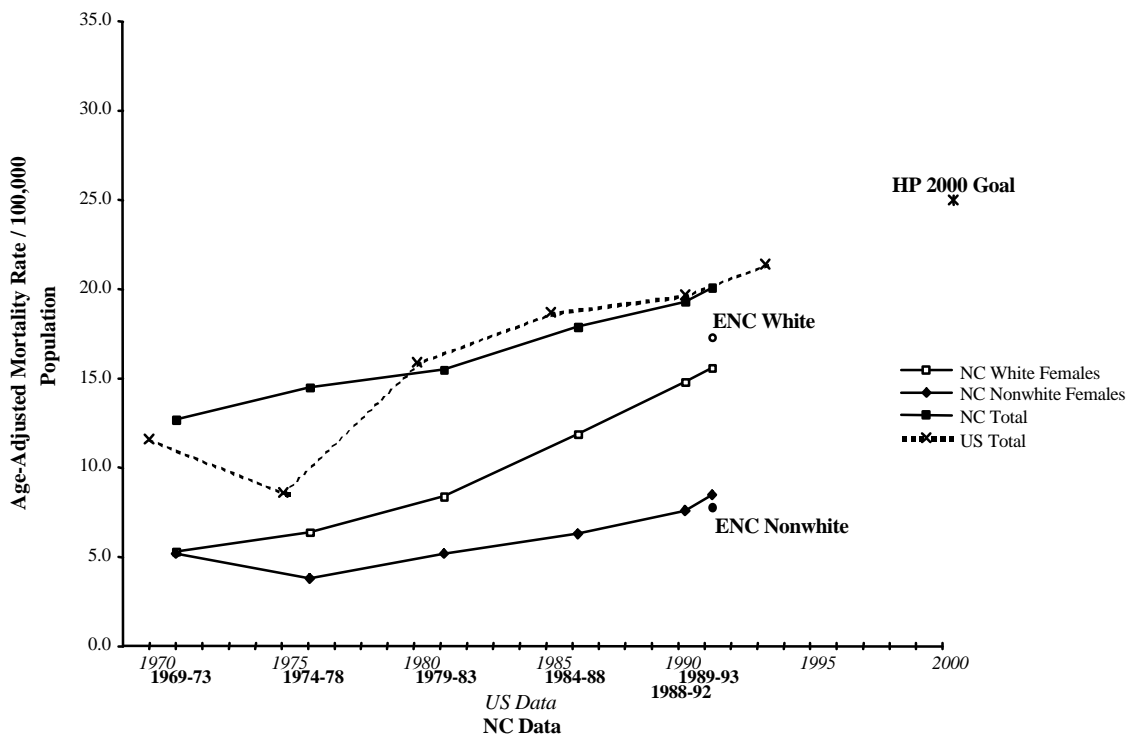


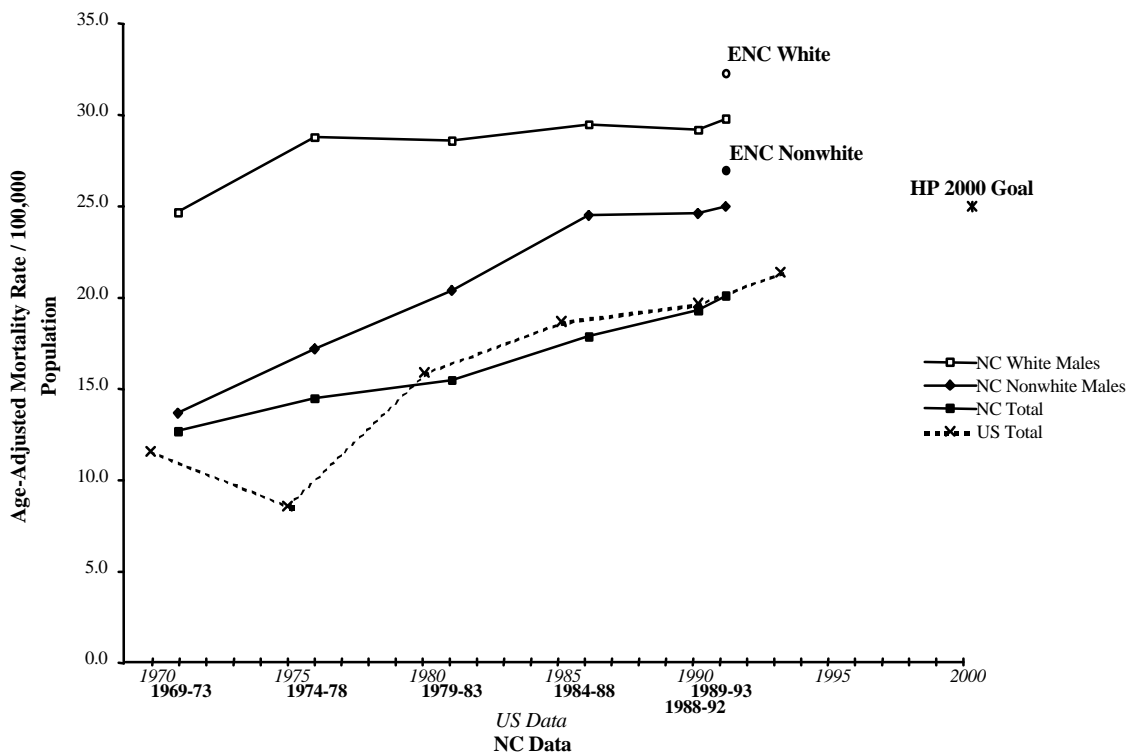
Chronic Obstructive Pulmonary Disease

Trends in Chronic Obstructive Pulmonary Disease

COPD- Female Mortality
 US and NC Age-Adjusted Rates, NC Race Specific, 1969-1993



COPD - Male Mortality
 US and NC Age-Adjusted Rates, NC Race Specific, 1969-1993



Sources: NC Five Year Averages - State Center for Health and Environmental Statistics.
 US Individual Years - Monthly Vital Statistics Report.
 HP 2000 Goal - Healthy People 2000: National Health Promotion and Prevention Objectives.
 US Department of Health and Human Services / Public Health Service.

CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD)

Chronic obstructive pulmonary disease (COPD) is the fifth leading cause of death in both the nation and in the state. Simply defined, COPD is permanent airflow obstruction. Since the 1960s, the overall incidence of COPD has steadily increased. Deaths due to lung disease are declining in men, but in women mortality rates are on the rise. This gender gap is demonstrated by the fact that COPD is the fourth leading cause of death among women 45-64 years old and the sixth leading cause of death among men of this same age group. Cigarette smoking is the most important risk factor associated with chronic lung disease and is responsible for 82% of all COPD deaths.¹

Crude mortality:

HEALTHY CAROLINIANS 2000 OBJECTIVE

CHRONIC DISEASES PRIMARY GOALS:

Reduce lung disease deaths to no more than 25.5 per 100,000 people.
(Baseline: 30.8 lung disease deaths per 100,000 population between 1988-90; 34.0 lung disease deaths per 100,000 population projected for the year 2000)

[In Eastern North Carolina only Onslow and Cumberland Counties have lung disease mortality rates that currently meet the state objective.]

CHRONIC DISEASES SPECIAL TARGET:

Nonwhite persons, smokers, and those exposed to airborne pollutants.

Chowan County's COPD crude death rate (67.9) is the highest in the eastern region of North Carolina. Although excess chronic lung disease mortality is most evident in the coastal counties, there is a centrally concentrated pocket of high mortality rates as well.

Age-adjusted mortality by race and gender:

HEALTH STATUS OBJECTIVE 3.3:

Slow the rise in deaths from chronic obstructive pulmonary disease to achieve a rate of no more than 25 per 100,000 people. (Age-adjusted baseline: 18.9 per 100,000 in 1987)

Note: Deaths from chronic obstructive pulmonary disease include deaths due to chronic bronchitis, emphysema, asthma, and other chronic obstructive pulmonary diseases and allied conditions.

