	14.4
Hertford	5	21.1*	27	22.5*	23.2*
Hoke	11	19.9*	61	22.6	23.2
Hyde	2	40.5*	4	15.3*	18.0*
Iredell	30	16.5*	137	15.6	15.1
Jackson	3	6.8*	30	14.0*	13.9*

Table 16: Motor Vehicle Injuries
North Carolina Resident Mortality Statistics Summary for 2019

Geographical Area:	Number of Deaths 2019	Death Rate* 2019	Number of Deaths 2015–2019	Unadjusted Death Rate* 2015–2019	Age-Adjusted Death Rate* 2015–2019
Johnston	34	16.2*	156	15.8	16.0
Jones	3	31.9*	10	20.8*	19.6*
Lee	13	21.0*	78	25.8	26.2
Lenoir	20	35.7*	56	19.7	18.3
Lincoln	20	23.2*	84	20.3	20.0
McDowell	5	10.9*	25	11.1*	10.8*
Macon	8	22.3*	40	23.0*	23.3*
Madison	1	4.6*	24	22.3*	20.5*
Martin	4	17.8*	19	16.6*	17.1*
Mecklenburg	98	8.8	498	9.3	9.1
Mitchell	4	26.7*	11	14.7*	15.0*
Montgomery	10	36.8*	31	22.8*	21.5*
Moore	16	15.9*	99	20.4	21.8
Nash	24	25.5*	104	22.1	22.6
New Hanover	33	14.1*	134	11.8	11.1
Northhampton	6	30.8*	23	23.1*	25.5*
Onslow	27	13.6*	122	12.5	13.1
Orange	11	7.4*	53	7.3	7.4
Pamlico	4	31.4*	14	22.0*	24.7*
Pasquotank	7	17.6*	29	14.7*	13.8*
Pender	18	28.5*	73	24.2	24.4
Perquimans	4	29.7*	13	19.4*	20.8*
Person	5	12.7*	30	15.2*	15.6*
Pitt	16	8.9*	112	12.6	12.5
Polk	0	0.0*	8	7.8*	5.6*
Randolph	39	27.1*	151	21.1	20.9
Richmond	7	15.6*	43	19.1*	18.5*
Robeson	50	38.3	241	36.4	37.3
Rockingham	20	22.0*	85	18.7	18.3
Rowan	13	9.1*	121	17.2	17.0
Rutherford	13	19.4*	57	17.1	16.7
Sampson	16	25.2*	96	30.3	31.1
Scotland	6	17.2*	43	24.5*	23.9*
Stanly	14	22.3*	61	19.8	18.9
Stokes	10	21.9*	45	19.7*	19.2*
Surry	14	19.5*	75	20.8	18.7
Swain	4	28.0*	13	18.2*	17.5*
Transylvania	8	23.3*	23	13.6*	9.8*
Tyrrell	1	24.9*	2	9.8*	6.2*
Union	24	10.0*	128	11.1	11.6
Vance	8	18.0*	59	26.5	27.6
Wake	89	8.0	381	7.1	7.2
Warren	7	35.5*	25	25.1*	26.2*
Washington	2	17.3*	16	26.8*	24.5*
Watauga	14	24.9*	34	12.4*	12.7*
Wayne	24	19.5*	103	16.7	15.9
Wilkes	11	16.1*	75	21.9	20.1
Wilson	6	7.3*	79	19.4	19.9
Yadkin	7	18.6*	39	20.7*	20.0*
Yancey	3	16.6*	18	20.3*	17.4*

*Death rates with a small number (<50) of deaths in the numerator should be interpreted with caution. SEE TECHNICAL NOTES on page 101.

All Other Unintentional Injuries

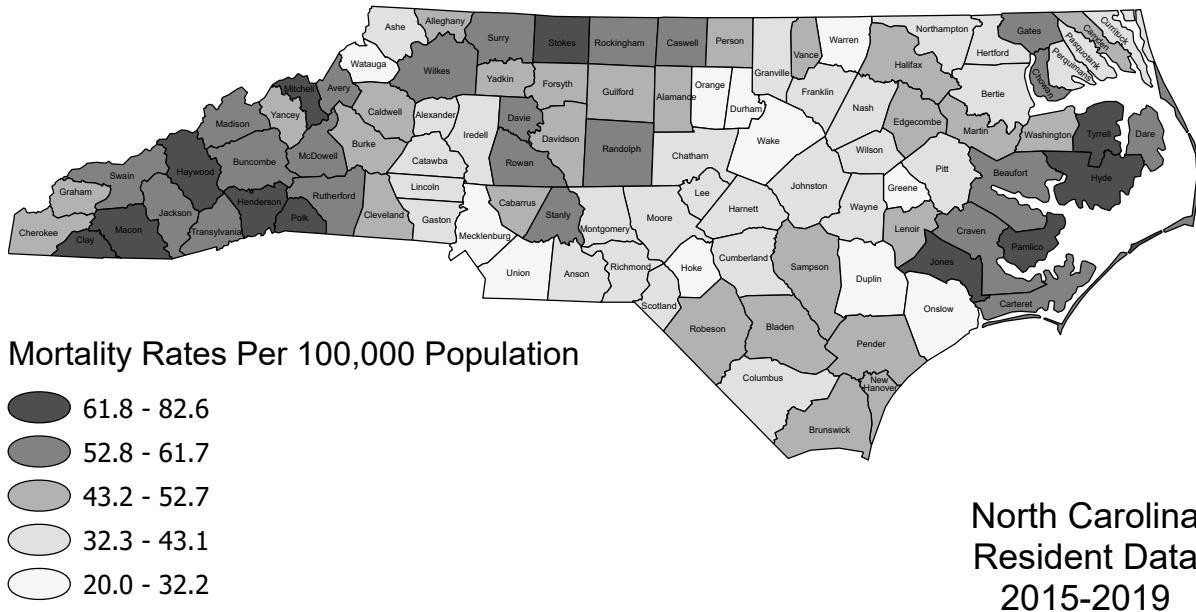


Figure 17.A

All Other Unintentional Injuries

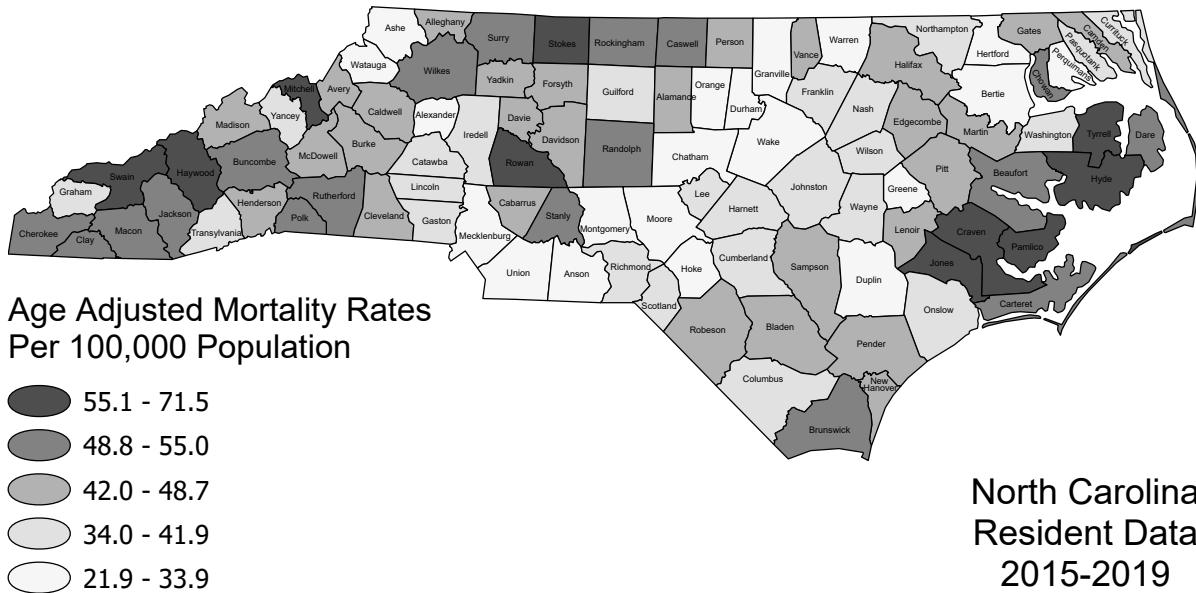


Figure 17.B

Table 17: All Other Unintentional Injuries
North Carolina Resident Mortality Statistics Summary for 2019

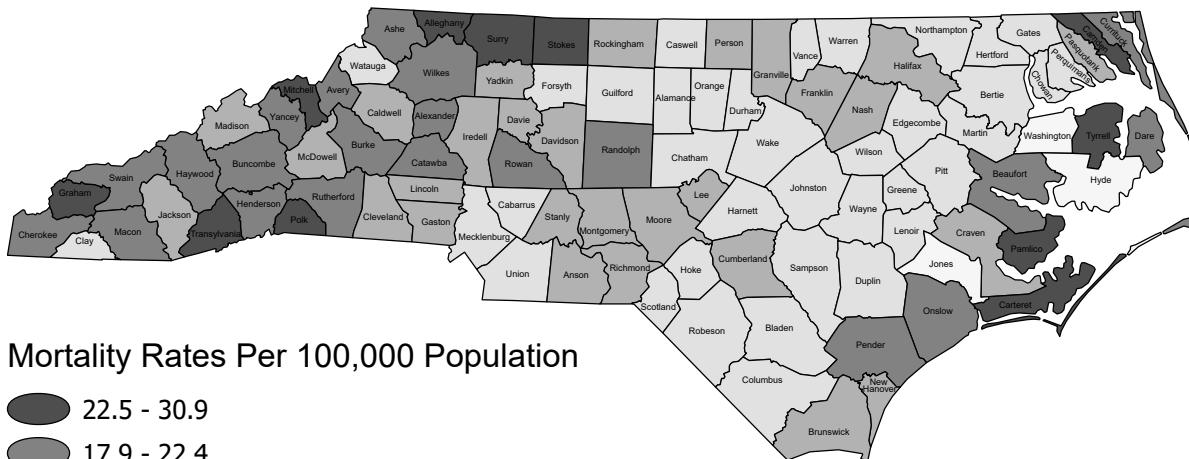
Geographical Area:	Number of Deaths 2019	Death Rate* 2019	Number of Deaths 2015–2019	Unadjusted Death Rate* 2015–2019	Age-Adjusted Death Rate* 2015–2019
NORTH CAROLINA	4,683	44.7	21,107	41.1	39.3
Alamance	88	51.9	426	52.2	46.4
Alexander	15	40.0*	63	33.9	31.2
Alleghany	4	35.9*	27	49.1*	43.1*
Anson	12	49.1*	47	37.7*	33.4*
Ashe	16	58.8*	55	40.9	31.3
Avery	7	39.9*	48	54.8*	43.6*
Beaufort	22	46.8*	139	58.9	54.6
Bertie	7	36.9*	37	38.2*	33.2*
Bladen	15	45.8*	79	47.3	43.7
Brunswick	69	48.3	325	49.3	50.8
Buncombe	179	68.5	786	61.2	53.2
Burke	47	51.9*	237	52.7	47.4
Cabarrus	78	36.0	468	45.3	47.0
Caldwell	37	45.0*	202	49.3	45.7
Camden	8	73.6*	27	51.2*	48.0*
Carteret	37	53.3*	206	59.6	54.5
Caswell	14	61.9*	70	61.7	51.7
Catawba	55	34.5	320	40.6	38.3
Chatham	36	48.3*	140	39.2	30.0
Cherokee	15	52.4*	71	50.8	49.4
Chowan	7	50.2*	39	55.3*	52.6*
Clay	9	80.1*	36	65.8*	53.3*
Cleveland	49	50.0*	247	50.8	45.4
Columbus	28	50.4*	120	42.8	41.1
Craven	71	69.5	302	58.9	58.0
Cumberland	149	44.4	632	38.0	40.3
Currituck	8	28.8*	50	37.9	39.6
Dare	24	64.8*	97	53.6	52.5
Davidson	86	51.3	366	44.3	43.2
Davie	24	56.0*	125	59.2	48.7
Duplin	22	37.5*	93	31.5	27.9
Durham	114	35.5	487	31.2	31.4
Edgecombe	32	62.2*	123	46.7	42.6
Forsyth	201	52.6	896	47.8	45.0
Franklin	34	48.8*	136	41.0	40.5
Gaston	87	38.7	464	42.3	41.1
Gates	2	17.3*	31	53.7*	44.7*
Graham	4	47.4*	22	51.7*	39.3*
Granville	24	39.7*	104	35.1	32.4
Greene	5	23.7*	33	31.4*	26.9*
Guilford	284	52.9	1,159	43.9	41.8
Halifax	31	62.0*	126	49.2	46.0
Harnett	71	52.2	248	37.5	39.4
Haywood	51	81.8	233	76.3	58.1
Henderson	82	69.8	374	65.1	47.3
Hertford	13	54.9*	44	36.6*	33.9*
Hoke	18	32.6*	54	20.0	21.9
Hyde	6	121.5*	19	72.9*	61.5*
Iredell	68	37.4	325	37.0	36.5
Jackson	22	50.1*	118	55.0	54.8

