

Cancer (All Sites)

CANCER (ALL SITES)

Cancer is the second leading cause of death in the United States (US), accounting for more than 540,000 deaths in 1998. An estimated 1,220,000 new cases of cancer were diagnosed in the year 2000, including 35,700 cases in North Carolina (NC). The term cancer refers to more than 100 different diseases. Skin cancer is the most common type of cancer. Lung, colorectal, breast, and prostate cancer are the leading causes of cancer mortality, representing more than 50% of all cancer deaths. The total cost of cancer exceeds \$100 billion each year in the US.

Cancer results from uncontrolled growth and spread of abnormal cells. Although different risk factors are associated with different types of cancer, several specific behavioral and environmental factors contribute heavily to the overall disease burden. It has been estimated that 80% of cancer cases are associated with smoking, alcohol abuse, poor dietary habits, and exposures to environmental toxins and occupational hazards. Advancing age is also a major risk factor for cancer, with half of all new cases diagnosed in people aged 65 and older.

Over the last decade, substantial improvements have been achieved in the prevention and control of cancer. For example, there has been a reduction in cancer risk factors such as smoking and high fat intake. In addition, there is evidence that more women are receiving pap smears and mammograms and that more people over 50 are being screened for colorectal cancer. In 1995, the *Healthy People 2000* objective for reduction in overall cancer mortality was achieved, as were other objectives for lung, colorectal, breast, and prostate cancer mortality. However, disparities in cancer incidence and mortality still exist.

The burden of cancer is unevenly distributed across the population, with ethnic minorities experiencing excessive incidence rates and poor outcomes for many types of cancer. Of all the ethnic groups in the US, African Americans are at the highest risk for developing cancer. African-American men, for example, have the highest incidence and mortality rates in the US for colorectal, prostate, lung, and bronchus cancer. Excessive cancer morbidity and mortality affects other ethnic groups as well. For example, as compared to whites, Japanese have higher rates of stomach cancer, Filipinos suffer excessively from liver cancer, and Vietnamese and Hispanic women have a greater incidence of cervical cancer. Currently, minorities in the US have a cancer mortality rate that is 13% higher than the rate for whites. The goal of eliminating racial disparity in cancer incidence and mortality rates over the next decade clearly represents a major challenge. The objective of reducing cancer mortality presents another challenge, especially in eastern North Carolina (ENC). In order to reach the *Healthy People 2010* objective for cancer mortality, 37 of the 41 counties in ENC will have to reduce their current age-adjusted cancer mortality rate by 20% or more, and the remaining four counties will have to reduce their rates by 10% to 20% (see Map 3.1).

HP 2010 OBJECTIVE FOR CANCER (ALL SITES) MORTALITY

Objective: Reduce cancer (all sites) deaths to no more than 159.9 per 100,000 population

Baseline: 202.4 cancer (all sites) deaths per 100,000 population in 1998

Currently, none of the counties in the region meet the objective for cancer mortality.

Crude Mortality Rates for Cancer (All Sites), 1994-1998:

The five-year average, crude mortality rate for cancer in ENC (206.2 per 100,000 population) is similar to the rate (205.1) for all other counties in North Carolina (ONC) and the rate (203.4) for the US (see Table 3.1). The highest crude rate in the region is found in Camden County which has a rate of 323.9 cancer deaths per 100,000 population. Other counties with high crude rates include Washington (317.0), Perquimans (306.3), Bertie (302.1), and Northampton (298.6). High crude cancer mortality rates are clustered in the northern area of the region and along the central coastal counties (see Map 3.2).

Age-Adjusted Mortality Rates for Cancer (All Sites), 1994-1998:

The five-year average, age-adjusted cancer death rate in ENC region exceeds the rates for ONC by 9% and the rate for the US by 7%. Camden County has the highest age-adjusted death rate in ENC at 300.5 cancer deaths per 100,000 population. Washington (283.7), Bertie (275.2), Currituck (265.9), and Hertford County (250.4) also have high cancer mortality rates. After adjustment for age variation, high cancer mortality rates are found in the northeastern area of the region (see Map 3.2).

Trends in Cancer (All Sites) Mortality, 1979-1998:

Figure 3.1 demonstrates trends in cancer mortality. Death rates for males are considerably higher than the rates for women, but over the last two decades the cancer death rates for women have also been rising. Non-white males have a particularly high death rate, and their rate has risen while the rate for white males has fallen. Trends for non-white females and white females have followed a similar pattern. Regional cancer mortality rates have paralleled US rates, but they have remained slightly higher. However, none of the counties in the region currently meet the national objective for cancer mortality. Of the 41 counties in ENC, 37 will have to reduce their current cancer death rate by more than 20% in order to meet the national objective, and the remaining four counties will have to reduce their current rates by 10% to 20% (see Map 3.1).