[Approximately 90% of the counties in the region have COPD mortality rates (age-adjusted) that meet the national objective. Chowan, Tyrrell, Currituck, and Pender Counties are the only one in the region that have higher COPD mortality rates.]

Chowan County's COPD death rate (31.1) is the highest in the region. In addition, the highest COPD death rate in the region (64.4), for nonwhite males, is also in Chowan County. By contrast, the lowest regional COPD death rates for the total population is found in Johnston County (14.4), while the lowest regional COPD death rates for nonwhite males and females are found in Dare County (0.0). The following counties report a mortality rate of 0.0 for nonwhite females: Camden, Currituck, Dare, Gates, and Hyde. Counties reporting a 0.0 mortality rate for nonwhite males are Carteret, Dare, and Perquimans.

While mortality disproportionately affects the nonwhite population as a general rule, death from COPD is more evident in the white population, especially when female populations are compared. In females, the white COPD death rate is 1.8 times greater than the rate for nonwhites. In males, the white COPD death rate is 1.2 times greater than the rate for nonwhites.

The greatest disparity in rates exists between genders. The nonwhite male COPD death rate is 2.9 times greater than the rate for nonwhite females. The white male COPD death rate is 1.9 times greater than the rate for white females. Carteret, Jones, and Perquimans Counties are the only three counties in the region where the nonwhite female rate is higher than the nonwhite male rate (30.3 versus 0.0, 15.0 versus 6.5, and 9.0 versus 0.0, respectively).

1. Healthy People 2000: National Health Promotion and Disease Prevention Objectives. U.S. Department of Health and Human Services/Public Health Service. "Tobacco." p.138.

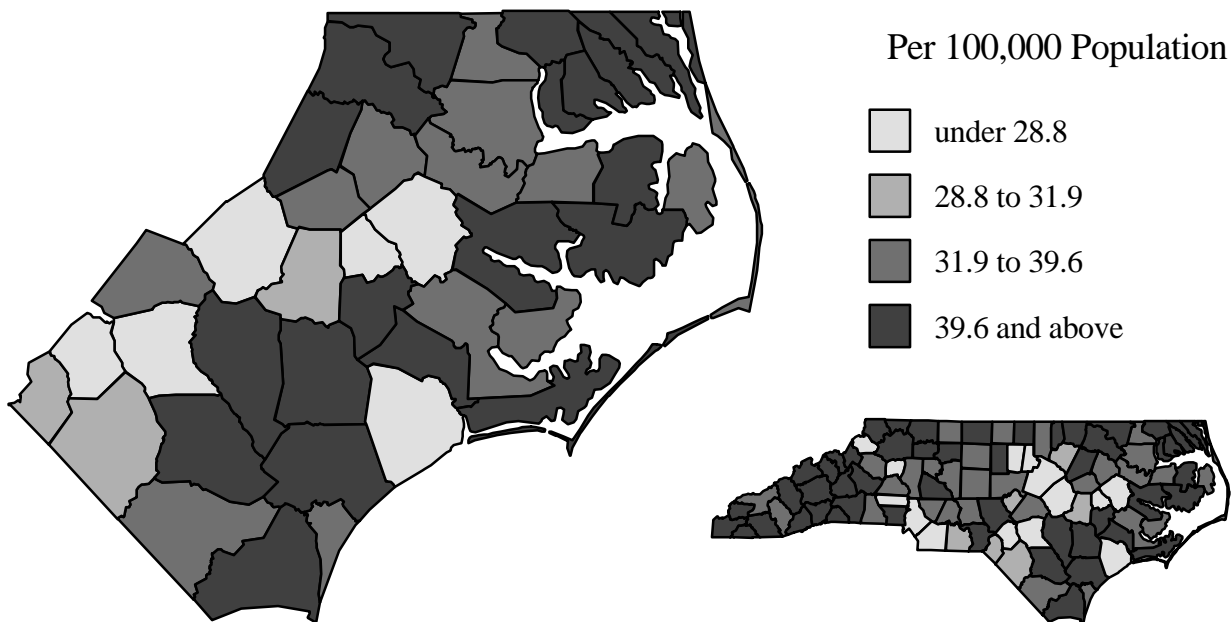
Chronic Obstructive Pulmonary Disease Eastern North Carolina

County	Population	Deaths	1990-1994	Race-Gender Specific Age-Adjusted Death Rates 1989-1993				
			Crude Death Rate	White Males	White Females	Minority Males	Minority Females	Total
Beaufort	42,793	95	44.4	39.0	16.6	22.9	12.6	22.6
Bertie	20,386	37	36.3	30.6	11.7	24.4	10.8	17.8
Bladen	28,993	59	40.7	43.2	17.4	24.5	3.7	22.2
Brunswick	54,801	117	42.7	20.5	19.3	36.7	3.0	19.2
Camden	6,024	20	66.4	34.8	17.0	37.4	0.0	22.6
Carteret	54,801	117	42.7	22.6	19.3	0.0	30.3	20.3
Chowan	13,844	47	67.9	35.9	27.2	64.4	8.9	31.1
Columbus	50,139	90	35.9	25.0	13.4	24.9	11.1	17.6
Craven	83,186	141	33.9	33.5	18.1	27.5	9.6	22.3
Cumberland	284,716	326	22.9	36.1	21.6	22.4	7.9	23.0
Currituck	14,493	40	55.2	40.0	25.6	10.2	0.0	27.8
Dare	23,631	41	34.7	19.7	18.1	0.0	0.0	18.0
Duplin	41,063	85	41.4	37.8	15.0	32.5	4.4	21.1
Edgecombe	56,647	98	34.6	33.7	15.8	20.8	6.4	17.1
Gates	9,524	25	52.5	39.0	17.3	32.8	0.0	22.6
Greene	15,884	22	27.7	28.7	10.3	24.1	2.5	16.0
Halifax	56,489	148	52.4	35.1	19.9	34.9	14.4	24.4
Harnett	70,857	124	35.0	34.1	14.1	26.8	8.5	20.6
Hertford	22,513	43	38.2	28.7	14.9	25.2	8.7	18.4
Hoke	24,125	31	25.7	27.6	20.4	22.9	4.0	17.6
Hyde	5,395	14	51.9	18.2	15.7	54.3	0.0	17.6
Johnston	86,316	123	28.5	24.2	9.9	13.0	6.0	14.4
Jones	9,456	20	42.3	34.0	11.0	6.5	15.0	15.3
Lenoir	58,124	127	43.7	35.4	19.5	40.2	8.2	23.3
Martin	25,556	46	36.0	35.5	16.0	6.2	5.5	16.4
Nash	79,602	160	40.2	37.1	14.8	49.4	5.0	23.3
New Hanover	127,635	224	35.1	24.0	14.8	24.2	17.0	18.4
Northampton	20,704	50	48.3	29.6	7.1	53.1	9.2	21.7
Onslow	148,352	135	18.2	33.3	22.3	29.8	3.4	24.0
Pamlico	11,538	21	36.4	27.7	19.7	22.8	21.4	22.5
Pasquotank	32,120	75	46.7	33.6	26.9	8.8	8.1	23.3
Pender	31,278	71	45.4	37.1	21.1	42.5	9.8	26.1
Perquimans	10,474	21	40.1	20.8	25.0	0.0	9.0	17.8
Pitt	112,157	143	25.5	35.9	12.8	30.2	9.5	20.1
Robeson	107,432	159	29.6	37.7	18.5	29.3	3.4	19.3
Sampson	48,513	106	43.7	33.8	11.6	35.3	5.9	19.8
Scotland	34,286	54	31.5	28.8	22.3	22.2	8.1	20.5
Tyrrell	3,833	11	57.4	39.9	21.4	28.3	24.8	27.8
Washington	13,913	24	34.5	38.6	9.4	5.6	4.4	16.0
Wayne	107,006	168	31.4	38.6	16.2	22.0	5.6	20.6
Wilson	66,860	115	34.4	27.6	17.5	21.5	7.6	18.6
29 County Region								
29 County Region	1,166,367	2,089	35.8	33.4 ²	17.6 ²	28.0 ²	8.2 ²	21.3 ²
41 County Region								
41 County Region	2,115,457	3,573	33.8	32.3 ²	17.3 ²	27.0 ²	7.8 ²	20.8 ²
North Carolina								
North Carolina	6,847,178	12,103	35.3	29.8	15.6	25.0	8.5	20.1
United States								
United States	255,039,000	101,077 ⁴	39.0 ¹	28.2 ³	17.8 ³	23.6 ³	10.8 ³	21.4 ³