Table 17: All Other Unintentional Injuries
North Carolina Resident Mortality Statistics Summary for 2019

Geographical Area:	Number of Deaths 2019	Death Rate* 2019	Number of Deaths 2015–2019	Unadjusted Death Rate* 2015–2019	Age-Adjusted Death Rate* 2015–2019
Johnston	77	36.8	336	34.1	36.3
Jones	6	63.7*	31	64.6*	66.1*
Lee	27	43.7*	122	40.3	41.2
Lenoir	42	75.1*	140	49.3	42.2
Lincoln	27	31.4*	157	37.9	37.2
McDowell	29	63.4*	120	53.1	47.0
Macon	24	66.9*	114	65.5	50.7
Madison	16	73.5*	62	57.7	48.1
Martin	15	66.8*	54	47.3	44.8
Mecklenburg	322	29.0	1,487	27.7	28.6
Mitchell	15	100.2*	62	82.6	65.0
Montgomery	14	51.5*	50	36.7	31.8
Moore	45	44.6*	195	40.1	33.0
Nash	35	37.1*	173	36.8	35.6
New Hanover	113	48.2	540	47.4	46.4
Northhampton	4	20.5*	37	37.1*	35.6*
Onslow	62	31.3	314	32.2	39.1
Orange	45	30.3*	184	25.4	26.8
Pamlico	12	94.3*	50	78.7	71.5
Pasquotank	21	52.7*	73	36.9	37.1
Pender	25	39.6*	132	43.7	43.4
Perquimans	6	44.6*	27	40.2*	32.1*
Person	23	58.2*	100	50.8	43.8
Pitt	86	47.6	362	40.6	42.7
Polk	14	67.6*	69	67.1	55.0
Randolph	104	72.4	399	55.8	54.5
Richmond	24	53.5*	97	43.1	41.9
Robeson	90	68.9	291	43.9	44.9
Rockingham	60	65.9	274	60.2	54.1
Rowan	84	59.1	426	60.7	58.1
Rutherford	39	58.2*	190	57.1	49.7
Sampson	29	45.6*	141	44.5	42.5
Scotland	12	34.5*	73	41.6	39.4
Stanly	38	60.5*	174	56.5	54.6
Stokes	33	72.4*	150	65.5	59.0
Surry	52	72.4	217	60.3	53.7
Swain	9	63.1*	42	58.9*	59.1*
Transylvania	25	72.7*	102	60.4	40.9
Tyrrell	3	74.7*	16	78.1*	65.1*
Union	61	25.4	284	24.6	28.1
Vance	22	49.4*	102	45.9	45.8
Wake	300	27.0	1,380	25.8	28.4
Warren	9	45.6*	32	32.2*	28.2*
Washington	9	77.7*	30	50.3*	38.9*
Watauga	14	24.9*	74	26.9	26.5
Wayne	63	51.2	247	40.0	39.0
Wilkes	41	59.9*	194	56.7	50.9
Wilson	44	53.8*	166	40.8	38.6
Yadkin	20	53.1*	93	49.5	43.1
Yancey	6	33.2*	46	51.8*	40.0*

*Death rates with a small number (<50) of deaths in the numerator should be interpreted with caution. SEE TECHNICAL NOTES on page 101.

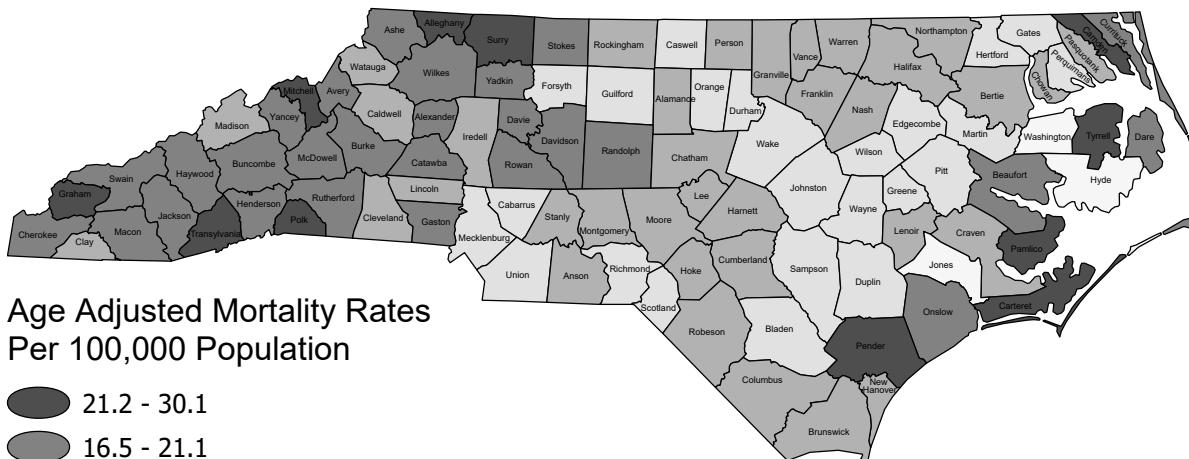
Suicide



North Carolina
Resident Data
2015-2019

Figure 18.A

Suicide



North Carolina
Resident Data
2015-2019

Figure 18.B

Table 18: Suicide
North Carolina Resident Mortality Statistics Summary for 2019

Geographical Area:	Number of Deaths 2019	Death Rate* 2019	Number of Deaths 2015–2019	Unadjusted Death Rate* 2015–2019	Age-Adjusted Death Rate* 2015–2019
NORTH CAROLINA	1,368	13.0	7,173	14.0	13.4
Alamance	22	13.0*	110	13.5	13.4
Alexander	4	10.7*	37	19.9*	18.8*
Alleghany	2	18.0*	17	30.9*	30.1*
Anson	3	12.3*	18	14.5*	14.1*
Ashe	9	33.1*	28	20.8*	20.3*
Avery	4	22.8*	16	18.3*	17.2*
Beaufort	7	14.9*	50	21.2	20.4
Bertie	2	10.6*	13	13.4*	14.2*
Bladen	4	12.2*	18	10.8*	10.3*
Brunswick	25	17.5*	93	14.1	13.7
Buncombe	55	21.1	253	19.7	18.6
Burke	13	14.4*	92	20.5	17.8
Cabarrus	19	8.8*	118	11.4	11.4
Caldwell	10	12.2*	73	17.8	15.8
Camden	1	9.2*	15	28.4*	28.2*
Carteret	14	20.2*	84	24.3	22.2
Caswell	4	17.7*	15	13.2*	10.7*
Catawba	27	16.9*	144	18.3	17.6
Chatham	11	14.8*	47	13.2*	13.6*
Cherokee	4	14.0*	30	21.5*	18.2*
Chowan	1	7.2*	9	12.8*	13.5*
Clay	2	17.8*	7	12.8*	13.4*
Cleveland	14	14.3*	82	16.9	16.4
Columbus	9	16.2*	36	12.8*	12.9*
Craven	13	12.7*	73	14.2	14.1
Cumberland	47	14.0*	266	16.0	16.1
Currituck	6	21.6*	28	21.2*	19.7*
Dare	6	16.2*	39	21.5*	19.3*
Davidson	26	15.5*	146	17.7	17.4
Davie	9	21.0*	37	17.5*	17.9*
Duplin	5	8.5*	25	8.5*	8.3*
Durham	26	8.1*	135	8.7	8.3
Edgecombe	5	9.7*	34	12.9*	11.4*
Forsyth	40	10.5*	221	11.8	11.2
Franklin	12	17.2*	49	14.8*	13.9*
Gaston	35	15.6*	189	17.2	16.9
Gates	2	17.3*	7	12.1*	11.3*
Graham	1	11.8*	10	23.5*	24.8*
Granville	8	13.2*	44	14.8*	13.9*
Greene	1	4.7*	14	13.3*	11.3*
Guilford	58	10.8	321	12.2	11.8
Halifax	5	10.0*	36	14.1*	13.2*
Harnett	18	13.2*	86	13.0	13.1
Haywood	15	24.1*	67	21.9	20.5
Henderson	26	22.1*	118	20.5	18.4
Hertford	3	12.7*	14	11.7*	11.1*
Hoke	5	9.1*	33	12.2*	13.0*
Hyde	0	0.0*	0	0.0*	0.0*
Iredell	25	13.8*	146	16.6	16.4
Jackson	7	15.9*	38	17.7*	17.6*

Table 18: Suicide
North Carolina Resident Mortality Statistics Summary for 2019

Geographical Area:	Number of Deaths 2019	Death Rate* 2019	Number of Deaths 2015–2019	Unadjusted Death Rate* 2015–2019	Age-Adjusted Death Rate* 2015–2019
Johnston	24	11.5*	124	12.6	12.1
Jones	0	0.0*	1	2.1*	1.1*
Lee	7	11.3*	44	14.5*	14.2*
Lenoir	10	17.9*	36	12.7*	12.7*
Lincoln	19	22.1*	62	15.0	13.7
McDowell	8	17.5*	40	17.7*	17.5*
Macon	9	25.1*	39	22.4*	20.2*
Madison	2	9.2*	15	14.0*	13.1*
Martin	1	4.5*	13	11.4*	10.8*
Mecklenburg	95	8.6	528	9.8	9.8
Mitchell	2	13.4*	19	25.3*	24.2*
Montgomery	3	11.0*	21	15.4*	13.4*
Moore	15	14.9*	79	16.2	15.9
Nash	15	15.9*	71	15.1	15.1
New Hanover	46	19.6*	179	15.7	15.2
Northhampton	4	20.5*	13	13.0*	13.1*
Onslow	36	18.2*	187	19.2	20.5
Orange	20	13.5*	81	11.2	10.9
Pamlico	3	23.6*	18	28.3*	24.1*
Pasquotank	4	10.0*	32	16.2*	15.1*
Pender	17	27.0*	67	22.2	22.9
Perquimans	2	14.9*	9	13.4*	12.2*
Person	5	12.7*	34	17.3*	15.7*
Pitt	20	11.1*	90	10.1	10.4
Polk	5	24.1*	28	27.2*	25.9*
Randolph	16	11.1*	133	18.6	17.6
Richmond	5	11.2*	32	14.2*	12.0*
Robeson	14	10.7*	88	13.3	13.3
Rockingham	16	17.6*	74	16.3	15.9
Rowan	17	12.0*	129	18.4	17.9
Rutherford	12	17.9*	68	20.4	20.9
Sampson	4	6.3*	23	7.3*	7.2*
Scotland	2	5.7*	18	10.3*	9.7*
Stanly	7	11.1*	50	16.2	15.6
Stokes	5	11.0*	53	23.2	20.6
Surry	10	13.9*	90	25.0	24.2
Swain	3	21.0*	13	18.2*	17.8*
Transylvania	6	17.4*	40	23.7*	23.8*
Tyrrell	0	0.0*	5	24.4*	25.8*
Union	25	10.4*	117	10.1	10.2
Vance	6	13.5*	28	12.6*	12.8*
Wake	112	10.1	515	9.6	9.5
Warren	4	20.3*	13	13.1*	13.2*
Washington	0	0.0*	1	1.7*	2.1*
Watauga	12	21.4*	37	13.5*	14.5*
Wayne	16	13.0*	71	11.5	11.3
Wilkes	16	23.4*	70	20.4	19.9
Wilson	8	9.8*	44	10.8*	10.3*
Yadkin	7	18.6*	31	16.5*	17.5*
Yancey	3	16.6*	19	21.4*	21.1*

*Death rates with a small number (<50) of deaths in the numerator should be interpreted with caution. SEE TECHNICAL NOTES on page 101.