Disparities in Cancer (All Sites) Mortality, 1979-1998:

Racial and gender disparities in cancer mortality are apparent in the Figure 3.2 and Map 3.3. The largest disparity occurs between men and women. The death rate for males in eastern North Carolina is currently 83% greater than the female rate. The gap between men and women is declining because the male rate has fallen while the female rate has risen. Among males, the mortality gap between whites and non-whites has grown steadily in both ENC and ONC, whereas national disparities have recently declined. A similar trend is emerging for females. Currently, non-white males in the east die at a rate 38% higher than white males, and the death rate for non-white females is 12% higher than the rate for white females. Although racial disparities in ENC are not as extreme as disparities in ONC, these differences are explained by the higher mortality rates for whites in the eastern region.

Table 3.1 Cancer (All Sites) Mortality in Eastern North Carolina, 1994-1998

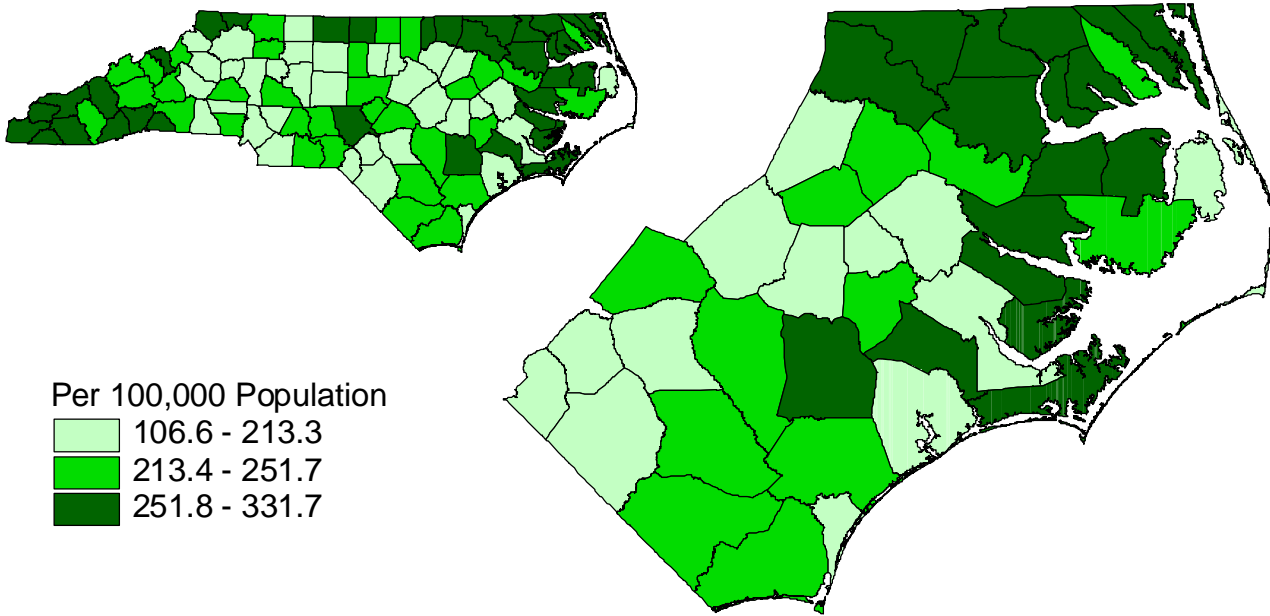
County	Totals			Race-Gender Specific Age-Adjusted Death Rates							
	Deaths	Rates		Non-White Males		Non-White Females		White Males		White Females	
		Crude	Adjusted	Deaths	Rate	Deaths	Rate	Deaths	Rate	Deaths	Rate
Beaufort	572	264.2	224.6	92	384.8	79	192.1	221	304.2	180	162.6
Bertie	308	302.1	275.2	89	415.7	80	224.0	72	317.7	67	208.4
Bladen	337	224.3	199.4	81	338.8	54	154.2	113	261.0	89	139.5
Brunswick	792	251.7	209.9	73	380.8	47	171.3	390	254.5	282	162.7
Camden	102	323.9	300.5	15	510.4	11	305.7	38	302.0	38	247.4
Carteret	768	263.7	229.6	22	393.6	32	259.1	421	304.2	293	169.7
Chowan	206	291.4	221.6	42	438.6	38	232.2	75	262.8	51	133.0
Columbus	616	238.5	218.7	117	391.1	83	172.1	229	290.7	187	155.1
Craven	919	211.2	230.6	139	423.8	118	215.9	347	267.7	315	180.8
Cumberland	2,115	144.0	232.0	382	380.4	320	178.9	744	297.2	669	184.7
Currituck	213	262.7	265.9	16	579.0	13	266.8	116	347.8	68	173.0
Dare	252	189.9	197.8	10	669.0	3	139.7	122	223.0	117	174.5
Duplin	552	254.1	235.7	104	402.9	80	189.2	198	298.8	170	177.7
Edgecombe	669	239.6	246.4	179	408.5	165	198.3	176	314.7	149	174.5
Gates	130	263.8	249.6	37	500.8	23	204.4	40	280.8	30	161.4
Greene	176	204.5	196.8	38	318.9	30	160.3	64	298.6	44	126.2