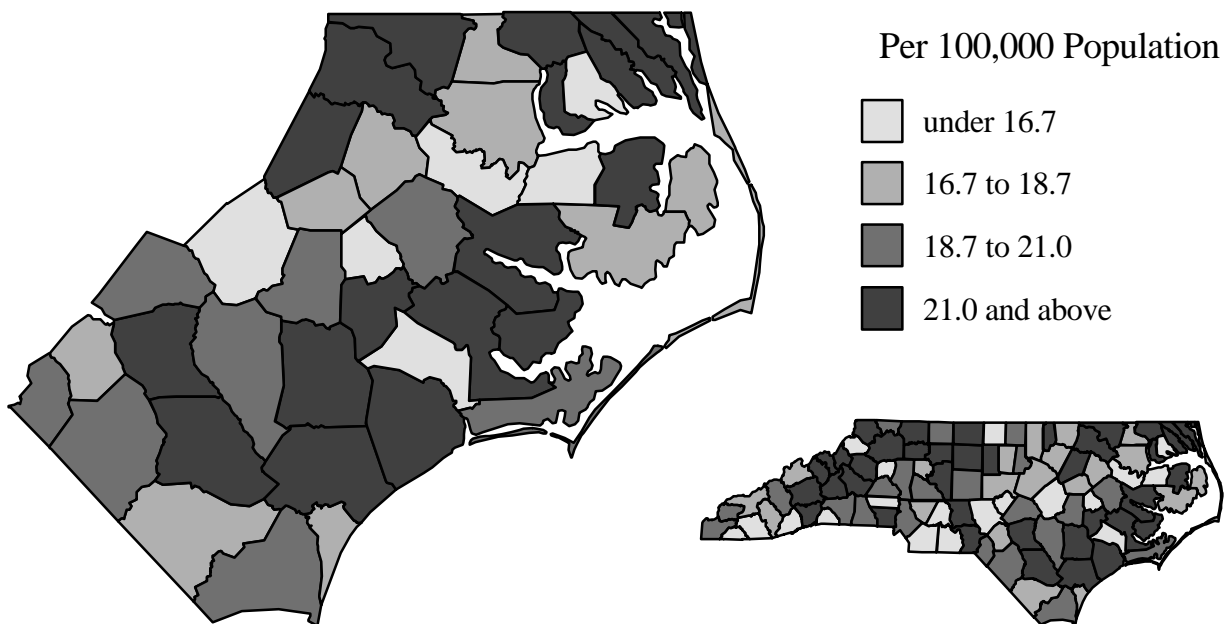
¹ Number is for 1994 only³ NC DEHNR, data 1993² Estimated⁴ Health, United States, data 1993