Homicide

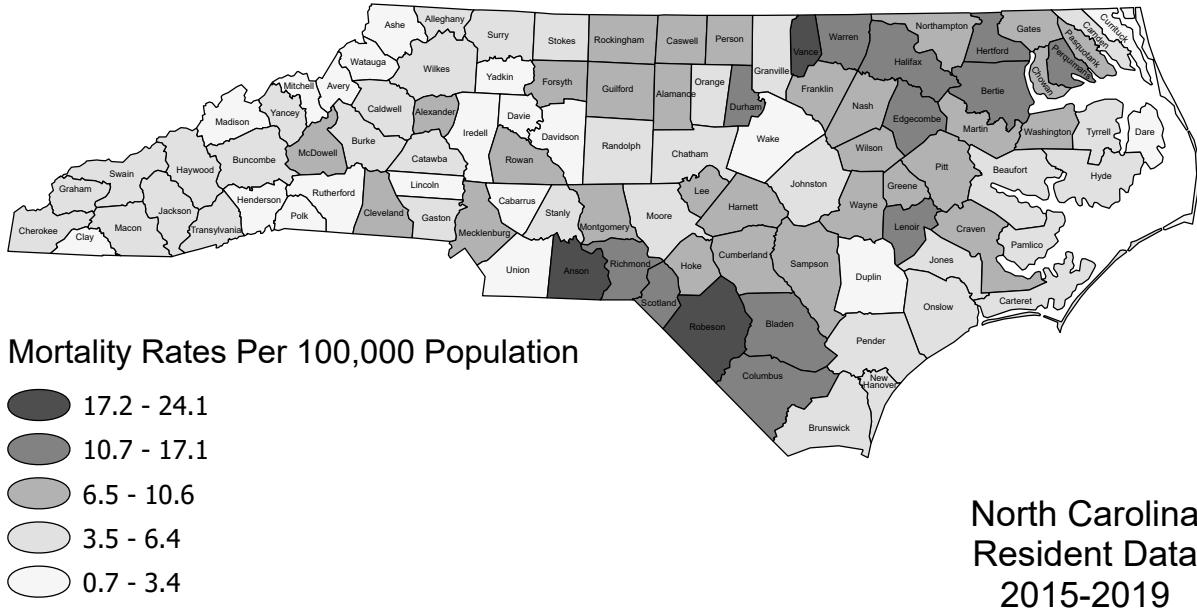


Figure 19.A

Homicide

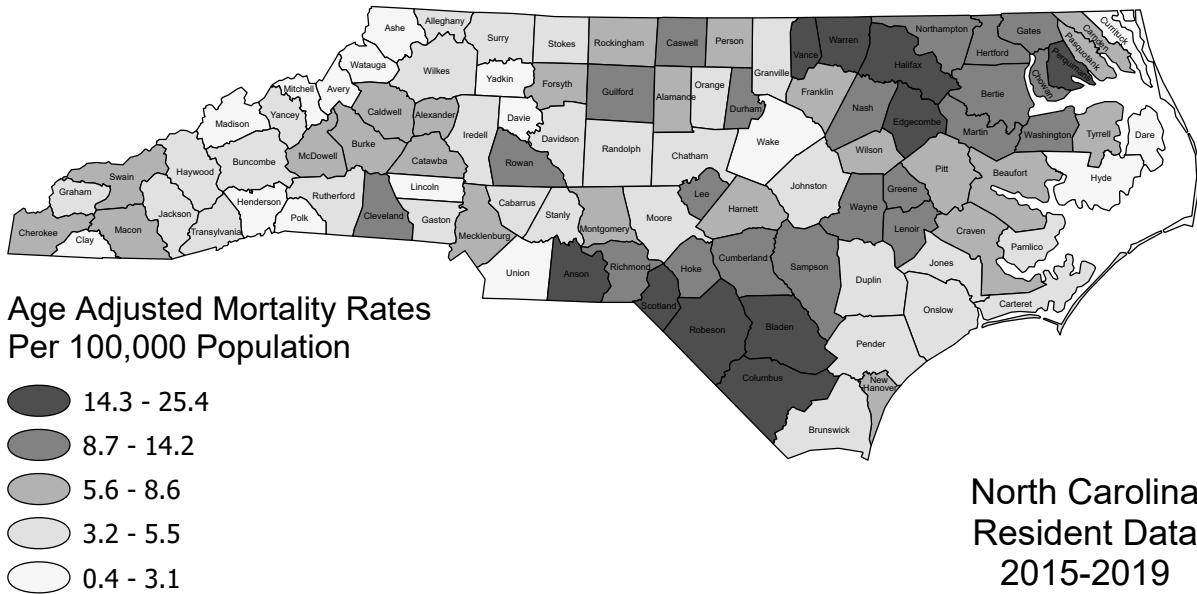


Figure 19.B

Table 19: Homicide
North Carolina Resident Mortality Statistics Summary for 2019

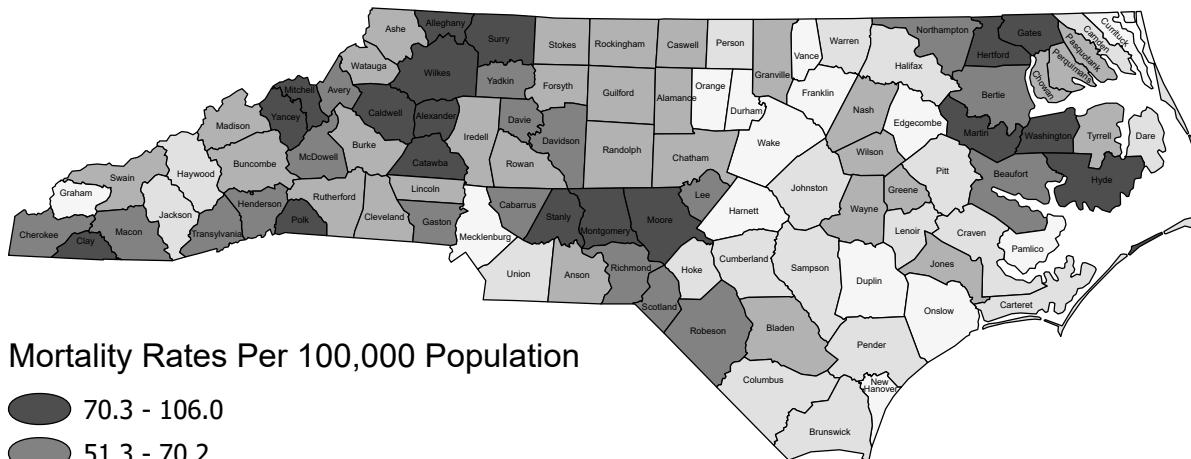
Geographical Area:	Number of Deaths 2019	Death Rate* 2019	Number of Deaths 2015–2019	Unadjusted Death Rate* 2015–2019	Age-Adjusted Death Rate* 2015–2019
NORTH CAROLINA	718	6.8	3,387	6.6	6.8
Alamance	15	8.8*	56	6.9	7.2
Alexander	7	18.7*	13	7.0*	8.2*
Alleghany	1	9.0*	2	3.6*	4.5*
Anson	6	24.5*	27	21.7*	22.8*
Ashe	0	0.0*	1	0.7*	0.4*
Avery	1	5.7*	1	1.1*	1.1*
Beaufort	4	8.5*	15	6.4*	7.9*
Bertie	1	5.3*	12	12.4*	11.9*
Bladen	4	12.2*	23	13.8*	17.2*
Brunswick	11	7.7*	29	4.4*	5.0*
Buncombe	5	1.9*	49	3.8*	3.9*
Burke	7	7.7*	25	5.6*	5.8*
Cabarrus	10	4.6*	32	3.1*	3.3*
Caldwell	3	3.7*	22	5.4*	5.9*
Camden	0	0.0*	3	5.7*	7.1*
Carteret	4	5.8*	13	3.8*	3.8*
Caswell	2	8.8*	12	10.6*	10.3*
Catawba	9	5.6*	48	6.1*	6.9*
Chatham	3	4.0*	13	3.6*	4.6*
Cherokee	1	3.5*	7	5.0*	6.7*
Chowan	4	28.7*	7	9.9*	13.4*
Clay	1	8.9*	1	1.8*	2.7*
Cleveland	8	8.2*	40	8.2*	9.4*
Columbus	12	21.6*	42	15.0*	16.3*
Craven	5	4.9*	36	7.0*	7.9*
Cumberland	26	7.7*	168	10.1	9.9
Currituck	0	0.0*	3	2.3*	2.9*
Dare	1	2.7*	3	1.7*	1.3*
Davidson	4	2.4*	27	3.3*	3.5*
Davie	1	2.3*	5	2.4*	1.9*
Duplin	1	1.7*	10	3.4*	3.7*
Durham	38	11.8*	190	12.2	11.5
Edgecombe	12	23.3*	45	17.1*	19.5*
Forsyth	34	8.9*	133	7.1	7.5
Franklin	4	5.7*	25	7.5*	7.9*
Gaston	7	3.1*	58	5.3	5.5
Gates	0	0.0*	5	8.7*	10.3*
Graham	1	11.8*	2	4.7*	5.4*
Granville	4	6.6*	14	4.7*	5.1*
Greene	2	9.5*	10	9.5*	9.4*
Guilford	62	11.5	247	9.4	9.4
Halifax	7	14.0*	37	14.5*	15.4*
Harnett	7	5.1*	44	6.7*	6.7*
Haywood	2	3.2*	11	3.6*	4.4*
Henderson	4	3.4*	15	2.6*	3.0*
Hertford	4	16.9*	17	14.2*	14.2*
Hoke	10	18.1*	26	9.6*	10.0*
Hyde	0	0.0*	1	3.8*	2.0*
Iredell	5	2.8*	29	3.3*	3.7*
Jackson	2	4.6*	8	3.7*	3.7*