Halifax	723	256.4	239.0	199	394.3	163	206.2	185	267.4	176	181.0
Harnett	845	213.4	232.0	102	409.4	80	197.3	364	309.2	299	172.2
Hertford	308	278.5	250.4	103	439.0	78	207.1	79	332.3	48	127.2
Hoke	224	159.3	204.6	57	298.1	45	143.7	67	279.2	55	172.9
Hyde	63	239.4	197.0	10	251.3	5	89.5	26	259.6	22	172.6
Johnston	1,050	211.6	216.0	118	420.9	68	153.5	496	296.2	368	153.8
Jones	129	280.4	249.1	23	319.5	22	191.3	48	340.7	36	203.4
Lenoir	713	241.6	219.8	154	409.4	113	161.0	249	284.6	197	155.4
Martin	317	246.2	216.6	86	391.6	54	157.7	104	304.0	73	132.6
Nash	873	203.6	207.5	148	383.7	120	189.0	317	245.3	288	153.4
New Hanover	1,464	204.9	201.8	167	383.5	128	173.4	626	257.2	543	155.4
Northampton	310	298.6	233.6	119	473.5	68	175.1	66	225.5	57	144.5
Onslow	789	106.6	233.9	78	391.0	70	182.0	363	327.3	278	176.3
Pamlico	177	296.8	219.0	25	367.9	21	213.9	77	274.8	54	145.4
Pasquotank	386	227.1	218.0	86	401.8	68	198.5	137	290.8	95	132.3
Pender	407	226.3	201.7	74	420.7	49	167.3	171	263.4	113	139.7
Perquimans	165	306.3	227.6	41	539.9	21	198.1	62	249.9	41	146.0
Pitt	1,088	181.3	232.5	248	482.6	179	202.0	360	284.0	301	155.0
Robeson	1,107	198.1	230.8	334	348.1	233	150.3	284	324.2	256	192.8
Sampson	617	238.9	214.7	116	324.0	96	184.7	234	289.7	171	149.9
Scotland	346	198.4	218.8	82	411.0	59	163.3	103	270.3	102	168.1
Tyrrell	54	291.2	223.4	17	529.6	7	139.6	16	225.8	14	157.8
Washington	214	317.0	283.7	51	461.8	38	240.6	66	332.2	59	198.8
Wayne	1,105	197.5	226.5	208	380.9	194	214.2	385	286.7	318	162.5
Wilson	763	223.3	219.2	140	360.3	131	199.0	260	282.6	232	164.2
ENC 29	13,044	216.5	228.5	2,519	409.9	2,024	197.2	4,690	284.5	3,811	163.3
ENC 41	22,964	206.2	223.5	4,222	391.4	3,286	184.1	8,511	283.4	6,945	163.7
ONC	52,130	205.1	205.2	4,963	378.1	4,272	199.7	22,838	256.8	20,057	157.0
PNC	38,268	195.6	208.9	4,469	382.2	3,824	199.8	15,782	259.8	14,193	158.8
WNC	13,862	237.1	196.4	494	346.2	448	199.1	7,056	252.3	5,864	153.2
NC	75,094	205.5	210.5	9,185	383.9	7,558	192.5	31,349	263.4	27,002	158.7
US, 1996	539,533	203.4	208.7	37,946	312.6	32,181	179.5	243,952	256.8	225,454	172.1

Cancer (All Sites) ICD-9 Codes: 140-208
 Age-Adjusted Rates Standardized to US 2000 SM
 Total Number of Deaths and Rates for Five-Year Period, except US