Chronic Obstructive Pulmonary Diseases Eastern North Carolina

Crude Mortality Rates: 1990 - 1994



Age-Adjusted Mortality Rates: 1989 - 1993

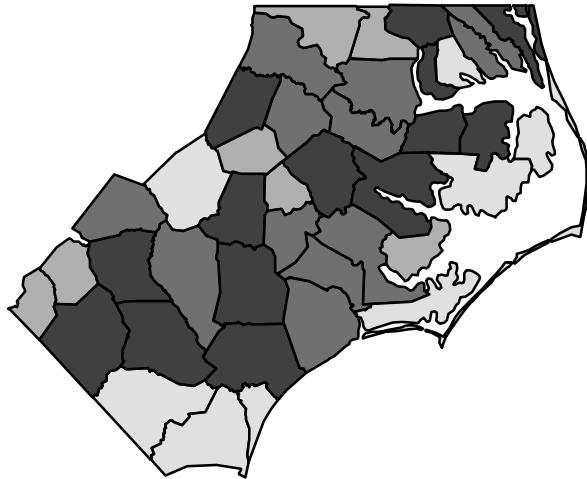


Chronic Obstructive Pulmonary Diseases

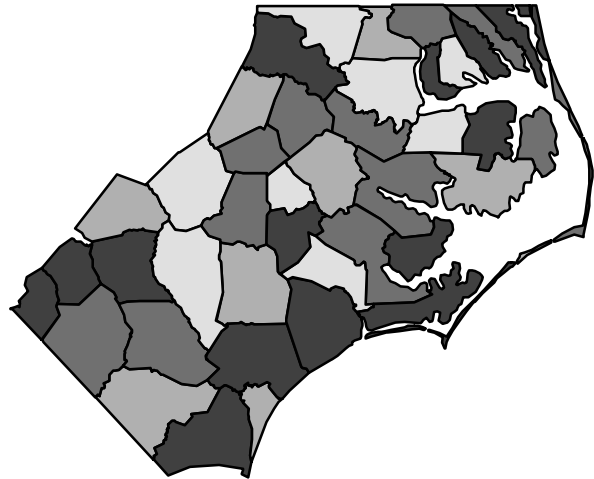
Age-Adjusted Mortality Rates 1989-1993

Per 100,000 Population

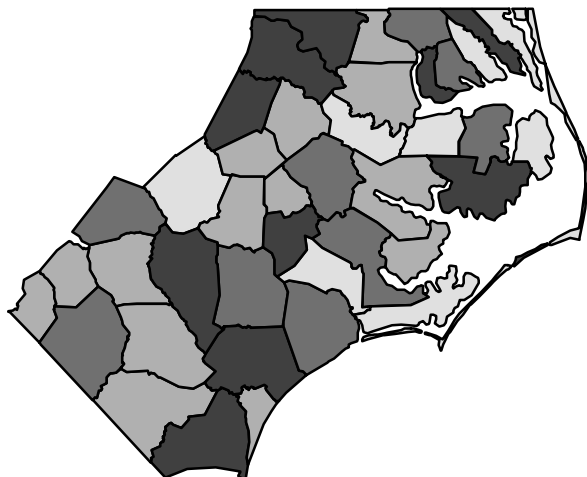
White Males



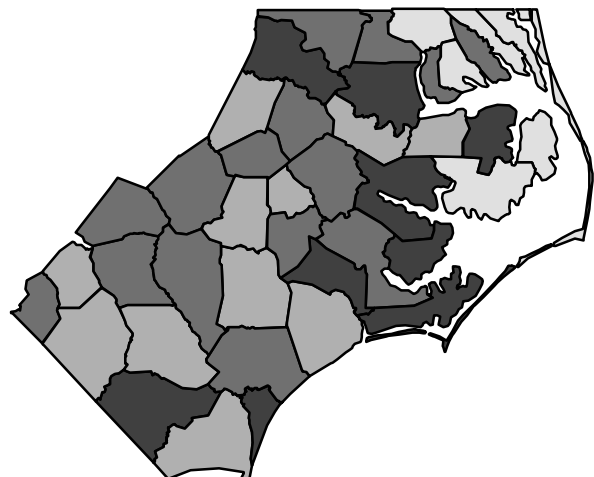
White Females



Nonwhite Males



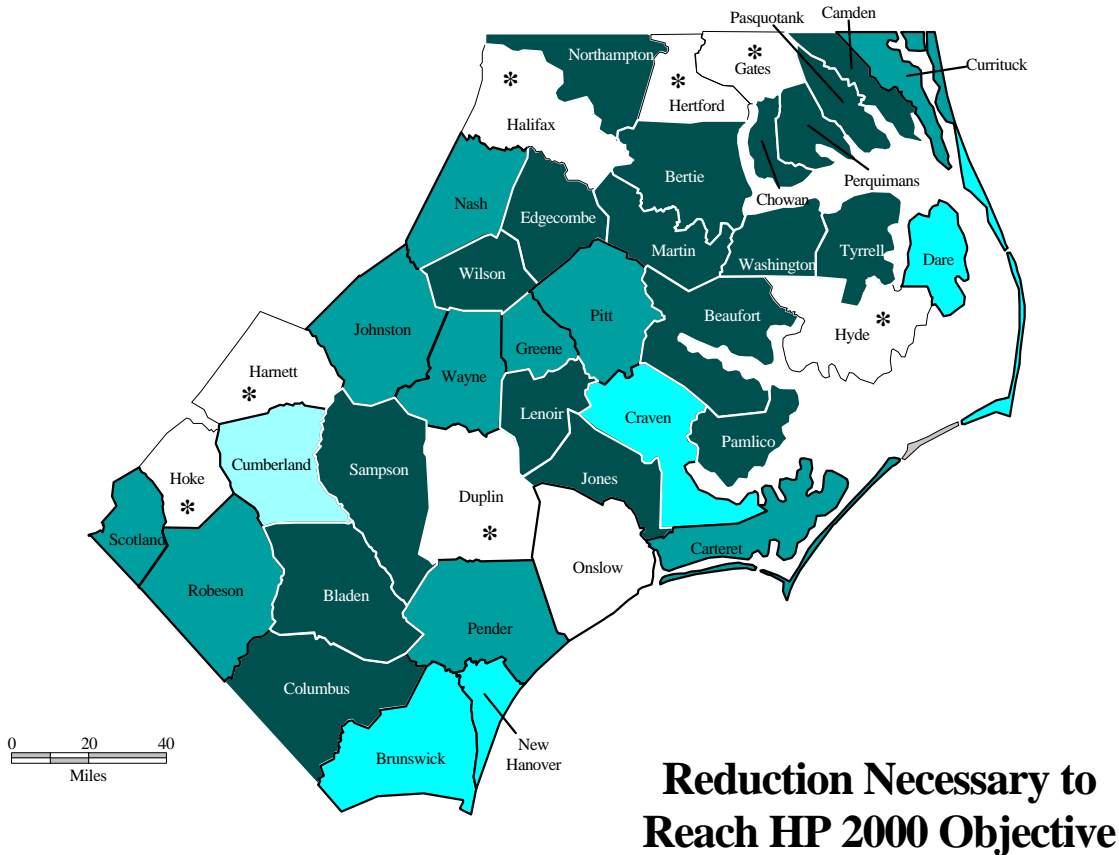
Nonwhite Females



Diabetes Mellitus

Diabetes Objectives

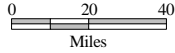
Based on 1989-1993 Age-Adjusted Mortality Rates



Healthy People 2000 Goal
Health Status Objective 17.9:
Reduce Diabetes Related Deaths
to no more than
34.0 per 100,000 Population

Reduction Necessary to Reach HP 2000 Objective

- ☐ Met or surpassed objective (1)
- ☐ 0.1% to 20.0% (1)
- ☐ 20.1% to 40.0% (4)
- ☐ 40.1% to 60.0% (10)
- ☐ 60.1% or more (18)
- * Data not available (7)



DIABETES

Diabetes is a chronic, incurable, yet controllable disease that generally strikes after the age of 40. In the U.S. each year more than 650,000 new cases of diabetes are diagnosed. In 1993, diabetes was the seventh leading cause of death listed on U.S. death certificates, according to the National Center for Health Statistics. It is the sixth leading cause of death by disease. Obesity is a major risk factor of diabetes; diet and nutrition significantly affect one's chance of becoming diabetic. Heredity is an additional risk factor. Complications associated with diabetes include: heart disease, stroke, blindness, end-stage renal disease, lower extremity amputation, and pregnancy-related conditions. For adults ages 20-74, diabetes is the leading cause of new cases of blindness.¹ Diabetes is the leading cause of end-stage renal disease, accounting for 36 percent of new cases.² Heart disease and stroke are two to four times as likely to occur in diabetics. Diabetes more often strikes the black and the Native American populations. In North Carolina, minority women are three times as likely to die from diabetes as white women. By comparison, minority men are two times as likely to die from diabetes as white men. Efforts to control diabetes include: diet, regular exercise, and pharmacologic management of blood sugar levels.

When interpreting diabetes mortality statistics, it is important to distinguish between diabetes as the underlying (primary) cause of death, diabetes as mentioned (contributing) cause of death, or diabetes-related deaths. Diabetes is approximately three times as likely to be listed as a mentioned or related cause of death than as the underlying cause. Diabetes mortality statistics that report diabetes as the underlying cause of death typically underestimate the relationship of diabetes to mortality because diabetics more often die from resultant chronic complications. When heart, kidney and vascular diseases are involved, diabetes is frequently not mentioned as the cause of death on the death certificate. Failure to report diabetes as a cause of death on death certificates is particularly common for geriatric patients suffering from multiple chronic conditions. It is possible that increased awareness of the reporting problem may explain recent increases in diabetes-related mortality rates; however, this would not explain the growing disparity in mortality between blacks and whites.

As the accompanying tables and maps demonstrate, the disease burden represented by both crude and age-adjusted mortality rates is similar regardless of whether diabetes is reported as the underlying cause of death or mentioned and related cause of death.

Diabetes as the Underlying (Primary) Cause of Death:

Crude mortality:

Healthy Carolinians 2000 goals for diabetes deaths include deaths for which diabetes is recorded as only the underlying (primary) cause of death.

HEALTHY CAROLINIANS 2000 OBJECTIVE

CHRONIC DISEASES PRIMARY GOAL:

To reduce by 10% the death rate from diabetes. Reduce diabetes deaths to no more than 20.3 per 100,000 population. (Baseline: 20.4 diabetes deaths per 100,000 population between 1988-90; 22.5 diabetes deaths per 100,000 population projected for the year 2000)

[In Eastern North Carolina, fifteen counties have diabetes crude death rates higher than the state's goal; the mortality rates range from 7.4 to 55.6.]

CHRONIC DISEASES SPECIAL TARGET:

Adults with certain lifestyles are at risk. Specifically: Diabetes-Nonwhite persons and all those who are overweight and/or hypertensive.

In Eastern North Carolina, Hyde County's death rate (55.6) for diabetes as the underlying cause of death is the highest rate in the region. It is seven times the rate in Onslow County (7.4). Although most of Eastern North Carolina's crude rates are in the highest categories, the highest diabetes crude death rates are primarily concentrated in a northern cluster of seven counties (Hyde, Bertie, Beaufort, Northampton, Hertford, Pitt, and Martin counties).

Age-adjusted mortality by race and gender:

The highest age-adjusted rates in Eastern North Carolina due to diabetes as the underlying cause of death are found in Scotland and Robeson counties (24.8). Swain County (25.7) is the only other county in the state with a higher rate. The spatial distribution of age-adjusted mortality is similar to the crude rate pattern. Martin, Northampton, and Hertford counties have some of the highest rates. In addition, two of the southern counties (Robeson and Scotland) have notably high adjusted rates. Age-adjusted rates for nonwhites are approximately two to three times higher than for whites.

Diabetes as the Mentioned (Contributing) Cause of Death:

Crude mortality:

The data available for the time period covered (1989-93) is incomplete, therefore, a table is not included. However, a few observations can be made. The crude death rates for diabetes as the contributing (mentioned) cause of death range from 35.5 per 100,000 in Onslow County to 166.3 in Perquimans County. The mortality patterns of highest crude rates also are found in a cluster in Perquimans (166.3), Chowan (154.6), Bertie (144.9), Northampton (143.6), Tyrrell (129.8), and Martin (127.0) counties.