Table 19: Homicide
North Carolina Resident Mortality Statistics Summary for 2019

Geographical Area:	Number of Deaths 2019	Death Rate* 2019	Number of Deaths 2015–2019	Unadjusted Death Rate* 2015–2019	Age-Adjusted Death Rate* 2015–2019
Johnston	10	4.8*	39	4.0*	4.2*
Jones	1	10.6*	3	6.3*	4.7*
Lee	6	9.7*	31	10.3*	11.7*
Lenoir	6	10.7*	36	12.7*	14.1*
Lincoln	2	2.3*	12	2.9*	3.1*
McDowell	1	2.2*	15	6.6*	7.0*
Macon	1	2.8*	9	5.2*	7.2*
Madison	0	0.0*	2	1.9*	1.4*
Martin	2	8.9*	10	8.8*	10.8*
Mecklenburg	105	9.5	418	7.8	7.6
Mitchell	0	0.0*	1	1.3*	1.7*
Montgomery	2	7.4*	9	6.6*	7.2*
Moore	2	2.0*	19	3.9*	4.0*
Nash	13	13.8*	50	10.6	12.0
New Hanover	12	5.1*	70	6.1	6.5
Northhampton	0	0.0*	9	9.0*	9.7*
Onslow	7	3.5*	52	5.3	5.4
Orange	3	2.0*	26	3.6*	3.7*
Pamlico	0	0.0*	3	4.7*	3.7*
Pasquotank	1	2.5*	13	6.6*	6.4*
Pender	2	3.2*	12	4.0*	4.3*
Perquimans	1	7.4*	8	11.9*	16.4*
Person	3	7.6*	14	7.1*	8.5*
Pitt	15	8.3*	63	7.1	7.3
Polk	0	0.0*	2	1.9*	2.3*
Randolph	7	4.9*	27	3.8*	4.4*
Richmond	8	17.8*	28	12.4*	14.2*
Robeson	33	25.3*	160	24.1	25.4
Rockingham	6	6.6*	36	7.9*	8.3*
Rowan	6	4.2*	60	8.6	9.4
Rutherford	2	3.0*	11	3.3*	3.8*
Sampson	5	7.9*	31	9.8*	10.4*
Scotland	6	17.2*	29	16.5*	17.8*
Stanly	2	3.2*	14	4.5*	4.3*
Stokes	2	4.4*	9	3.9*	4.5*
Surry	3	4.2*	18	5.0*	4.9*
Swain	1	7.0*	4	5.6*	5.8*
Transylvania	0	0.0*	6	3.6*	4.4*
Tyrrell	1	24.9*	1	4.9*	6.1*
Union	11	4.6*	33	2.9*	3.0*
Vance	10	22.5*	49	22.0*	24.4*
Wake	36	3.2*	143	2.7	2.7
Warren	0	0.0*	14	14.1*	18.0*
Washington	2	17.3*	5	8.4*	10.0*
Watauga	2	3.6*	3	1.1*	2.0*
Wayne	9	7.3*	58	9.4	9.8
Wilkes	3	4.4*	18	5.3*	5.1*
Wilson	4	4.9*	33	8.1*	8.6*
Yadkin	1	2.7*	5	2.7*	2.3*
Yancey	1	5.5*	4	4.5*	4.4*

*Death rates with a small number (<50) of deaths in the numerator should be interpreted with caution. SEE TECHNICAL NOTES on page 101.

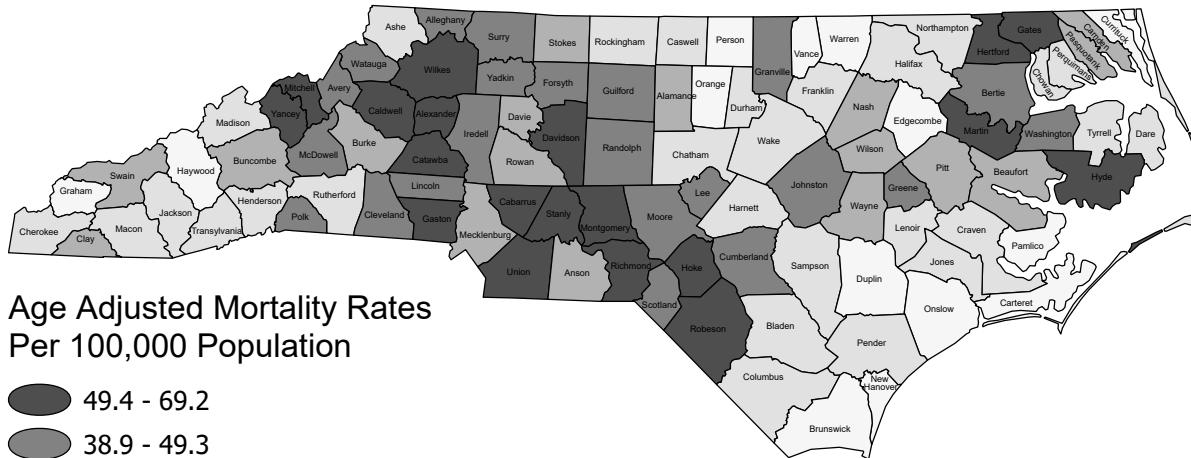
Alzheimer's Disease



North Carolina
Resident Data
2015-2019

Figure 20.A

Alzheimer's Disease



North Carolina
Resident Data
2015-2019

Figure 20.B

Table 20: Alzheimer's Disease
North Carolina Resident Mortality Statistics Summary for 2019

Geographical Area:	Number of Deaths 2019	Death Rate* 2019	Number of Deaths 2015–2019	Unadjusted Death Rate* 2015–2019	Age-Adjusted Death Rate* 2015–2019
NORTH CAROLINA	4,508	43.0	21,256	41.4	36.9
Alamance	85	50.1	416	50.9	38.2
Alexander	24	64.0*	140	75.2	58.1
Alleghany	7	62.9*	46	83.6*	43.1*
Anson	14	57.3*	53	42.6	33.8
Ashe	8	29.4*	60	44.7	25.4
Avery	16	91.1*	61	69.7	44.0
Beaufort	28	59.6*	144	61.1	38.8
Bertie	21	110.8*	68	70.2	40.8
Bladen	22	67.2*	69	41.3	29.2
Brunswick	60	42.0	243	36.9	24.0
Buncombe	110	42.1	623	48.5	32.8
Burke	27	29.8*	226	50.2	34.8
Cabarrus	134	61.9	582	56.3	62.7
Caldwell	59	71.8	332	81.1	63.7
Camden	4	36.8*	21	39.8*	37.0*
Carteret	29	41.7*	128	37.1	22.4
Caswell	4	17.7*	49	43.2*	30.5*
Catawba	83	52.0	580	73.6	60.9
Chatham	39	52.4*	164	46.0	24.6
Cherokee	16	55.9*	82	58.6	30.8
Chowan	15	107.6*	35	49.7*	27.4*
Clay	6	53.4*	40	73.1*	37.1*
Cleveland	41	41.9*	249	51.2	42.8
Columbus	27	48.6*	106	37.8	28.3
Craven	35	34.3*	188	36.7	26.7
Cumberland	131	39.0	565	33.9	42.4
Currituck	5	18.0*	26	19.7*	21.4*
Dare	10	27.0*	59	32.6	26.9
Davidson	126	75.2	569	68.8	55.4
Davie	19	44.3*	118	55.8	34.7
Duplin	24	40.9*	81	27.5	20.2
Durham	81	25.2	383	24.6	27.1
Edgecombe	27	52.5*	75	28.5	21.3
Forsyth	171	44.7	889	47.4	40.1
Franklin	33	47.4*	95	28.6	26.1
Gaston	141	62.8	638	58.2	52.3
Gates	8	69.2*	45	77.9*	51.1*
Graham	5	59.2*	11	25.9*	13.9*
Granville	28	46.3*	139	46.9	41.2
Greene	13	61.7*	49	46.6*	41.5*
Guilford	217	40.4	1,184	44.9	39.5
Halifax	26	52.0*	104	40.6	27.4
Harnett	36	26.5*	156	23.6	30.3
Haywood	27	43.3*	124	40.6	22.8
Henderson	65	55.4	348	60.6	30.7
Hertford	25	105.6*	97	80.8	54.7
Hoke	20	36.2*	104	38.5	69.2
Hyde	8	162.0*	22	84.4*	60.5*
Iredell	85	46.8	412	46.9	46.4
Jackson	12	27.3*	69	32.1	26.3

Table 20: Alzheimer's Disease
North Carolina Resident Mortality Statistics Summary for 2019

Geographical Area:	Number of Deaths 2019	Death Rate* 2019	Number of Deaths 2015–2019	Unadjusted Death Rate* 2015–2019	Age-Adjusted Death Rate* 2015–2019
Johnston	93	44.4	300	30.5	39.3
Jones	5	53.1*	21	43.8*	27.6*
Lee	33	53.4*	163	53.9	43.6
Lenoir	23	41.1*	110	38.8	26.5
Lincoln	33	38.3*	179	43.2	39.6
McDowell	20	43.7*	131	57.9	40.3
Macon	11	30.7*	101	58.0	28.9
Madison	16	73.5*	48	44.7*	28.8*
Martin	21	93.6*	108	94.5	61.3
Mecklenburg	347	31.3	1,577	29.4	37.5
Mitchell	11	73.5*	72	96.0	52.5
Montgomery	18	66.2*	111	81.5	59.6
Moore	70	69.4	418	85.9	41.7
Nash	41	43.5*	202	43.0	34.8
New Hanover	63	26.9	270	23.7	19.3
Northhampton	11	56.5*	56	56.2	28.2
Onslow	24	12.1*	140	14.4	23.2
Orange	23	15.5*	140	19.3	22.0
Pamlico	6	47.1*	17	26.8*	13.6*
Pasquotank	19	47.7*	87	44.0	37.5
Pender	16	25.4*	91	30.1	26.4
Perquimans	5	37.1*	31	46.2*	25.7*
Person	16	40.5*	61	31.0	23.0
Pitt	56	31.0	279	31.3	34.3
Polk	27	130.3*	109	106.0	39.2
Randolph	62	43.2	362	50.6	42.3
Richmond	41	91.5*	150	66.7	54.7
Robeson	70	53.6	372	56.1	59.4
Rockingham	48	52.7*	192	42.2	28.9
Rowan	62	43.6	311	44.3	34.8
Rutherford	28	41.8*	146	43.8	29.4
Sampson	27	42.5*	113	35.7	28.2
Scotland	29	83.3*	105	59.9	46.8
Stanly	52	82.8	239	77.6	58.7
Stokes	19	41.7*	113	49.4	33.0
Surry	79	110.1	268	74.5	49.3
Swain	5	35.0*	35	49.1*	36.4*
Transylvania	23	66.9*	106	62.8	25.6
Tyrrell	2	49.8*	10	48.8*	29.9*
Union	117	48.8	461	39.9	52.1
Vance	11	24.7*	62	27.9	21.5
Wake	298	26.8	1,215	22.7	29.8
Warren	9	45.6*	33	33.2*	17.2*
Washington	13	112.3*	44	73.8*	42.8*
Watauga	33	58.7*	126	45.9	42.3
Wayne	72	58.5	267	43.2	37.7
Wilkes	56	81.9	263	76.8	50.6
Wilson	47	57.5*	184	45.2	35.0
Yadkin	23	61.1*	110	58.5	40.1
Yancey	17	94.1*	80	90.1	52.4

*Death rates with a small number (<50) of deaths in the numerator should be interpreted with caution. SEE TECHNICAL NOTES on page 101.