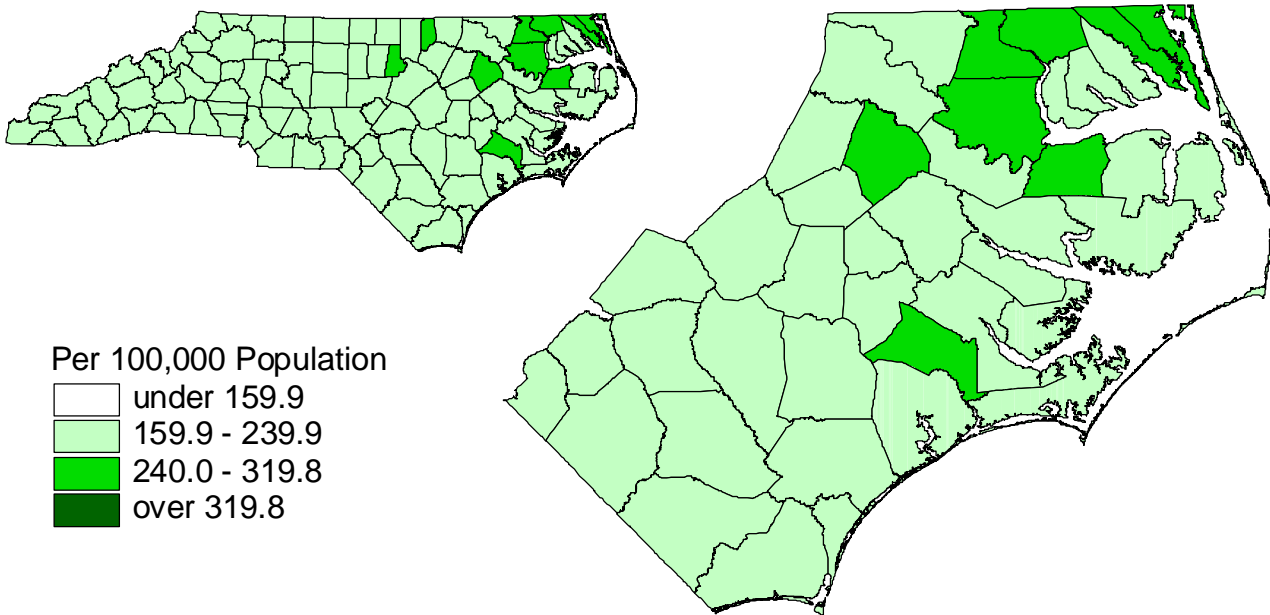
NC Data Source: NC State Center for Health Statistics
 US Data Source: National Center for Health Statistics

Map 3.2 Crude and Age-Adjusted Cancer (All Sites) Mortality Rates: North Carolina and Eastern North Carolina, 1994-1998

Crude Rate

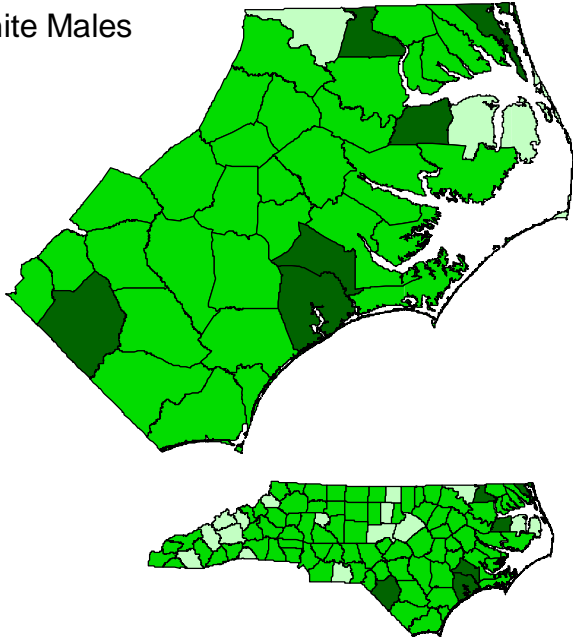


Age-Adjusted Rate

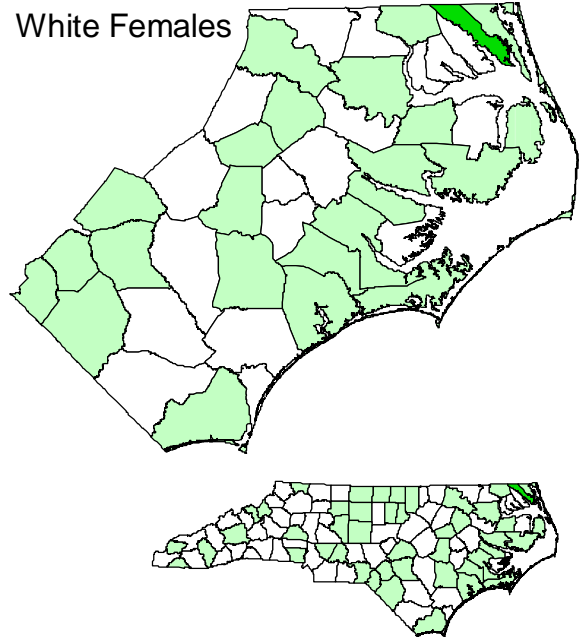


**Map 3.3 Race-Gender Specific, Age-Adjusted Cancer (All Sites) Mortality Rates:
North Carolina and Eastern North Carolina, 1994-1998**