Age-adjusted mortality by race and gender:

After adjusting for race and gender, Perquimans County (146.1) still has the highest mortality rate for diabetes as the mentioned cause of death. The highest age-adjusted rates are found in Chowan (129.9), Bertie (124.8), Northampton (110.9), Tyrrell (110.3), Edcombe (108.9), and Martin (100.9) counties.

Diabetes Related Deaths

According to Healthy People 2000, diabetes-related deaths are defined as deaths where there is any mention of diabetes as a cause of death (either underlying or contributing) on the death certificate; therefore, the Healthy People 2000 goals encompass all recorded diabetes deaths.* The individual county rates are similar to the rates for mentioned cause of death and are not included in this atlas edition.

HEALTHY PEOPLE 2000 GOAL***HEALTH STATUS OBJECTIVE 17.9:***

Reduce diabetes-related deaths to no more than 34 per 100,000 people.
(Age-adjusted baseline: 38 per 100,000 in 1986)

Note: Diabetes-related deaths refer to deaths from diabetes as an underlying or contributing cause.

HEALTH STATUS OBJECTIVE 17.9A:

Special Population Target: Reduce diabetes-related deaths among blacks to no more than 58 per 100,000 people. (Age-adjusted baseline: 67 per 100,000 people in 1986)

HEALTH STATUS OBJECTIVE 17.9B:

Special Population Target: Reduce diabetes-related deaths among American Indians/Alaska Natives to no more than 48 per 100,000 people. (Age-adjusted baseline: 46 per 100,000 in 1986)

HEALTH STATUS OBJECTIVE 17.9C:

Special Population Target: Reduce diabetes-related deaths among Mexican Americans to no more than 50 per 100,000 people.
(Baseline: 55.7 per 100,000 in 1990)

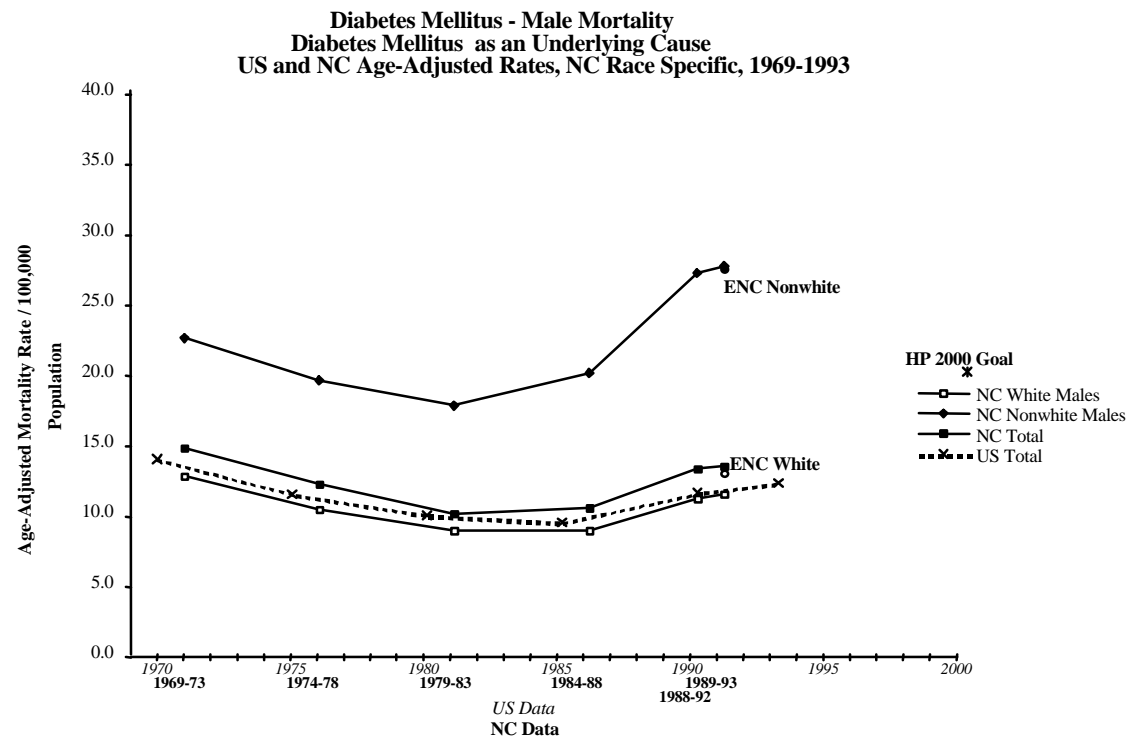
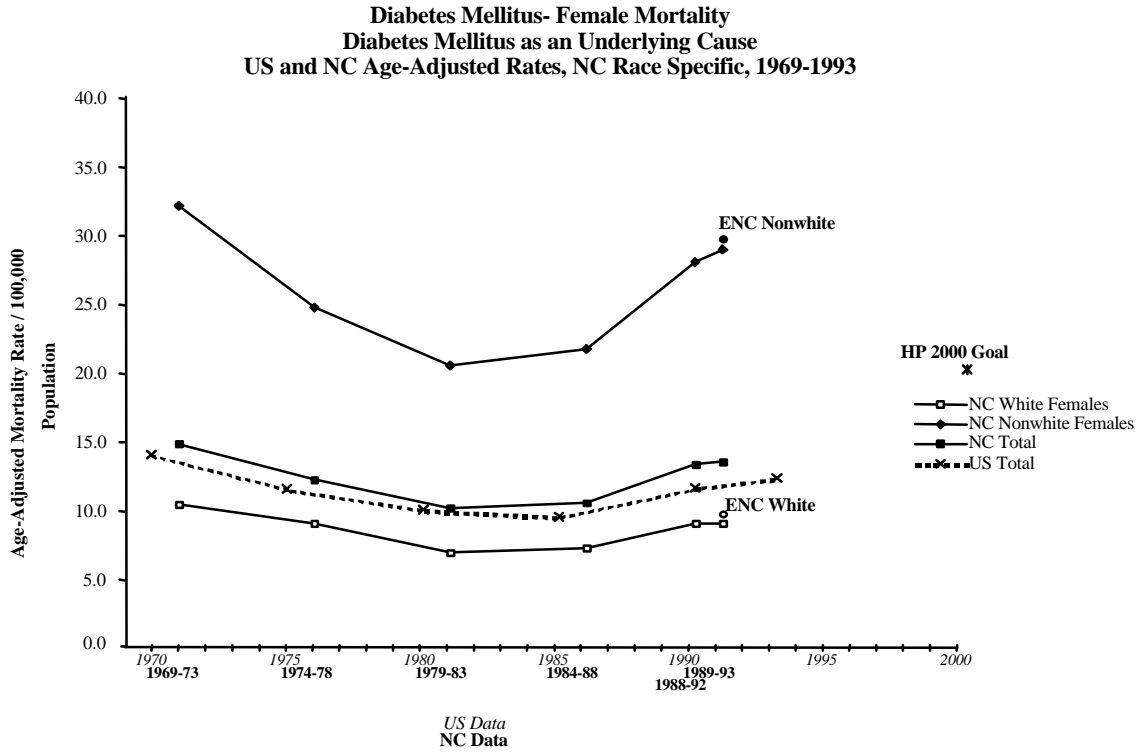
HEALTH STATUS OBJECTIVE 17.9D:

Special Population Target: Reduce diabetes-related deaths among Puerto Ricans to no more than 42 per 100,000 people. (Baseline: 40.7 per 100,000 in 1990)

* However, North Carolina DEHNR uses the terms **mentioned** and **diabetes-related** synonymously when referring to causes of death. NC DEHNR CHES. Raleigh, NC Dec. 1991, No. 61.