Infant Death Rates

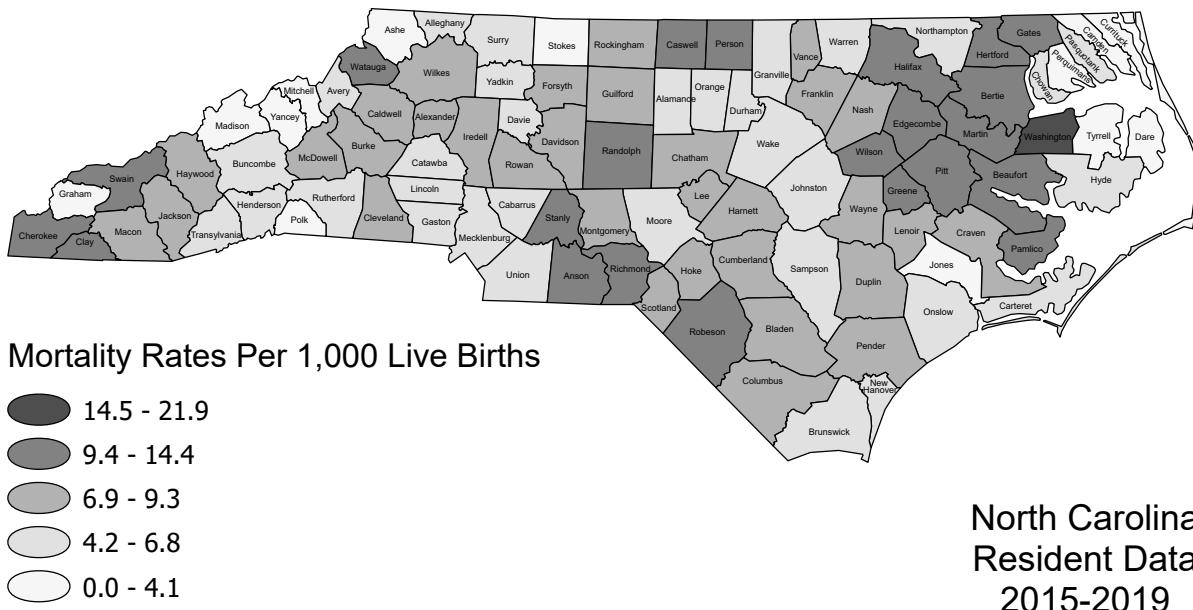


Figure 21

Table 21: Infant Death Rates (Per 1,000 Live Births)
North Carolina Resident Mortality Statistics Summary for 2019

Geographical Area:	Infant Deaths 2019	Death Rate* 2019	Infant Deaths 2015–2019	Death Rate* 2015–2019
NORTH CAROLINA	810	6.8	4,225	7.0
Alamance	8	4.3*	57	6.1
Alexander	3	8.4*	15	8.5*
Alleghany	1	12.7*	3	6.4*
Anson	3	11.8*	12	9.5*
Ashe	0	0.0*	4	3.8*
Avery	0	0.0*	4	5.7*
Beaufort	5	11.5*	23	10.3*
Bertie	1	6.2*	11	12.6*
Bladen	2	5.8*	15	8.7*
Brunswick	5	4.9*	32	6.3*
Buncombe	12	4.9*	60	4.8
Burke	6	6.7*	35	7.8*
Cabarrus	15	5.9*	74	5.9
Caldwell	11	12.5*	31	7.6*
Camden	0	0.0*	0	0.0*
Carteret	1	1.9*	16	5.8*
Caswell	3	14.4*	10	9.8*
Catawba	8	4.7*	55	6.5
Chatham	4	6.6*	29	9.0*
Cherokee	3	12.2*	14	11.6*
Chowan	0	0.0*	4	5.9*
Clay	0	0.0*	5	11.3*
Cleveland	7	6.1*	49	8.9*
Columbus	5	8.9*	27	9.3*
Craven	7	5.3*	50	7.2
Cumberland	37	6.8*	229	8.4
Currituck	1	3.9*	4	3.1*
Dare	1	3.2*	2	1.2*
Davidson	8	4.5*	67	7.6
Davie	4	10.0*	11	5.6*
Duplin	4	5.6*	32	9.1*
Durham	32	7.7*	128	6.1
Edgecombe	5	8.7*	33	11.0*
Forsyth	43	9.8*	195	8.9
Franklin	4	5.2*	26	7.2*
Gaston	16	6.2*	82	6.4
Gates	1	10.3*	5	9.8*
Graham	0	0.0*	1	2.4*
Granville	3	5.3*	19	6.5*
Greene	3	13.3*	10	9.6*
Guilford	56	9.3	267	8.7
Halifax	7	13.0*	30	10.7*
Harnett	13	7.0*	68	7.3
Haywood	5	9.5*	22	7.6*
Henderson	6	5.9*	31	5.8*
Hertford	0	0.0*	13	11.6*
Hoke	9	10.4*	39	8.7*
Hyde	0	0.0*	1	5.2*
Iredell	12	6.4*	80	8.4
Jackson	1	2.7*	15	7.9*

Table 21: Infant Death Rates (Per 1,000 Live Births)
North Carolina Resident Mortality Statistics Summary for 2019

Geographical Area:	Infant Deaths 2019	Death Rate* 2019	Infant Deaths 2015–2019	Death Rate* 2015–2019
Johnston	16	6.3*	78	6.6
Jones	0	0.0*	1	2.2*
Lee	4	5.1*	29	7.5*
Lenoir	6	9.7*	23	7.3*
Lincoln	3	3.4*	27	6.5*
McDowell	2	4.6*	16	7.1*
Macon	1	3.1*	12	7.2*
Madison	1	5.5*	4	4.0*
Martin	4	18.1*	13	10.7*
Mecklenburg	90	6.3	431	5.9
Mitchell	1	7.9*	2	2.8*
Montgomery	2	7.2*	12	8.3*
Moore	2	1.7*	33	5.9*
Nash	8	7.3*	43	8.1*
New Hanover	8	3.7*	61	5.5
Northhampton	1	6.1*	6	6.6*
Onslow	15	3.9*	110	5.5
Orange	13	11.2*	33	5.6*
Pamlico	1	13.7*	6	14.4*
Pasquotank	4	8.4*	16	6.7*
Pender	2	3.2*	24	7.6*
Perquimans	0	0.0*	2	3.4*
Person	3	6.9*	21	10.1*
Pitt	24	11.5*	103	9.9
Polk	0	0.0*	3	4.0*
Randolph	15	9.7*	76	9.7
Richmond	6	10.7*	28	10.1*
Robeson	23	13.3*	90	10.3
Rockingham	8	9.0*	41	9.1*
Rowan	14	9.0*	63	7.9
Rutherford	1	1.5*	22	6.5*
Sampson	3	4.1*	25	6.2*
Scotland	2	4.5*	18	8.0*
Stanly	6	9.0*	33	9.6*
Stokes	0	0.0*	8	4.1*
Surry	5	6.5*	22	5.9*
Swain	5	27.6*	10	11.6*
Transylvania	3	11.5*	8	6.0*
Tyrrell	0	0.0*	0	0.0*
Union	5	2.2*	52	4.4
Vance	5	8.8*	22	7.9*
Wake	74	5.8	357	5.6
Warren	1	6.9*	5	5.9*
Washington	4	30.3*	14	21.9*
Watauga	1	3.2*	17	9.5*
Wayne	17	10.5*	65	8.0
Wilkes	8	12.0*	27	7.9*
Wilson	7	7.2*	53	11.0
Yadkin	5	13.3*	13	6.8*
Yancey	0	0.0*	2	2.3*

*Death rates with a small number (<50) of deaths in the numerator should be interpreted with caution. SEE TECHNICAL NOTES on page 101.

TECHNICAL NOTES

Computation of Death Rates

In this report, total death rates and cause-specific death rates are expressed as resident deaths per 100,000 population. In 1999 and earlier editions of *Leading Causes of Death*, the total death rates were expressed per 1,000 population. To compare the total death rates in this edition to the total death rates published in 1999 and earlier editions, just move the decimal point two places to the left.

Deaths are assigned to cause-of-death categories based on the underlying (or primary) cause of death from the death certificate. Appendix B describes the cause-of-death categories in terms of codes from the 10th revision of the International Classification of Diseases. All rates in Tables 1–20 use total population in the denominator except rates for the sex-specific cancer sites. These rates use male or female population in the denominator. Population denominators for these rates were provided by the Population Estimates Program of the U.S. Census Bureau in collaboration with the National Center for Health Statistics (www.cdc.gov/nchs/nvss/bridged_race.htm).

Deaths in this report are assigned to place of residence. For deaths of people in long-term institutions (mental, penal, old age, orphan, nursing home, rest home, etc.), the institution is considered the usual residence if the decedent lived in the institution at least one year. College students and military personnel are considered residents of the college or military community.

The following definitions apply to the rates of this report:

Unadjusted Annual Death Rate: The annual death rates are computed as resident deaths per 100,000 population.

Unadjusted Five-Year Death Rate: The average annual death rates are computed as average resident deaths per 100,000 average population. These multi-year rates are computed by summing

the deaths for the five years, summing the population for the five years, dividing the former by the latter and then multiplying the result by 100,000. These rates are shown in the first set of county maps (Figures 1.A, 2.A, etc.).

Age-Adjusted Five-Year Death Rate: The average annual age-adjusted rates are computed by the direct method. These rates are also expressed as deaths per 100,000 population and represent the rate that would be expected if the age composition of the state and each county's population were the same as that projected for the nation in the year 2000 (the "standard" population). These rates are shown in the second set of county maps (Figures 1.B, 2.B, etc.).

The user should not compare an adjusted death rate to an unadjusted death rate. Also, adjusted rates for different time periods cannot be directly compared unless they were adjusted by the same standard population. See Appendix E for a more complete discussion of age-adjusted death rates.

The age-adjusted death rates in this 2019 edition of *Leading Causes of Death* were calculated using the projected United States 2000 population as the standard. In 1997 and earlier editions, different standard populations were used. Therefore the age-adjusted rates in the current edition cannot be compared to the age-adjusted rates in these older editions. When using older editions of *Leading Causes of Death*, please read the explanatory notes to understand the technical details of how the age-adjusted rates were calculated. The special, expanded 1998 edition of *Leading Causes of Death* includes five-year age-adjusted death rates, using the projected United States 2000 standard population, over a 20-year period (1979–1998) to allow for comparisons of the adjusted death rates over time. The death data were consistently coded under the ninth revision of the International Classification of Diseases from 1979 through 1998. The data from this 1998 report are available on the State Center for Health Statistics website.

We changed the standard population to the projected United States 2000 population to be consistent with the new practices of the National Center for Health Statistics. This allows direct comparisons of the state and county age-adjusted death rates for North Carolina to the published United States age-adjusted death rates.

In age-adjusting the death rates in this report, 10 age groups are used to compute age-specific death rates for each geographic area and cause of death. These rates are then applied to the projected 2000 United States standard population by age: 0–4, 5–14, 15–24, 25–34, 35–44, 45–54, 55–64, 65–74, 75–84 and 85+. For details of the age adjustment process,

refer to Appendix E.

For the maps, the natural breaks method was used. This method identifies breakpoints by looking for groupings and patterns inherent in the data. These maps show five levels of death rates, where level one is the lowest rate interval and level five the highest.

A word of caution: Rates for sex-specific cancers (e.g., prostate) use male or female population in the denominator and therefore are not comparable to other rates. Therefore, in ranking the causes of cancer death by site one must use the observed *number* of deaths rather than the rates.