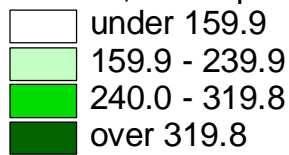
White Males



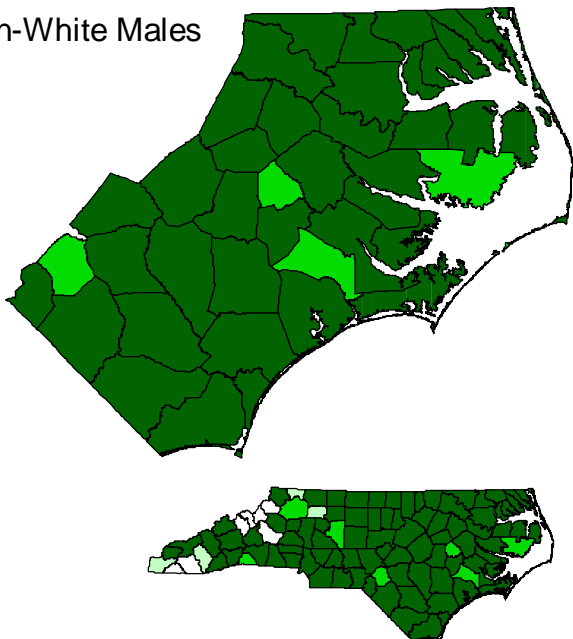
White Females



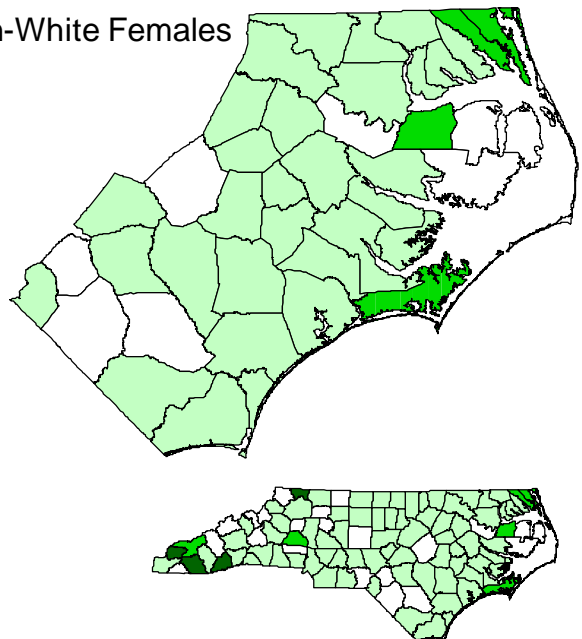
