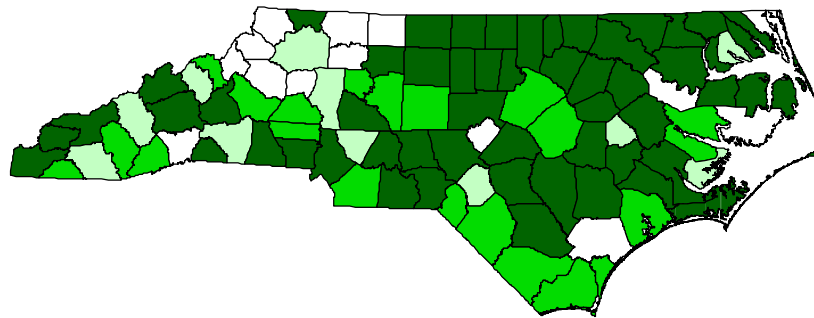
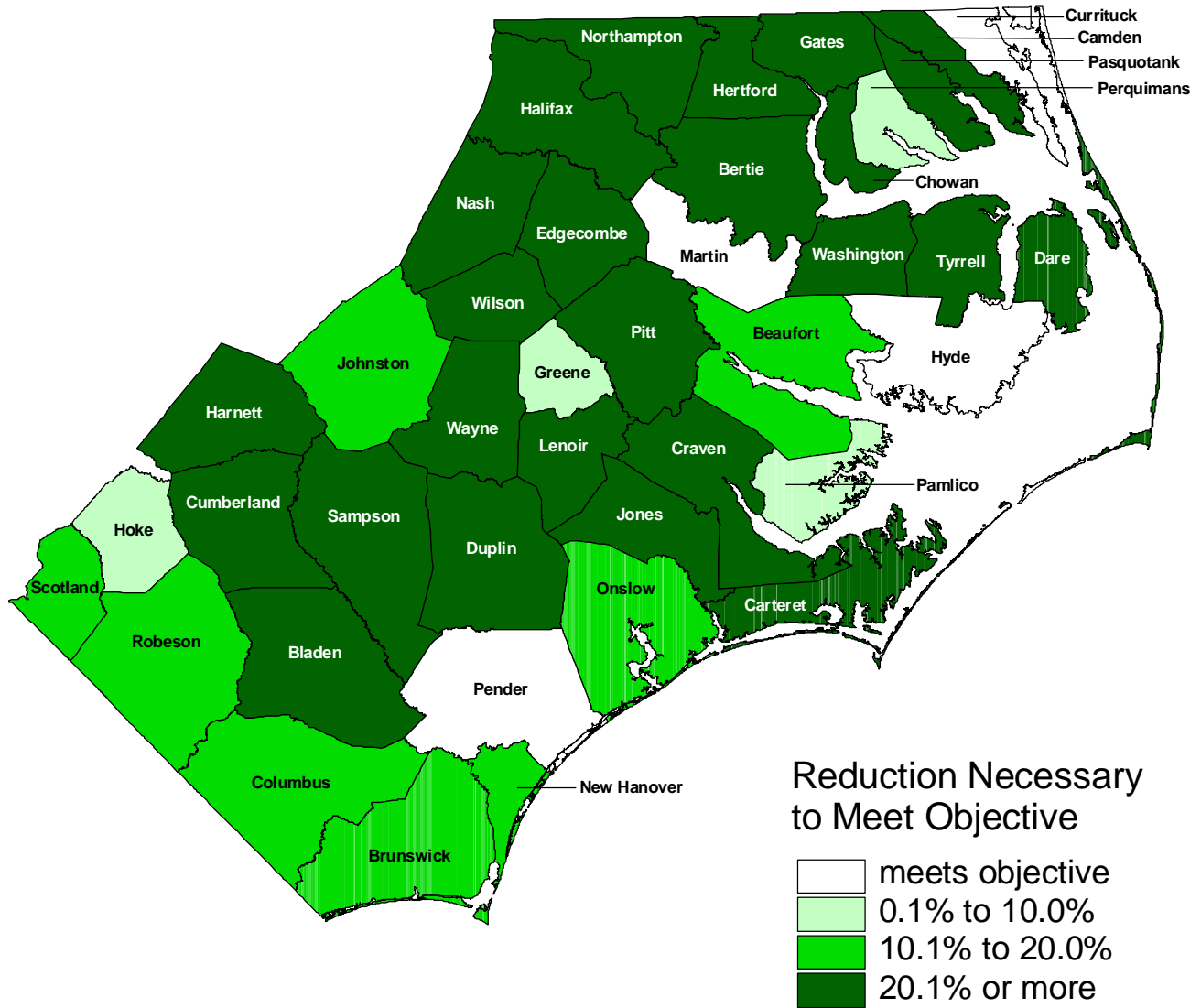