1. Reducing the Burden of Diabetes. Centers for Disease Control and Prevention. "National Diabetes Fact Sheet." <http://www.cdc.gov/nccdphp/ddt/facts.htm#prev> Accessed: September 5, 1997 10:56 AM
2. Ibid.

Trends in Diabetes Mellitus Mortality



Sources: NC Five Year Averages - State Center for Health and Environmental Statistics.
 US Individual Years - Monthly Vital Statistics Report.
 HP 2000 Goal - Healthy People 2000: National Health Promotion and Prevention Objectives.
 US Department of Health and Human Services / Public Health Service.

Diabetes Mellitus as Underlying Cause of Death Eastern North Carolina

County	Population	Deaths	1990-1994	Race-Gender Specific Age-Adjusted Death Rates 1989-1993				
			Crude Death Rate	White Males	White Females	Minority Males	Minority Females	Total
Beaufort	42,752	87	40.7	13.5	14.8	28.9	55.1	21.6
Bertie	20,428	43	42.1	20.7	14.8	27.5	25.3	21.0
Bladen	29,008	38	26.2	12.7	6.1	43.9	30.4	18.8
Brunswick	54,839	68	24.8	12.0	10.1	25.3	21.9	12.4
Camden	6,015	4	13.3	17.1	16.2	18.7	0.0	14.5
Carteret	54,749	49	17.9	9.9	6.7	22.1	61.4	10.3
Chowan	13,878	17	24.5	5.4	1.7	31.6	35.4	12.6
Columbus	50,209	60	23.9	8.3	11.5	34.1	24.5	15.5
Craven	83,333	60	14.4	6.0	3.6	22.0	25.1	9.3
Cumberland	284,848	235	16.5	18.9	10.9	27.0	24.9	17.4
Currituck	14,493	10	13.8	15.1	1.9	37.6	36.5	11.1
Dare	23,656	11	9.3	6.0	7.4	0.0	0.0	6.7
Duplin	41,045	55	26.8	10.8	4.8	19.9	46.1	15.8
Edgecombe	56,618	77	27.2	19.0	11.8	24.6	22.9	19.1
Gates	9,524	6	12.6	8.7	1.1	19.9	16.7	9.8
Greene	15,849	21	26.5	15.4	7.0	15.2	12.1	11.8
Halifax	56,494	87	30.8	17.5	13.3	25.8	29.1	20.9
Harnett	70,968	88	24.8	14.4	11.8	24.3	36.1	16.3
Hertford	22,506	44	39.1	20.0	15.1	35.1	23.0	22.7
Hoke	24,096	20	16.6	9.2	3.9	17.6	32.7	16.0
Hyde	5,396	15	55.6	18.5	1.4	80.3	17.4	20.0
Johnston	86,316	82	19.0	9.9	10.3	13.2	19.3	11.4
Jones	9,449	12	25.4	0.0	2.6	42.0	33.6	15.1
Lenoir	58,170	89	30.6	17.5	12.4	21.0	29.5	18.6
Martin	25,543	47	36.8	20.4	8.2	43.6	36.0	22.0
Nash	79,681	100	25.1	12.1	12.3	38.5	22.6	16.7
New Hanover	127,523	139	21.8	10.7	9.1	27.6	31.6	13.5
Northampton	20,707	41	39.6	8.1	10.7	39.0	31.2	22.8
Onslow	148,649	55	7.4	8.9	8.9	22.2	20.2	11.0
Pamlico	11,523	14	24.3	3.0	6.8	16.8	38.9	11.0
Pasquotank	32,143	36	22.4	11.9	13.0	14.0	14.4	13.3
Pender	31,276	38	24.3	11.7	7.2	13.7	36.3	14.0
Perquimans	10,484	13	24.8	4.8	5.8	0.0	0.0	4.0
Pitt	81,843	151	36.9	14.8	10.8	39.3	47.1	21.9
Robeson	107,345	190	35.4	20.6	16.9	25.4	33.9	24.8
Sampson	48,571	68	28.0	11.8	8.3	26.6	27.7	15.2
Scotland	34,228	51	29.8	16.2	15.3	39.2	41.3	24.8
Tyrrell	3,834	6	31.3	8.9	0.0	0.0	44.8	11.4
Washington	13,904	13	18.7	12.7	3.0	8.6	28.0	12.9
Wayne	107,296	125	23.3	15.8	10.4	24.1	22.0	15.8
Wilson	66,857	117	35.0	15.5	8.7	47.9	42.3	21.6
29 County Region	1,136,816	1,405	24.7	12.2 ²	9.2 ²	28.3 ²	30.1 ²	16.0 ²
41 County Region	2,086,043	2,482	23.8	13.1 ²	9.8 ²	27.6 ²	29.8 ²	16.4 ²
North Carolina	6,853,953	7,368	21.5	11.6	9.1	27.8	29.0	13.6
United States	255,039,000	53,894 ³	21.8 ¹	12.2 ³	10.0 ³	22.4 ³	23.1 ³	12.4 ³