Interpretation of Death Rates

To assess a county's relative mortality during a multi-year period, both the unadjusted and the adjusted rate can be compared to the corresponding state rates for a particular cause of death. This, of

course, should not be done if the county's unadjusted rate has fluctuated widely in recent years. The rate should represent a relatively stable situation. Then, the following alternative interpretations will apply:

Relative Status of		Interpretation of Unadjusted Rate
Unadjusted Rate	Adjusted Rate	
Low	Low	Low mortality is not due to age, other mortality conditions are favorable.
Low	High	Low mortality is due to favorable age distribution, other mortality conditions are unfavorable.
High	Low	High mortality is due to unfavorable age distribution, other mortality conditions are favorable.
High	High	High mortality is not due to age, other mortality conditions are unfavorable.

Caution:

In assessing the relative mortality of a county, be particularly aware of rates based on a small number of deaths (fewer than 50 deaths). Read carefully the next section on "Caution About Use of Rates."

Caution About Use of Rates

Small Number of Events:

Any death rate with a small number of deaths in the numerator will have substantial random variation over time (a large standard error). A good rule of thumb is that any rate based on fewer than 50 events in the numerator may be subject to serious random error. Therefore, extreme caution should be taken when making comparisons or assessing trends with rates calculated with fewer than 50 events. Many of the death rates in this report have numerators smaller than 50. For a detailed discussion of Problems with Rates Based on Small Numbers, refer to Statistical Primer No. 12 of the State Center for Health Statistics, available on our website at www.schs.state.nc.us/schs/pdf/primer12_2.pdf or by request.

Age-Adjusted Death Rates:

Unadjusted death rates are affected by the demographic composition of populations. Therefore, differences in the age distribution from one geographic area to another or from one point in time to another may hinder comparisons. The standardized adjustment of rates addresses this problem. The age-adjusted rate is a hypothetical rate computed in a way that reflects what the death rate would be in a particular geographic area, if the geographic area had the same age composition of the standard population. The measure, while useful for comparative purposes across time and geographic area, has no descriptive value in itself. The adjusted rate provides opportunities for comparisons across time and geographic area as long as all rates that are to be compared are adjusted to the same standard population. For more information on age-adjusted death rates, see Appendix E.

APPENDICES

Appendix A

Comparability Ratios for the Major Causes of Death in North Carolina Vital Statistics, Volume 2

The comparability ratio is an adjustment factor that is applied to the number of deaths coded to a cause-of-death category under the International Classification of Diseases, 9th Revision (ICD-9) to make the number more comparable to the number coded under the 10th Revision (ICD-10). In North Carolina, causes of death were coded using ICD-9 from 1979 through 1998 and using ICD-10 beginning in 1999. The comparability ratios indicate the extent of discontinuities in cause-of-death trends resulting from implementing ICD-10. A large sample of 1996 United States deaths were

classified by both ICD-9 and ICD-10 to develop the comparability ratios. The comparability ratio is the ratio of the number of deaths in the 1996 sample in an ICD-10 cause-of-death category to the number of deaths in the sample in the same category as coded under ICD-9. More detailed comparability ratios are available from the State Center for Health Statistics or in the publication of the National Center for Health Statistics titled *Comparability of Cause of Death Between ICD-9 and ICD-10: Preliminary Estimates* (National Vital Statistics Reports, Volume 49, Number 2; May 18, 2001).

Cause of Death	Comparability Ratio
Heart disease	0.99
Cerebrovascular disease	1.06
Cancer	1.01
Cancer of colon, rectum and anus	1.00
Cancer of trachea, bronchus and lung	0.98
Cancer of breast	1.01
Cancer of prostate	1.01
Human immunodeficiency virus (HIV) disease	1.14
Septicemia	1.19
Diabetes mellitus	1.01
Pneumonia and influenza	0.70
Chronic lower respiratory diseases	1.05
Chronic liver disease and cirrhosis	1.04
Nephritis, nephrotic syndrome and nephrosis	1.23
Unintentional motor vehicle injuries	0.85
All other unintentional injuries	1.08
Suicide	1.00
Homicide	1.00
Alzheimer's disease	1.55
Deaths from all causes	1.00

Appendix B

List of Selected Causes of Death (used for Tables E and F)

Cause of Death	ICD-10 Codes*
Heart disease	I00-I09,I11,I13, I20-I51
Cerebrovascular disease	I60-I69
Atherosclerosis	I70
Cancer	C00-C97
Lip, oral cavity and pharynx	C00-C14
Stomach	C16
Colon, rectum and anus	C18-C21
Liver	C22
Pancreas	C25
Larynx	C32
Trachea, bronchus and lung	C33-C34
Malignant melanoma of skin	C43
Breast	C50
Cervix uteri	C53
Ovary	C56
Prostate	C61
Bladder	C67
Brain	C71
Non-Hodgkins lymphoma.	C82-C85
Leukemia.	C91-C95
Human immunodeficiency virus (HIV) disease	B20-B24
Septicemia.	A40-A41
Diabetes mellitus.	E10-E14
Pneumonia and influenza	J09-J18
Chronic lower respiratory diseases.	J40-J47
Chronic liver disease and cirrhosis	K70,K73-K74
Nephritis, nephrotic syndrome and nephrosis.	N00-N07,N17-N19,N25-N27
Motor vehicle injuries (unintentional)	V02-V04,V09.0,V09.2,V12-V14,V19.0-V19.2, V19.4-V19.6,V20-V79,V80.3-V80.5,V81.0-V81.1,V82.0-V82.1, V83-V86,V87.0-V87.8,V88.0-V88.8,V89.0,V89.2
All other unintentional injuries	V01,V05-V06,V09.1,V09.3-V09.9 V10-V11,V15-V18,V19.3,V19.8-V19.9,V80.0-V80.2,V80.6-V80.9, V81.2-V81.9,V82.2-V82.9,V87.9,V88.9,V89.1,V89.3,V89.9,V90-V99, W00-X59,Y85,Y86
Suicide.	X60-X84,Y87.0
Homicide.	X85-Y09,Y87.1
Alzheimer's disease	G30

* International Classification of Diseases, 10th Revision.

Appendix C

List of 51 Selected Causes of Death*

(used for Tables A through D)

Cause of Death	ICD-10 Codes**
Salmonella infections	A01-A02
Shigellosis and amebiasis	A03, A06
Tuberculosis	A16-A19
Whooping cough	A37
Scarlet fever and erysipelas	A38, A46
Meningococcal infection	A39
Septicemia	A40-A41
Syphilis	A50-A53
Acute poliomyelitis	A80
Arthropod-borne viral encephalitis	A83-A84, A85.2
Measles	B05
Viral hepatitis	B15-B19
Human immunodeficiency virus (HIV) disease	B20-B24
Malaria	B50-B54
Malignant neoplasms	C00-C97
In situ neoplasms, benign neoplasms and neoplasms of uncertain or unknown behavior	D00-D48
Anemias	D50-D64
Diabetes mellitus	E10-E14
Nutritional deficiencies	E40-E64
Meningitis	G00, G03
Parkinson's disease	G20-G21
Alzheimer's disease	G30
Diseases of heart	I00-I09, I11, I13, I20-I51
Essential (primary) hypertension and hypertensive renal disease	I10, I12
Cerebrovascular diseases	I60-I69
Atherosclerosis	I70
Aortic aneurysm and dissection	I71
Influenza and pneumonia	J09-J18
Acute bronchitis and bronchiolitis	J20-J21
Chronic lower respiratory diseases	J40-J47
Pneumoconioses and chemical effects	J60-J66, J68
Pneumonitis due to solids and liquids	J69
Peptic ulcer	K25-K28
Diseases of appendix	K35-K38
Hernia	K40-K46
Chronic liver disease and cirrhosis	K70, K73-K74
Cholelithiasis and other disorders of gallbladder	K80-K82

Appendix C (continued)

Cause of Death	ICD-10 Codes**
Nephritis, nephrotic syndrome and nephrosis	N00-N07, N17-N19, N25-N27
Infections of kidney	N10-N12, N13.6, N15.1
Hyperplasia of prostate	N40
Inflammatory diseases of female pelvic organs	N70-N76
Pregnancy, childbirth and the puerperium	O00-O99
Certain conditions originating in the perinatal period	P00-P96
Congenital malformations, deformations and chromosomal abnormalities	Q00-Q99
Motor vehicle injuries	V02-V04, V09.0, V09.2, V12-V14, V19.0-V19.2, V19.4-V19.6, V20-V79, V80.3-V80.5, V81.0-V81.1, V82.0-V82.1, V83-V86, V87.0-V87.8, V88.0-V88.8, V89.0, V89.2
All other unintentional injuries	V01, V05-V06, V09.1, V09.3-V09.9, V10-V11, V15-V18, V19.3, V19.8-V19.9, V80.0-V80.2, V80.6-V80.9, V81.2-V81.9, V82.2-V82.9, V87.9, V88.9, V89.1, V89.3, V89.9, V90-V99, W00-X59, Y85, Y86
Intentional self-harm (suicide)	X60-X84, Y87.0
Assault (homicide)	X85-Y09, Y87.1
Legal intervention	Y35, Y89.0
Operations of war and their sequelae	Y36, Y89.1
Complications of medical and surgical care	Y40-Y84, Y88

* List adapted from rankable causes in the list of 113 causes of death developed by the National Center for Health Statistics.

**International Classification of Diseases, 10th Revision.

Appendix D

List of 72 Selected Causes of Infant Death*

(used for Table A, Ages <1)

Cause of Death	ICD-10 Codes**
Diarrhea and gastroenteritis of presumed infectious origin	A09
Tuberculosis	A16-A19
Tetanus	A33, A35
Diphtheria	A36
Whooping cough	A37
Meningococcal infection	A39
Septicemia	A40-A41
Congenital syphilis	A50
Gonococcal infection	A54
Acute poliomyelitis	A80
Varicella (chickenpox)	B01
Measles	B05
Human immunodeficiency virus (HIV) disease	B20-B24
Mumps	B26
Candidiasis	B37
Malaria	B50-B54
Pneumocystosis	B59
Malignant neoplasms	C00-C97
In situ neoplasms, benign neoplasms and neoplasms of uncertain or unknown behavior	D00-D48
Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	D50-D89
Short stature, not elsewhere classified	E34.3
Nutritional deficiencies	E40-E64
Cystic fibrosis	E84
Volume depletion, disorders of fluid, electrolyte and acid-base balance	E86-E87
Meningitis	G00, G03
Infantile spinal muscular atrophy, type I (Werdnig-Hoffman)	G12.0
Infantile cerebral palsy	G80
Anoxic brain damage, not elsewhere classified	G93.1
Diseases of the ear and mastoid process	H60-H93
Diseases of the circulatory system	I00-I99
Acute upper respiratory infections	J00-J06
Influenza and pneumonia	J09-J18
Acute bronchitis and acute bronchiolitis	J20-J21
Bronchitis, chronic and unspecified	J40-J42
Asthma	J45-J46
Pneumonitis due to solids and liquids	J69
Gastritis, duodenitis and noninfective enteritis and colitis	K29, K50-K55
Hernia of abdominal cavity and intestinal obstruction without hernia	K40-K46, K56
Renal failure and other disorders of kidney	N17-N19, N25, N27

Appendix D (continued)