Breast Cancer

Map 5.1 Progress Towards Breast Cancer Mortality Objective



HP 2010 Objective for Breast Cancer Mortality:
 Reduce breast cancer deaths to no more than 22.3 per 100,000 female population

Breast Cancer ICD-9 Code: 174
 Based on Five-Year Average, Age-Adjusted Rates Standardized to US 2000 SM

Data Source: NC State Center for Health Statistics

BREAST CANCER

Breast cancer is the most common type of cancer among women and the second leading cause of cancer mortality for women. Although the incidence of the disease has grown about 2% a year in the United States (US) since the early 1970's, breast cancer mortality has declined an average of 1.8% a year since 1990, due mainly to advances in diagnosis and treatment. Changes in reproductive patterns and lifestyle choices among women may have contributed to the increasing incidence of breast cancer, but much of the increase in incidence is due to greater use of mammography for screening and early detection.

Age is one of the most important risk factors for breast cancer, with 77% of new cases and 84% of deaths occurring in women aged 50 and older. Other well established risk factors for breast cancer include: onset of menarche before age 12, first pregnancy after age 30, never giving birth, onset of menopause after age 50, use of oral contraceptives and hormonal replacement, a family history of pre-menopausal breast cancer in a close relative, a personal history of breast cancer or benign breast disease, and a personal history of chest radiation therapy. There is also evidence to suggest that obesity, high fat intake, alcohol abuse, and a sedentary lifestyle increase the chances of developing breast cancer. However, it is important to recognize that these factors are associated with only a moderate increase in the risk of cancer and account for a small proportion of cases, suggesting that several different factors may interact to cause breast cancer.

As with other major causes of death, there are serious racial disparities in breast cancer incidence and mortality. The incidence of breast cancer is higher among African-American women before age 45, but the incidence is higher for white women after age 45. African-American women have the highest age-adjusted mortality rates of any ethnic group. Five-year survival rates for African-American women are lower than those for white women at each stage of the disease. The latest national age-adjusted mortality rate for non-white females is 7% higher than the rate for white females. In eastern North Carolina (ENC), the mortality rate for non-white females is 36% higher than the rate for white females, and the mortality gap appears to be growing. The goal of eliminating racial disparities in breast cancer mortality by 2010 also represents a major challenge. Substantial reductions in county level mortality rates will be necessary for ENC to meet the *Healthy People 2010* objective for breast cancer mortality. Of the 41 counties in the region, 25 will have to reduce their current mortality rate by more than 20% to meet the objective (see Map 5.1).

HP 2010 OBJECTIVE FOR BREAST CANCER MORTALITY

Objective: Reduce breast cancer deaths to no more than 22.3 per 100,000 female population

Baseline: 27.9 breast cancer deaths per 100,000 female population in 1998

Currently, four counties in the region meet the objective for breast cancer mortality.

Crude Mortality Rates for Breast Cancer, 1994-1998:

As demonstrated in Table 5.1, the five-year average, crude mortality rate for breast cancer in ENC (30.5 per 100,000 female population) is similar to the rate (31.1) for all other North Carolina counties (ONC) and the rate (31.8) for the US. Tyrrell County, with 62.1 deaths per 100,000 female population, has the highest crude rate in the region, followed by Gates (56.0), Northampton (46.3), Camden (45.3), and Bertie (45.2). As Map 5.2 shows, high crude breast cancer mortality rates are clustered in the northern and central areas of the region.