¹ Number is for 1994 only

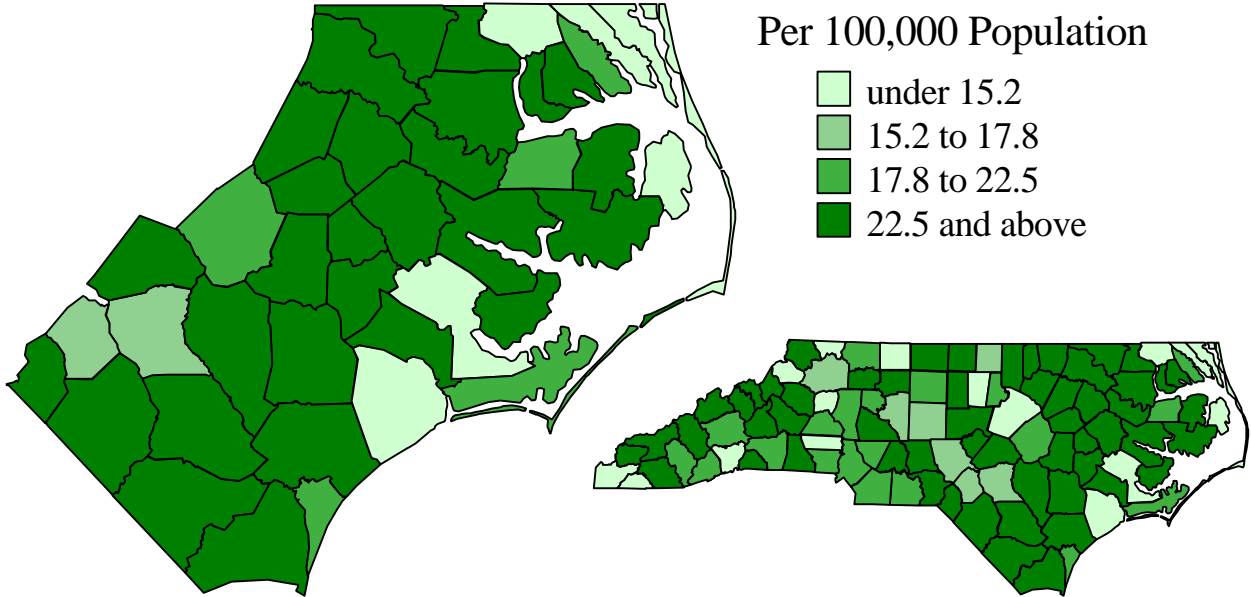
² NC DEHNR, data 1993

³ Health, United States, data 1993

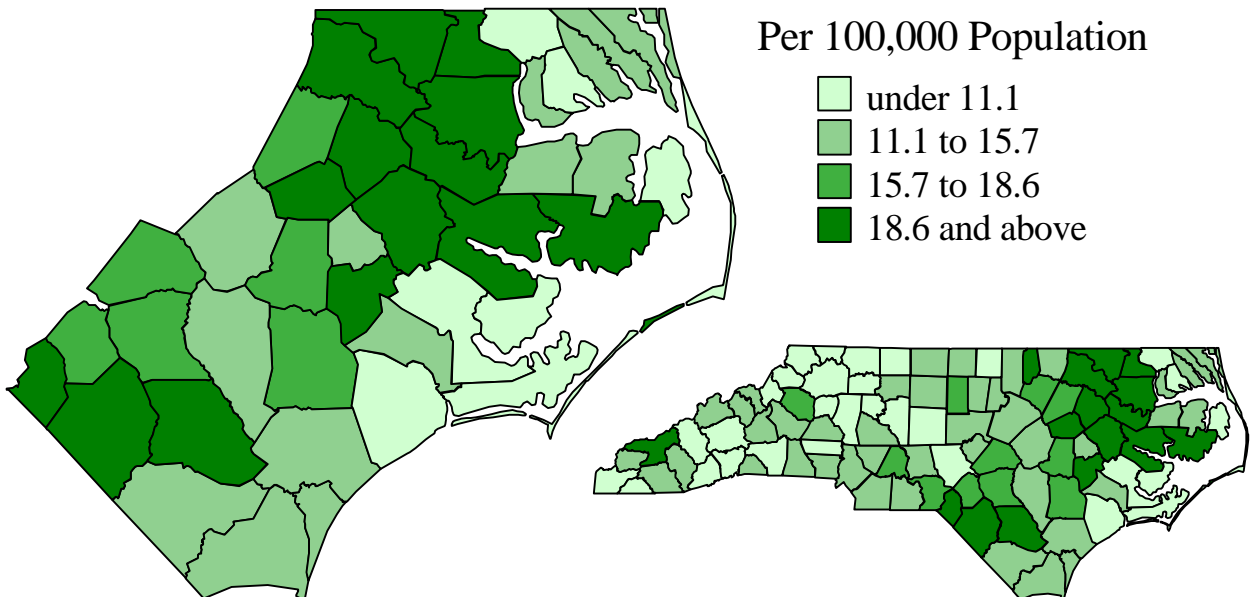
Diabetes Mellitus as Underlying Cause of Death