Per 100,000 Population



Non-White Males



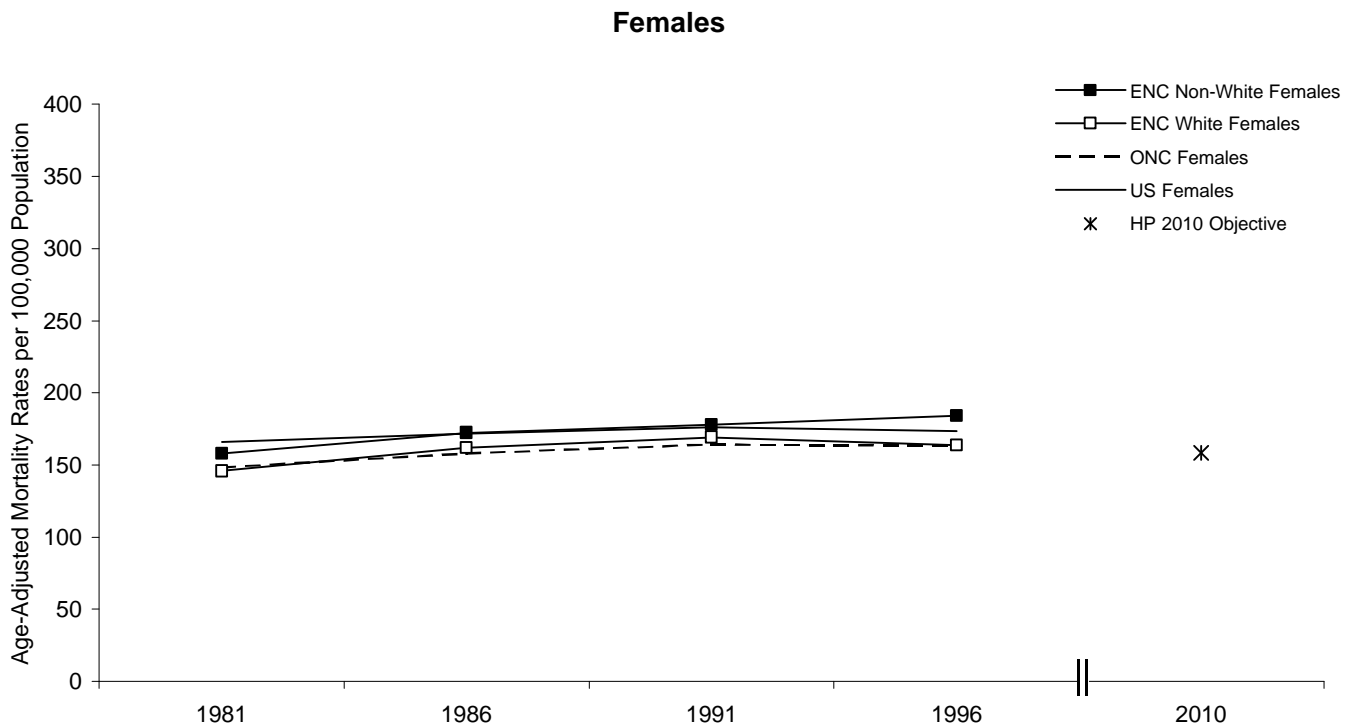
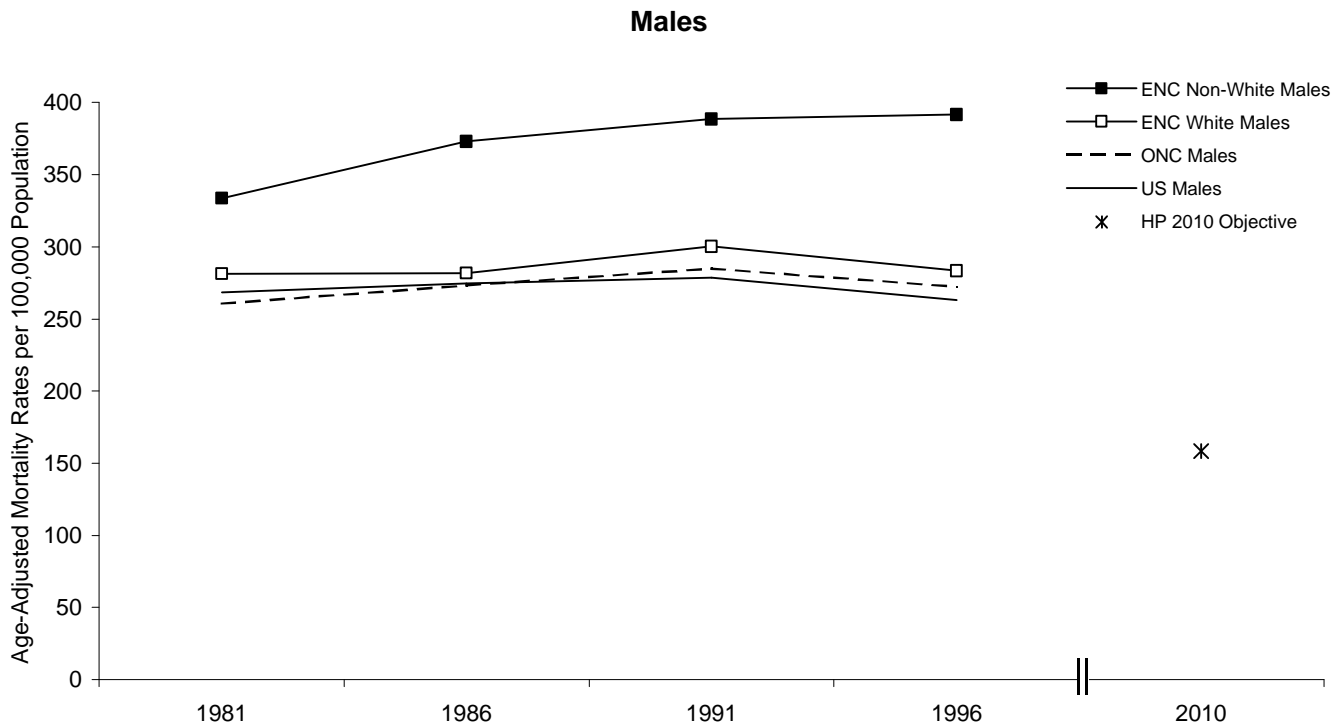
Non-White Females