Age-Adjusted Mortality Rates for Breast Cancer, 1994-1998:

After adjustment for age variation, the five-year average, age-adjusted breast cancer mortality rate for ENC (29.6) is on par with the rate for ONC (28.3) and the rate for the US (29.8). The highest age-adjusted breast cancer death rate, 49.6 per 100,000 female population, is found in Gates County. Tyrrell (44.2), Halifax (41.0), Camden (39.2), and Bertie (38.5) County also have high rates. The same geographic areas of the region with high crude mortality rates also have high age-adjusted rates (see Map 5.2).

Trends in Breast Cancer Mortality, 1979-1998:

Between the early 1980's and the early 1990's, breast cancer mortality rates for ENC, ONC, and the US reached a plateau, as Figure 5.1 demonstrates. More recently, rates for non-whites and whites in ENC have diverged, with the non-white rate rising while the white rate fell. Substantial improvement in county mortality rates will be necessary for the eastern region to meet the *Healthy People 2010* objective for breast cancer mortality. Only four of the 41 (10%) counties in ENC currently meet the objective for breast cancer mortality as compared to 10 of 59 (17%) counties in ONC. Twenty-five of the 41 (61%) counties in ENC will have to reduce their current rate by more than 20% to achieve the 2010 objective, and eight counties will have to reduce their rate by 10% to 20% (see Map 5.1).

Disparities in Breast Cancer Mortality, 1979-1998:

As Figure 5.1 indicates, the breast cancer mortality rate for white females declined substantially in recent years, while the rate for non-whites increased. These trends have resulted in the large and growing racial disparities in ENC that are apparent in Figure 5.2. The figure also shows a trend towards growing disparities in ONC and the US as a whole. The racial disparities within North Carolina are the most pronounced. Currently, breast cancer death rates are 36% higher for non-white females than white females in ENC, 47% greater in ONC, and 7% higher at the national level. Greater effort to reduce mortality rates for minority populations will be needed in order to eliminate disparities in breast cancer mortality by 2010. County level variation in race-specific, age-adjusted breast cancer mortality rates is shown in Map 5.3.

Table 5.1 Breast Cancer Mortality in Eastern North Carolina, 1994-1998

County	Totals			Age-Adjusted Death Rates			
	Deaths	Rates		Non-White Females		White Females	
		Crude	Adjusted	Deaths	Rate	Deaths	Rate
Beaufort	39	34.1	27.2	12	30.9	27	25.2
Bertie	25	45.2	38.5	17	48.8	8	27.3
Bladen	30	37.4	32.7	19	54.6	11	18.9
Brunswick	52	32.3	26.0	8	29.5	44	25.0
Camden	7	45.3	39.2	4	107.1	3	22.6
Carteret	55	37.2	30.9	5	41.5	50	30.1
Chowan	17	44.8	30.9	10	60.4	7	19.8
Columbus	43	31.3	26.4	12	25.2	31	27.7
Craven	62	28.3	28.2	23	45.0	39	23.1
Cumberland	169	23.5	29.7	63	32.0	106	28.4
Currituck	9	22.4	20.5	2	35.7	7	17.6
Dare	25	37.5	35.8	1	66.1	24	35.4
Duplin	48	42.7	37.1	12	28.7	36	40.8
Edgecombe	48	31.4	28.7	26	31.0	22	27.0
Gates	14	56.0	49.6	8	73.4	6	33.8
Greene	12	28.3	23.5	5	28.7	7	20.8
Halifax	66	44.4	41.0	26	34.6	40	44.9
Harnett	70	34.3	33.9	12	27.9	58	34.9
Hertford	22	36.7	34.5	17	50.8	5	14.8
Hoke	15	21.5	24.1	6	19.5	9	30.9
Hyde	3	22.2	21.9	1	26.0	2	20.1
Johnston	78	30.6	27.8	16	37.6	62	26.2
Jones	7	28.6	28.7	3	33.2	4	27.3
Lenoir	62	39.2	32.1	19	26.9	43	34.8
Martin	20	29.3	22.2	7	20.1	13	23.1
Nash	70	31.1	28.9	24	36.3	46	25.4
New Hanover	105	27.9	25.7	29	39.9	76	22.4
Northampton	25	46.3	33.5	17	45.2	8	19.8
Onslow	54	17.4	26.7	13	29.2	41	25.7
Pamlico	11	35.4	24.8	6	59.9	5	13.4
Pasquotank	31	34.2	32.1	12	37.6	19	29.5
Pender	21	22.6	20.1	12	44.5	9	11.3
Perquimans	9	32.2	23.0	3	30.5	6	20.9
Pitt	85	27.0	30.4	35	40.1	50	26.0
Robeson	71	24.1	25.4	44	28.2	27	21.2
Sampson	61	44.9	37.6	26	50.6	35	31.9
Scotland	26	27.7	26.8	8	22.1	18	30.2
Tyrrell	6	62.1	44.2	2	41.4	4	44.9
Washington	15	42.0	36.1	7	46.1	8	27.2
Wayne	79	28.5	28.1	42	46.8	37	19.1
Wilson	68	37.2	33.8	26	39.5	42	30.3
ENC 29	994	32.5	30.7	385	38.4	609	27.0
ENC 41	1,735	30.5	29.6	640	36.2	1,095	26.6
ONC	4,090	31.1	28.3	840	38.6	3,250	26.3
PNC	3,077	30.3	29.0	770	39.3	2,307	26.4
WNC	1,013	33.6	26.5	70	32.1	943	26.1
NC	5,825	30.9	28.7	1,480	37.5	4,345	26.4
US, 1996	43,091	31.8	29.8	5,873	31.5	37,218	29.4