Eastern North Carolina

Crude Mortality Rates: 1990 - 1994



Age-Adjusted Mortality Rates

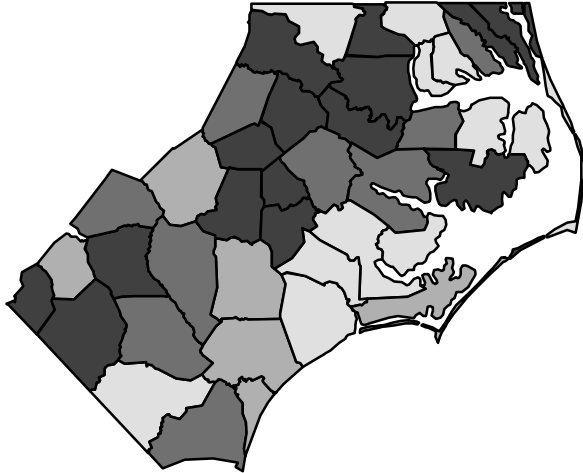


Diabetes Mellitus as Underlying Cause of Death

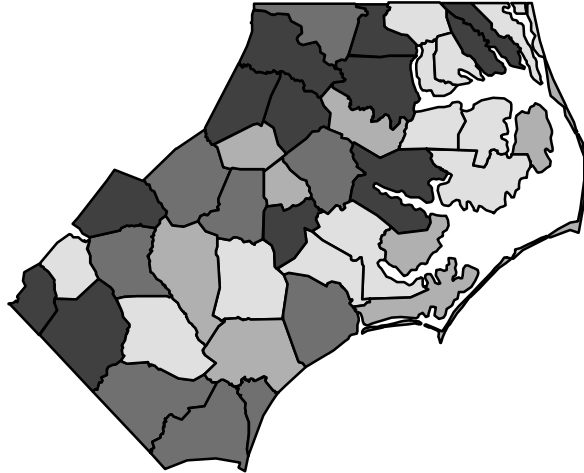
Age-Adjusted Mortality Rates 1989-1993

Per 100,000 Population

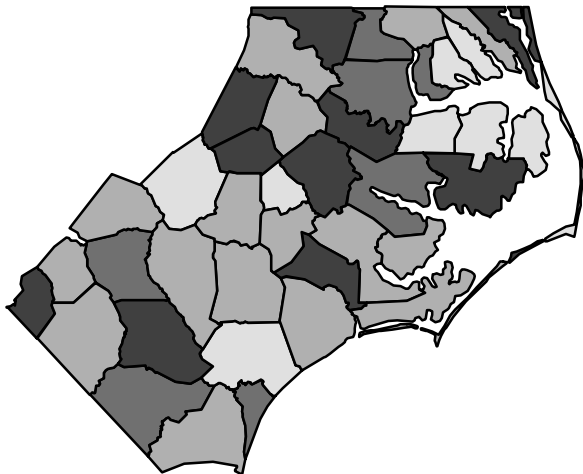
White Males



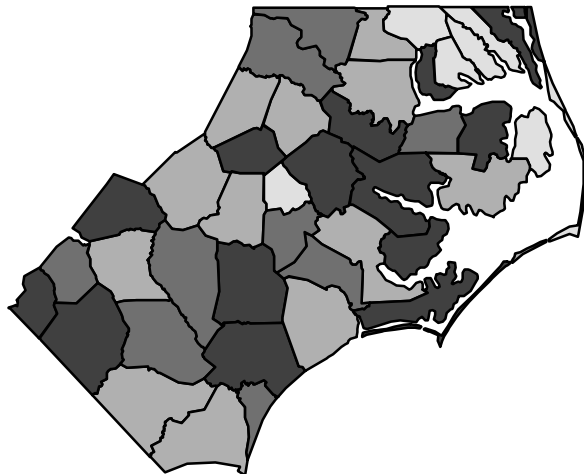
White Females



Nonwhite Males

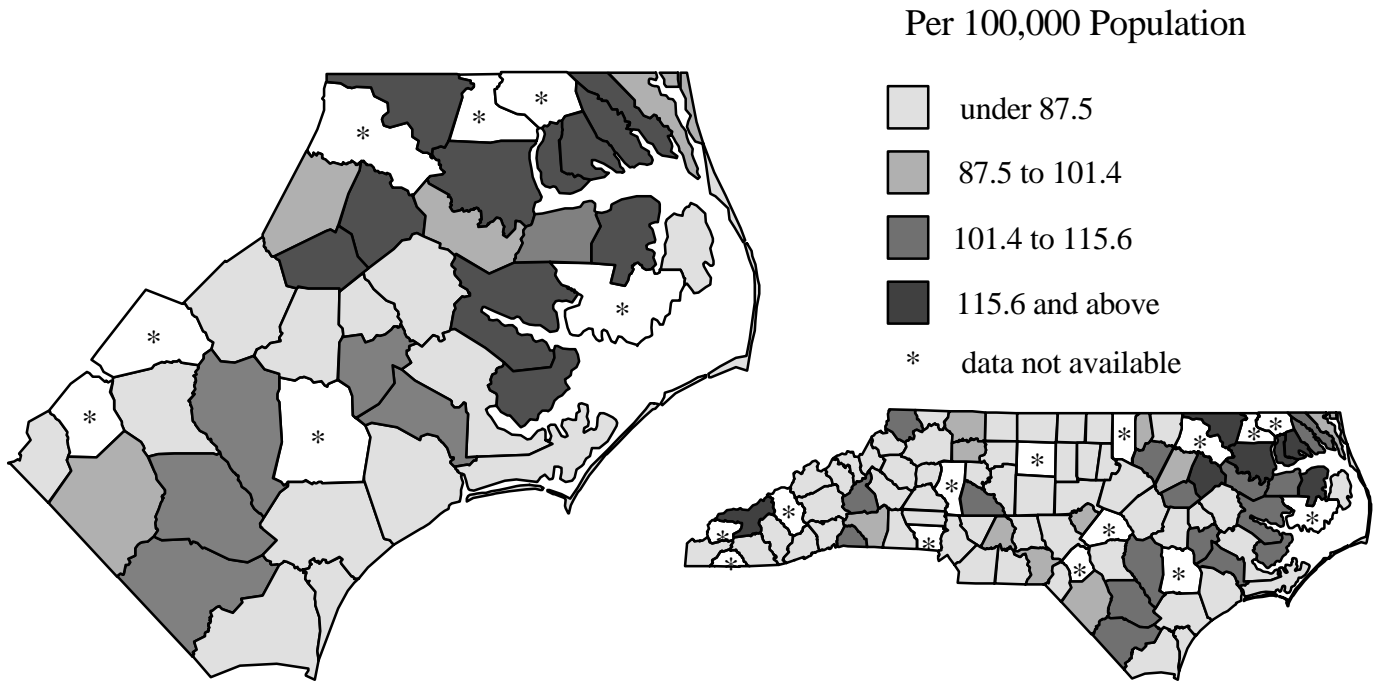


Nonwhite Females

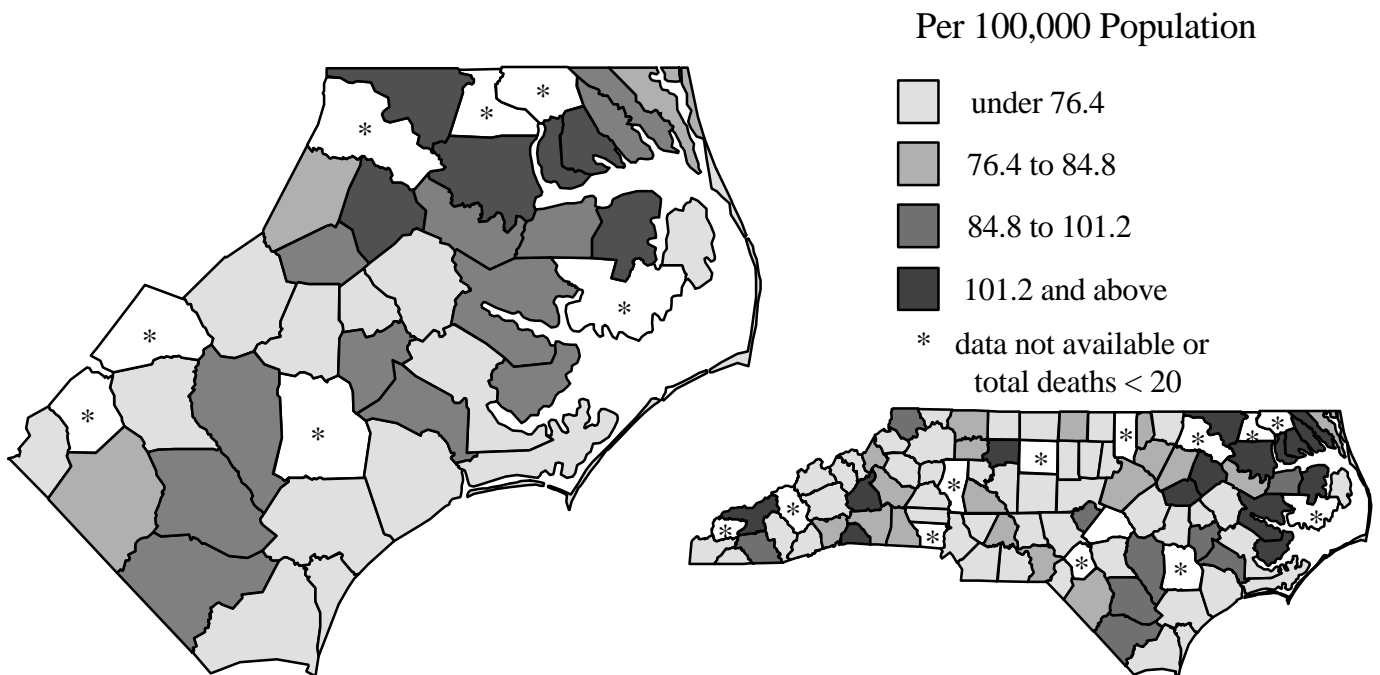


Diabetes Mellitus as Any Mentioned Cause of Death (Diabetes-Related Deaths) Eastern North Carolina

Crude Mortality Rates: 1989 - 1993

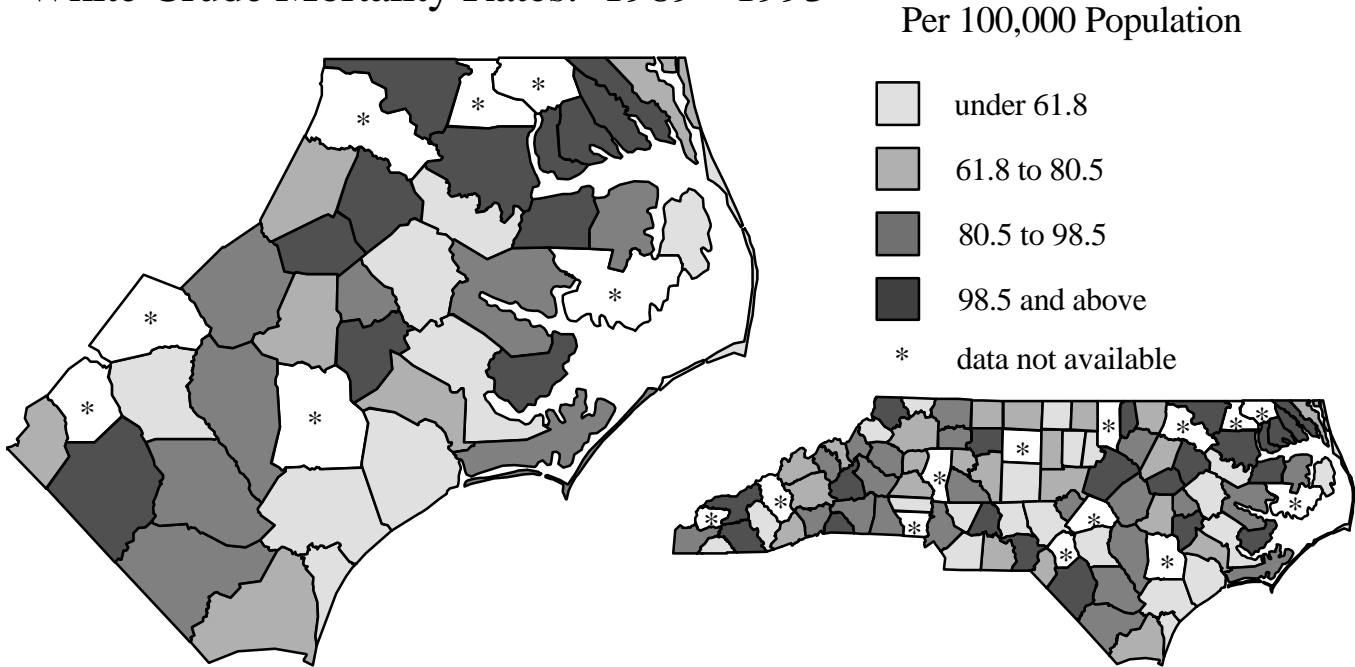


Age-Adjusted Mortality Rates: 1989 - 1993



Diabetes Mellitus as Any Mentioned Cause of Death (Diabetes-Related Deaths) Eastern North Carolina

White Crude Mortality Rates: 1989 - 1993



Nonwhite Crude Mortality Rates: 1989 - 1993