Cancer (All Sites) ICD-9 Codes: 140-208
Five-Year Average, Age-Adjusted Rates Standardized to US 2000 SM

Data Source: NC State Center for Health Statistics

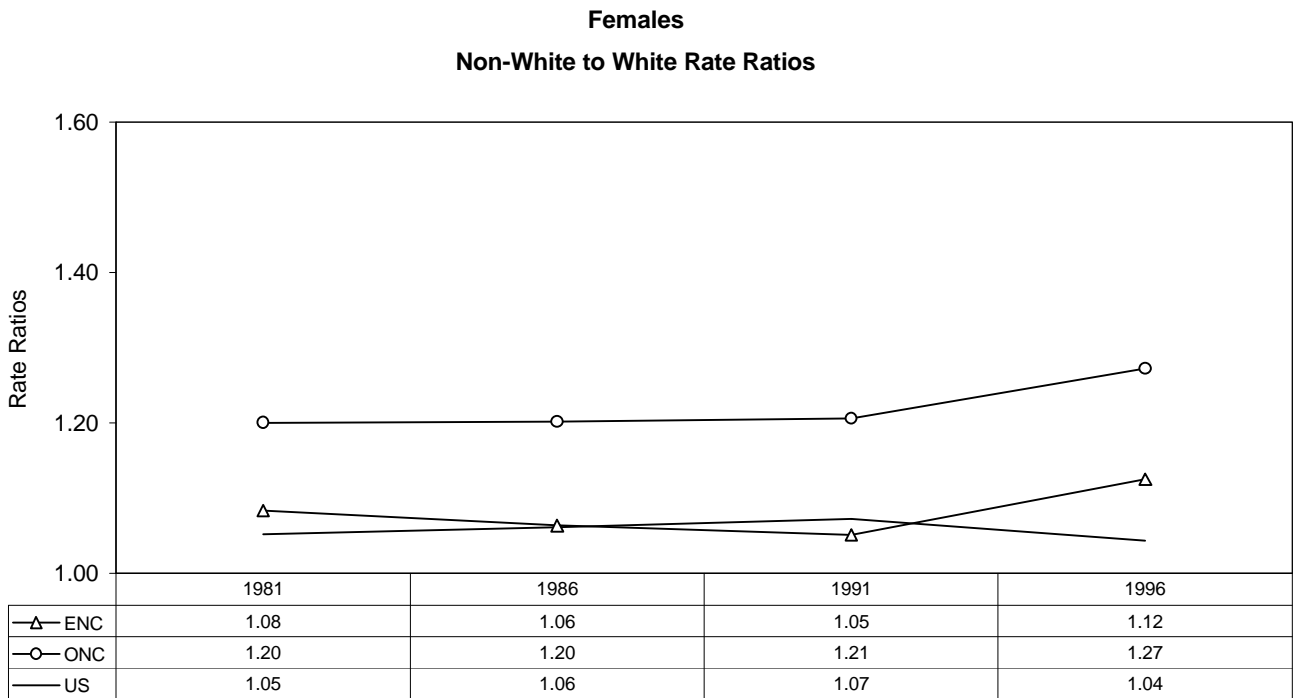
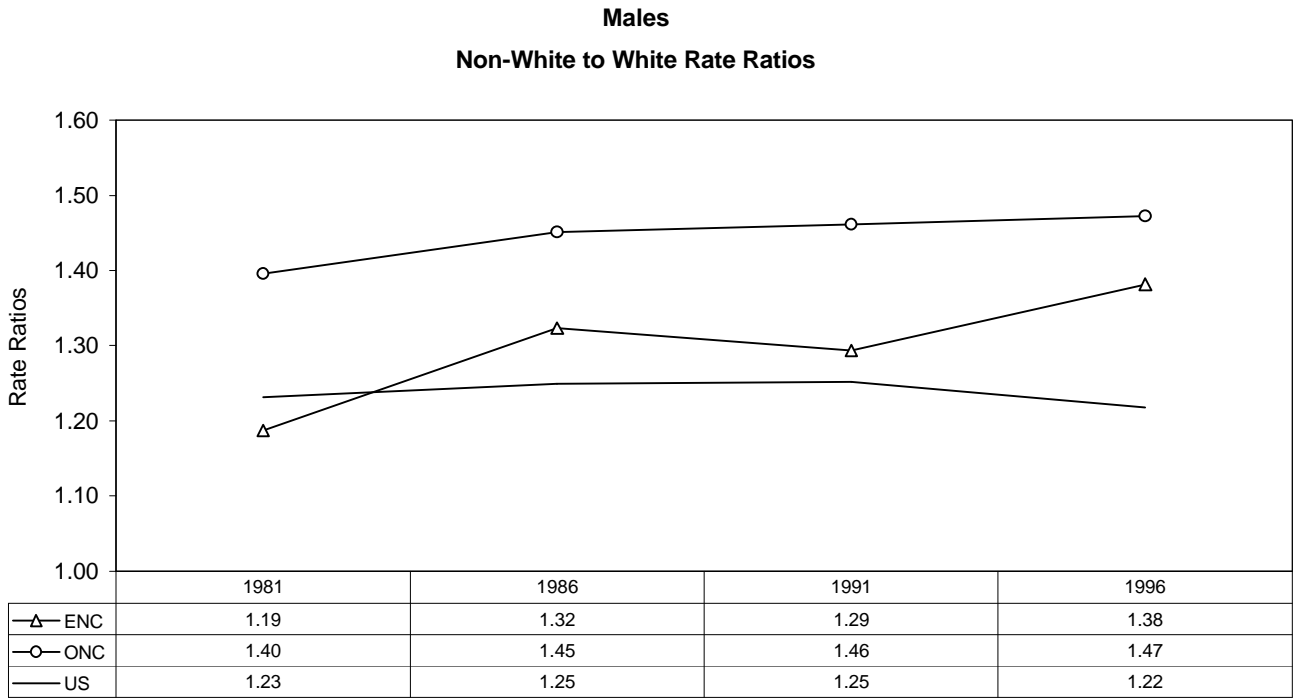
Figure 3.1 Age-Adjusted Cancer (All Sites) Mortality Rates by Gender: Regional and National Trends, 1979-1998