Cause of Death	ICD-10 Codes**
Newborn affected by maternal hypertensive disorders	P00.0
Newborn affected by other maternal conditions which may be unrelated to present pregnancy	P00.1-P00.9
Newborn affected by maternal complications of pregnancy	P01
Newborn affected by complications of placenta, cord and membranes	P02
Newborn affected by other complications of labor and delivery	P03
Newborn affected by noxious influences transmitted via placenta or breast milk	P04
Slow fetal growth and fetal malnutrition	P05
Disorders related to short gestation and low birth weight, not elsewhere classified	P07
Disorders related to long gestation and high birth weight	P08
Birth trauma	P10-P15
Intrauterine hypoxia and birth asphyxia	P20-P21
Respiratory distress of newborn	P22
Congenital pneumonia	P23
Neonatal aspiration syndromes	P24
Interstitial emphysema and related conditions originating in the perinatal period	P25
Pulmonary hemorrhage originating in the perinatal period	P26
Chronic respiratory disease originating in the perinatal period	P27
Atelectasis	P28.0-P28.1
Bacterial sepsis of newborn	P36
Omphalitis of newborn with or without mild hemorrhage	P38
Neonatal hemorrhage	P50-P52, P54
Hemorrhagic disease of newborn	P53
Hemolytic disease of newborn due to isoimmunization and other perinatal jaundice	P55-P59
Hematological disorders	P60-P61
Syndrome of infant of a diabetic mother and neonatal diabetes mellitus	P70.0-P70.2
Necrotizing enterocolitis of newborn	P77
Hydrops fetalis not due to hemolytic disease	P83.2
Congenital malformations, deformations and chromosomal abnormalities	Q00-Q99
Sudden infant death syndrome	R95
Motor vehicle injuries	V02-V04, V09.0, V09.2, V12-V14, V19.0-V19.2, V19.4-V19.6, V20-V79, V80.3-V80.5, V81.0-V81.1, V82.0-V82.1, V83-V86, V87.0-V87.8, V88.0-V88.8, V89.0, V89.2
All other unintentional injuries	V01, V05-V06, V09.1, V09.3-V09.9, V10-V11, V15-V18, V19.3, V19.8-V19.9, V80.0-V80.2, V80.6-V80.9, V81.2-V81.9, V82.2-V82.9, V87.9, V88.9, V89.1, V89.3, V89.9, V90-V99, W00-X59, Y85, Y86
Assault (homicide)	X85-Y09, Y87.1
Complications of medical and surgical care	Y40-Y84, Y88

* List adapted from rankable causes in the list of 130 causes of infant death developed by the National Center for Health Statistics.

**International Classification of Diseases, 10th Revision.

Appendix E



STATISTICAL PRIMER

State Center for Health Statistics • 1908 Mail Service Center • Raleigh, NC 27699-1908 • 919/733-4728
www.schs.state.nc.us/SCHS

No. 13

Originally Published August 1998; Revised August 2008
Revised May 2010

Age-Adjusted Death Rates

by

Paul A. Buescher

Introduction

Mortality or death rates are often used as measures of health status for a population. Population-based incidence or morbidity data are available in North Carolina in a few areas such as cancer and certain communicable diseases, but for many chronic diseases we know only how many people died from the disease and not how many are living with it. Given the importance of data from death certificates in measuring the health of populations, it is important that valid comparisons of death rates are made. Many factors affect the risk of death, including age, race, gender, occupation, education, and income. By far the strongest of these factors affecting the risk of death is age, with persons in the oldest age groups having a much higher risk of death. Populations often differ in age composition. A “young” population has a higher proportion of persons in the younger age groups, while an “old” population

has a higher proportion in the older age groups and is expected to have higher crude (unadjusted) death rates than a “young” population. Therefore, it is often important to control for differences among the age distributions of populations when making comparisons among death rates to assess the relative risk of death. This *Statistical Primer* describes how age-adjusted death rates are calculated and discusses some related issues.

The methods for adjusting death rates for age that are shown here could also be applied to other characteristics of a population, such as income or gender, if it were considered desirable to adjust for such characteristics before comparing death rates. Also, disease incidence rates, birth rates, or other types of rates could be adjusted for age, or other factors, using the general approach presented here.



NORTH CAROLINA DEPARTMENT OF HEALTH AND HUMAN SERVICES

Crude and Age-Specific Death Rates

A crude or unadjusted death rate is simply the number of deaths divided by the population at risk, often multiplied by some constant so that the result is not a fraction.

 *Formula:*

$$\text{Crude death rate} = \frac{\# \text{ deaths}}{\text{population at risk}} \times 1,000$$

For example, for Hertford County, North Carolina, during the period 1991 through 1995, there were 1,336 deaths to residents of the county. To get an annualized death rate for this five-year period, the estimated mid-year resident population is summed over the five years. For Hertford County, the sum of the population of those five years is 112,419. The crude death rate is 1,336 divided by 112,419 which equals .01188. This is the average annual proportion of residents who died during the period 1991–95 (slightly more than 1 percent). When multiplied by 1,000, which is sometimes used as a multiplier for a death rate for all causes of death, the rate is 11.9 deaths per 1,000 population per year (see

last row of **Table 1**). For death rates for specific causes of death, a multiplier of 100,000 is often used so that the rate is not less than 1.0. For smaller geographic areas or when using cause-specific death rates, it is often desirable to calculate multi-year death rates to decrease random variation in the rates due to small numbers of deaths in a single year. These multi-year death rates are essentially average annual rates.

The crude death rate is a good measure of the overall magnitude of mortality in a population. If a population is old and has a high mortality rate as a result, then the crude rate is useful information for some purposes, such as planning for the delivery of health care services.

An age-specific death rate is simply a crude death rate for a specific age group. One can also calculate rates specific for race, gender, or other factors. Table 1 shows age-specific death rates for Hertford County residents for the period 1991–95, with 10 commonly used age groupings. Note that the death rate for ages 0–4 is substantially higher than the death rates for the other younger age groups (primarily due to a high death rate during infancy); only at ages 45–54 does the death rate exceed that for ages 0–4. It can

**Table 1. Age-Specific Death Rates for All Causes of Death:
Hertford County, North Carolina Residents (1991–95 Combined)**

Age Group	1 Number of Deaths (1991–95)	2 Total Population (1991–95)	3 Percent of Population in Each Age Group	4 Proportion Who Died	5 Age-Specific Death Rates per 1,000 Population
0–4	30	8,150	7.3	.00368	3.68
5–14	2	17,109	15.2	.00012	0.12
15–24	24	16,601	14.8	.00145	1.45
25–34	34	14,872	13.2	.00229	2.29
35–44	59	16,199	14.4	.00364	3.64
45–54	85	12,381	11.0	.00687	6.87
55–64	147	10,277	9.2	.01430	14.30
65–74	305	9,370	8.3	.03255	32.55
75–84	406	5,631	5.0	.07210	72.10
85+	244	1,829	1.6	.13341	133.41
Total	1,336	112,419	100.0	.01188	11.9

be immediately seen that the death rates are many times higher in the oldest age groups. Therefore, a geographic area or demographic group with an older population will automatically have a higher overall death rate just because of the age distribution. **The main purpose of age-adjusting death rates is to control for differences in the age distribution of various populations before making mortality comparisons.**

For some causes of death, such as injuries (i.e., work-related or from automobile crashes) and AIDS, older persons do not have the highest death rates. But even in these cases it is important to standardize for age when comparing death rates across different populations, since some populations may have a higher proportion of persons in the age groups with the highest death rates.

Another *Statistical Primer* by the State Center for Health Statistics discusses the issue of random error in vital rates and presents formulas for quantifying this error and calculating confidence intervals around the measured rates (reference #1). Those formulas are applicable to the crude and age-specific rates presented here, and to any simple or unadjusted rate.

Note: Random error may be substantial when a rate or percentage has a small number of events in the numerator (e.g., less than 20).

Age-Adjusted Death Rates

Direct Method

The direct method of age adjustment is frequently used to compare the death rates of different populations, by controlling for differences in age distribution. The age-specific death rates of the population of interest (sometimes called the “study” population) are applied to the age distribution of a “standard” population in order to calculate “expected deaths.” The expected deaths are the deaths that would occur in the standard population IF it had the same death rates of the study population in each age group. These expected deaths for each age group are then summed and divided by the total standard population to arrive at the age-adjusted death rate. **Stated another way, this is the death rate that the study population would have IF it had the same age distribution as the standard population.**

Statistical Primer No. 13
N.C. Department of Health and Human Services

Formula:

$$\text{Age-adjusted death rate} = \frac{\text{total expected deaths}}{\text{standard population}} \times 1,000$$

Age-adjusted death rates for different geographic areas or population groups are comparable when they are adjusted to the same standard population. The 2000 U.S. population by age has been used as the standard population for all recent publications of the State Center for Health Statistics, following the practice of the National Center for Health Statistics (reference #2). Most often, a “standard million” is used for the standard population (population total is 1,000,000) rather than the actual 2000 population of the U.S. For the age-adjustment calculations, it is only important that the proportions by age for the year 2000 be maintained. A standard population is in effect just an arbitrary set of proportions by age, though it is the current convention to use the proportions from the 2000 U.S. population.

Table 2 provides an example. The age-specific death rates for all causes of death for Hertford County are applied to the 1980 North Carolina population by age, which is used as the standard population only for this illustration of the calculations. To generate the expected deaths in column 4, the rates shown in column 1 are converted to a proportion by moving the decimal point three places to the left and then multiplying by the standard population groups by age in column 2. The total expected deaths are then divided by the total standard population and the result multiplied by 1,000 to yield an age-adjusted death rate for Hertford County of 8.7. Usually it would not be necessary to show the age-specific death rates to two decimal places, but in this case the extra digits are needed to get a more accurate estimate of the number of expected deaths.

This age-adjusted death rate of 8.7 is considerably lower than the crude death rate of 11.9. This is mainly because the percentages in the age groups 65 and older are substantially lower in the 1980 North Carolina standard population (Table 2, column 3) than the same percentages in the 1991–95 Hertford County population (Table 1, column 3). When the Hertford County age-specific death rates are adjusted to a younger standard population, the overall adjusted rate is lower.

Division of Public Health
State Center for Health Statistics

Ten age groups are often used for age adjustment of death rates. This provides enough detail to capture differences in the age distributions of the populations that are being compared, but not so many age categories that the data are “spread too thin.”

An alternate way to compute the age-adjusted death rate by the direct method is simply to multiply the age-specific death rates by the corresponding proportion of the standard population in that age group and then sum these products across all 10 age groups. This weighted sum is represented by the following formula.

Formula:

$$\text{Directly age-adjusted death rate} = \sum_{i=1}^{10} (w_i p_i)$$

where p_i is the age-specific mortality rate for age group i and w_i (or the weight) is the proportion of

the standard population in age group i . (Tip: Move the decimal point of the percentages in column 3 of Table 2 two places to the left to get the proportion.) The crude death rate can also be expressed as a weighted sum of the age-specific death rates and the proportions of the population by age, but in this case the proportions are simply the proportions of the study population (instead of the standard population) in each age group. Try to reproduce the crude and age-adjusted death rates in Tables 1 and 2 using this weighted sum method! Any minor differences are due to rounding.

An age-adjusted death rate is a summary measure that condenses a lot of information into one figure. Where feasible, it is always desirable to inspect the age-specific death rates of the populations being compared. This extra attention to detail often provides further insights into the nature of the mortality differences between the populations.