Cancer (All Sites) ICD-9 Codes: 140-208
 Five-Year Average, Age-Adjusted Rates Standardized to US 2000 SM
 US Rates for Middle Year of Five Year Periods

NC Data Source: NC State Center for Health Statistics
 US Data Source: National Center for Health Statistics

Figure 3.2 Racial Disparities in Age-Adjusted Cancer (All Sites) Mortality Rates by Gender: Regional and National Trends, 1979-1998



Cancer (All Sites) ICD-9 Codes: 140-208
Based on Five-Year Average, Age-Adjusted Rates Standardized to US 2000 SM
US Rates for Middle Year of Five Year Periods

NC Data Source: NC State Center for Health Statistics
US Data Source: National Center for Health Statistics

SOURCES OF INFORMATION ABOUT CANCER

Governor's Task Force for Healthy Carolinians (2000). *Healthy Carolinians 2010: North Carolina's Plan for Health and Safety*. Raleigh, NC: Department of Health and Human Services.

National Cancer Institute (1996). *Cancer Rates and Risks*. Bethesda, MD: National Institutes of Health.

National Cancer Institute (1998). *Racial/Ethnic Patterns of Cancer in the United States, 1988-1992*. Bethesda, MD: National Institutes of Health.

National Center for Health Statistics (1999). *Health, United States, 1999*. With Health and Aging Chartbook. Hyattsville, MD: National Center for Health Statistics.

National Center for Health Statistics (1999). *Healthy People 2000 Review, 1998-1999*. Hyattsville, MD: Public Health Service.

United States Department of Health and Human Services (2000). *Healthy People 2010*. 2nd ed. With Understanding and Improving Health and Objectives for Health Improvement. 2 vols. Washington, DC: U. S. Government Printing Office.

American Cancer Society
(<http://www.cancer.org>)

CancerNet
National Cancer Institute
(<http://cancernet.nci.nih.gov>)

Center to Reduce Cancer Health Disparities
National Cancer Institute
(<http://crchd.nci.nih.gov>)

Centers for Disease Control and Prevention
(<http://www.cdc.gov>)

Healthy People 2010
(<http://web.health.gov/healthypeople>)

National Cancer Institute
(<http://www.nci.nih.gov>)

National Center for Health Statistics
(<http://www.cdc.gov/nchs>)

North Carolina Center for Health Statistics
(<http://www.schs.state.nc.us/SCHS>)

Appendix C

ICD-9 Codes for Cancer (All Sites)

- 140-149: Malignant neoplasm of lip, oral cavity, and pharynx
- 150-159: Malignant neoplasm of digestive organs and peritoneum
- 160-165: Malignant neoplasm of respiratory and intrathoracic organs
- 170-175: Malignant neoplasm of bone, connective tissue, skin, and breast
- 179-189: Malignant neoplasm of genitourinary organs
- 190-199: Malignant neoplasm of other and unspecified sites
- 200-208: Malignant neoplasm of lymphatic and hematopoietic tissue