Table 2. Age Adjustment of the All-Cause Death Rate Using the Direct Method: Hertford County, North Carolina Residents (1991–95 Combined)

Age Group	1 Age-Specific Death Rates per 1,000 Population	2 1980 N.C. Population (Standard)	3 Percentage of Standard Population by Age	4 Expected Deaths in Hertford County
0–4	3.68	404,560	6.9	1,489
5–14	0.12	927,836	15.7	111
15–24	1.45	1,144,204	19.4	1,659
25–34	2.29	968,215	16.4	2,217
35–44	3.64	689,838	11.7	2,511
45–54	6.87	601,866	10.2	4,135
55–64	14.30	552,494	9.4	7,901
65–74	32.55	389,244	6.6	12,670
75–84	72.10	172,408	2.9	12,431
85+	133.41	45,956	0.8	6,131
Total	11.9	5,896,621	100.0	51,255
(Crude death rate)				

$$\text{Age-Adjusted Death Rate} = (51,255 \div 5,896,621) \times 1,000 = 8.7$$

Table 3. Age Adjustment of the All-Cause Death Rate Using the Indirect Method: Hertford County, North Carolina Residents (1991–95 Combined)

Age Group	1 Total Population (1991–95)	2 Age-Specific Death Rates in 1993 North Carolina Standard Population (per 1,000)	3 Expected Deaths in Hertford County
0–4	8,150	2.44	20
5–14	17,109	0.25	4
15–24	16,601	0.98	16
25–34	14,872	1.53	23
35–44	16,199	2.55	41
45–54	12,381	5.03	62
55–64	10,277	12.41	128
65–74	9,370	28.48	267
75–84	5,631	63.19	356
85+	1,829	147.85	270
Total	112,419	9.0 (Crude Rate in Standard)	1,187

Indirect Method

When to Use:

- When the numbers of deaths in each age group in the study population are too small to calculate stable age-specific rates.
- In developing countries or other areas where no information is available on age-specific deaths for the study population, only for a national or standard population.

The indirect method of age-adjustment applies the age-specific death rates of the standard population to the age distribution of the study population in order to generate expected deaths in the study population. **These are the deaths that would occur in the study population IF the age-specific death rates in the standard population were in operation.** The expected deaths are then summed across the age groups and compared to the actual or observed number of deaths

for the study population. This ratio of observed/expected deaths is often referred to as the **standardized mortality ratio**, or SMR. A ratio greater than 1.0 indicates higher mortality in the study population compared to the standard population (controlling for age distribution), while a ratio less than 1.0 indicates lower mortality in the study population. The SMR controls for age distribution since both the observed and expected deaths are based on the age distribution of the study population. Multiplying the SMR times the crude death rate in the standard population produces the **indirectly standardized death rate** for the study population.

Table 3 presents an example of indirectly standardized death rates. After moving the decimals three places to the left, age-specific death rates in the 1993 North Carolina standard population (column 2) are multiplied by the 1991–95 Hertford County population in column 1 to produce the expected deaths in column 3. These expected deaths by age group may be compared to the actual 1991–95 deaths by age group in Hertford County (Table 1, column 1). Dividing the 1,336 total deaths observed in Hertford County during 1991–95

by the 1,187 total expected deaths gives us an SMR of 1.13. This indicates that the overall 1991–95 death rate in Hertford County was higher than the rate in the 1993 North Carolina standard population, controlling for age. Multiplying the crude death rate in the standard population of 9.0 by 1.13 gives an indirectly standardized death rate for Hertford County of 10.2. To avoid differences between the observed and expected deaths due to changing (often declining) age-specific death rates over time, it is usually desirable to use a standard population that is close to the same year(s) as the data for the study population. Therefore, the 1993 (midpoint) North Carolina standard was used in this example.

 *Formula:*

$$\text{Standardized mortality ratio (SMR)} = \frac{\text{observed deaths}}{\text{expected deaths}}$$

Ex: SMR for Hertford County using information above =
 $1,336 \div 1,187 = 1.13$

 *Formula:*

$$\text{Indirectly standardized mortality rate} = \text{crude death rate} \times \text{SMR}$$

Ex: Indirectly standardized mortality rate
 for Hertford County =
 $9.0 \times 1.13 = 10.2$

Issues in Using Different Standard Populations

An age-adjusted death rate is a hypothetical index, designed to facilitate comparisons among populations, rather than a true measure of risk. An age-adjusted death rate (by the direct method) answers the question: What would the death rate in a study population be IF that population had the same age distribution as the standard population? So in theory any population distribution can be used as the standard; it is only a set of weights applied to the age-specific death rates. The choice of the standard population will not usually have a great effect on the **relative** levels of the age-adjusted rates that are being compared. But it is important to remember that age-adjusted death rates can be compared to each other only if they are adjusted to the same standard.

For many years the National Center for Health Statistics used the 1940 United States population as the standard for age-adjusting death rates. Converted to a population of one million with the same proportions at each age as in the 1940 population, this standard was presented as a “standard million.” An advantage of consistently using this same standard population is that it promotes comparisons of age-adjusted death rates, especially in looking at trends over time from 1940 to later years. A disadvantage of using this standard is that the size of the adjusted rate is often much different from the size of the crude rate in the study population. This is

Comparison of the Direct and Indirect Methods of Adjustment

Direct Method

- Use when the number of deaths in the study population is large enough to produce stable age-specific death rates.
- Assumes a constant age distribution across all study populations.
- Rates from different study populations (e.g., counties in North Carolina) *can* all be directly compared to each other if adjusted using the same standard population.

Indirect Method

- Use when the number of deaths in the study population is too small to calculate stable age specific death rates.
- Maintains differences in age distributions between study populations.
- Rates from different study populations *cannot* be compared to each other since they are not based on a common age distribution.
- Should compare the adjusted rate only with the rate of the standard population.

mainly because: a) the 1940 United States population was much younger than more recent North Carolina and U.S. populations, and b) death rates are much higher in the older age groups. Therefore, standardizing to a much younger population results in a much lower age-adjusted death rate. In recognition of this problem, the National Center for Health Statistics and the State Center for Health Statistics now use the year 2000 United States population as the standard population (reference #2). This means that the age-adjusted death rates are generally much more similar in size to contemporary crude death rates.

One should be especially careful when assessing trends over time using age-adjusted death rates. **It is essential that rates for different years be adjusted to the same standard population before making comparisons.** Also, if the standard population is very different from the populations of the years being compared (as is often the case when using the 1940 U.S. standard), changes in the adjusted rates over time may not be an accurate reflection of the actual changes in the risk of death. In an attempt to promote comparability of age-adjusted death rates over time, the State Center for Health Statistics recomputed age-adjusted death rates for the period 1979 through 1998 (years in which the 9th revision of the International Classification of Diseases was used for death coding) using the 2000 U.S. standard population. This time series of rates can be accessed at www.schs.state.nc.us/SCHS/deaths/lcd/1998. All adjusted death rates in State Center for Health Statistics publications for the years 1999 and forward use the 2000 U.S. standard population for age adjustment, though for some causes of death there are problems of comparability with previous years due to the use of the 10th revision of the International Classification of Diseases for death coding beginning in 1999.

Errors of Adjusted Rates

A detailed discussion of random errors in age-adjusted death rates is beyond the scope of this paper. The reader should refer to the *Statistical Primer* cited in reference #1 for information on the general concepts of random errors in rates, confidence intervals, and determining if the difference between two rates is statistically significant. Using the terminology in that paper, a 95% confidence interval around a proportion can be computed.

Statistical Primer No. 13
N.C. Department of Health and Human Services

Formula:

95% confidence interval around a proportion =

$$p \pm 1.96 \sqrt{\frac{pq}{n}}$$

The $\sqrt{pq/n}$ is commonly known as the **standard error of the proportion**. In this case a death rate is treated as the proportion (p) of people who died during the time period of interest. If the proportion who died is small, then q (which is $1-p$ or the proportion who did not die) will be very close to 1.0 and the formula becomes $\sqrt{p/n}$, where n is the total population.

We saw from the discussion above that a directly age-adjusted death rate is a weighted sum of the age-specific death rates. To get the standard error of the age adjusted death rate, sum up all the products of the square of the weight (w) for each age group and the standard error (squared) of the age-specific death rate. Then take the square root of the sum.

Formula:

Standard error of the age-adjusted death rate =

$$\sqrt{\sum_{i=1}^{10} w_i^2 (p_i/n_i)}$$

Remember that the weight is simply the proportion of the standard population in age group i . To get the 95% confidence interval around the age-adjusted death rate, multiple the standard error of the age-adjusted death rate by 1.96.

This is a very brief discussion of a lengthy topic. For questions or assistance, please contact the author.

Issues in Adjusting for Race and Gender

For many years, the death rates in the *Leading Causes of Death* publication of the State Center for Health Statistics were adjusted simultaneously for age, race, and gender. This was done for five-year death rates for specific causes of death, by county of residence. With 40 age-race-gender-specific rates being computed (10 age groups x 2 race groups: white/minority x 2 gender groups), the data were being spread too thin. A particular problem was in the western North Carolina counties, which generally have very small minority

Division of Public Health
State Center for Health Statistics

populations. There were also problems in other counties with small populations overall. Since some causes of deaths are statistically rare, just one or two deaths in a small population group could result in a very high age-race-gender-specific rate, which would severely inflate the adjusted death rate. If this rate were applied to the appropriate age-race-gender group of the standard population, a very large number of expected deaths could result and the adjusted rate would be extremely high. On the other hand, zero deaths in several population groups may result in a very low age-race-gender-adjusted rate. Adjusting only for age reduces the bias due to small numbers.

Age generally has a much stronger impact on mortality than race or gender, and therefore is the most important factor to adjust for. Also, there are other questions about adjusting for race. Age differences in mortality are not easily modified. Racial differences in mortality, on the other hand, are often due to factors that can be changed through public health, medical care, or socioeconomic interventions. Adjusting for race may cover up the fact that certain geographic areas, for example, have higher mortality because they have a larger percentage of minority populations (who often have higher death rates). For example, minorities in Hertford County (primarily African Americans) are approximately 63 percent of the total population. In many cases we would want to target these areas for public health interventions and not produce statistics that adjust a higher level of mortality that is potentially modifiable to make it look lower.

Rather than adjusting for race, a better approach would be to examine racial differences in mortality by calculating race-specific death rates, perhaps adjusted for age. Minority populations often have a younger age distribution than whites. Adjusting for age usually results in relatively higher death rates for minorities, and larger differences between whites and minorities than when comparing crude death rates. In adjusting the death rates of different race (or race-gender) groups for age, it is important to use the same standard population (or set of age-specific weights) in all cases so that the adjusted rates will be directly comparable. At the county level in North Carolina, small numbers of deaths generally preclude calculating statistically reliable death rates for minority populations other than African Americans. For this reason, we sometimes

calculate death rates for two broad racial groups: white and all minorities combined. In North Carolina as a whole, African Americans comprise more than 85% of the minority population. (Hispanics are considered an ethnic rather than a racial group. Most Hispanics are counted within the white racial group for vital statistics.) Another problem with calculating death rates for specific minority sub-groups is the lack of accurate population estimates to use in the denominators of the death rates.

Readers with questions or comments about this *Statistical Primer* may contact Paul Buescher at (919) 715-4478 or by e-mail at Paul.Buescher@ncmail.net.

Further reading on the topic of adjusted rates may be found in references 2, 3, and 4.

Reference

1. Buescher PA. Problems with rates based on small numbers. *Statistical Primer*, No. 12, State Center for Health Statistics, April 1997, Revised August 2008. Available at: www.schs.state.nc.us/SCHS/pdf/primer12_2.pdf
2. National Center for Health Statistics, *Year 2000 population standard for age-adjusting death rates in the United States: Information on the adoption, implementation, and impact, plus frequently asked Q&A's*. Available at: www.cdc.gov/nchs/data/dvs/IW134Pfct.pdf
3. Rothman KJ. *Modern Epidemiology* (Chapter 5). Little, Brown and Co., Boston/Toronto, 1986.
4. Anderson RN, Rosenberg HR. Age standardization of death rates: implementation of the year 2000 standard. *National Vital Statistics Reports*, Vol. 47, No. 3, October 7, 1998. National Center for Health Statistics.