Breast Cancer ICD-9 Code: 174

Age-Adjusted Rates Standardized to US 2000 SM

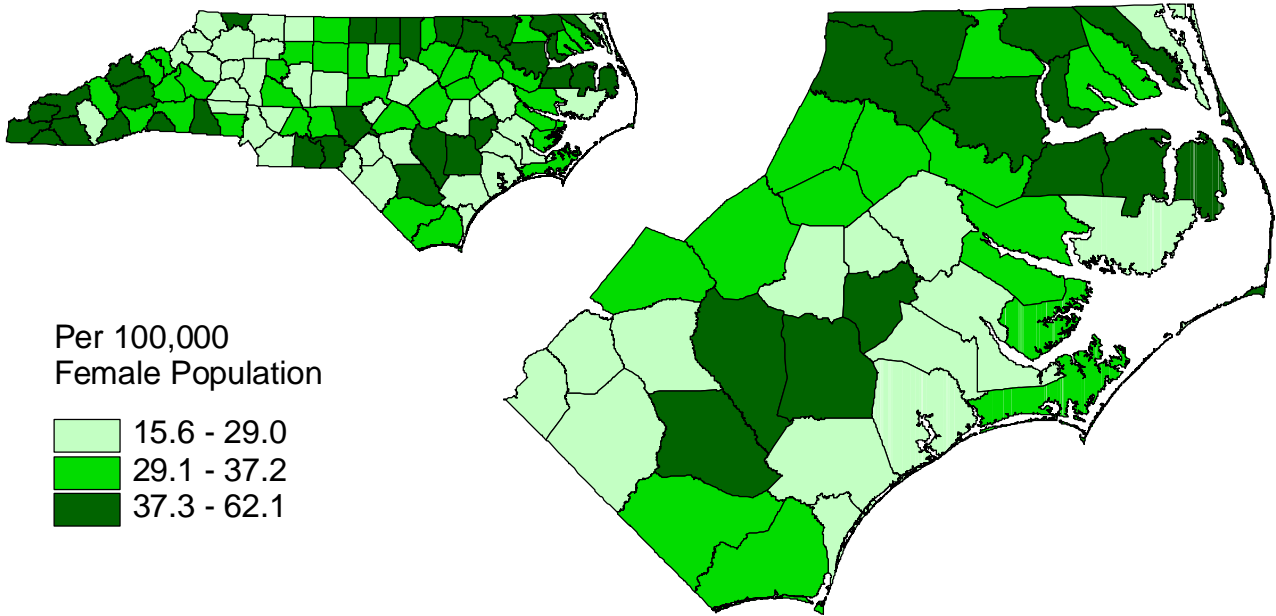
Total Number of Deaths and Rates for Five-Year Period, except US

NC Data Source: NC State Center for Health Statistics

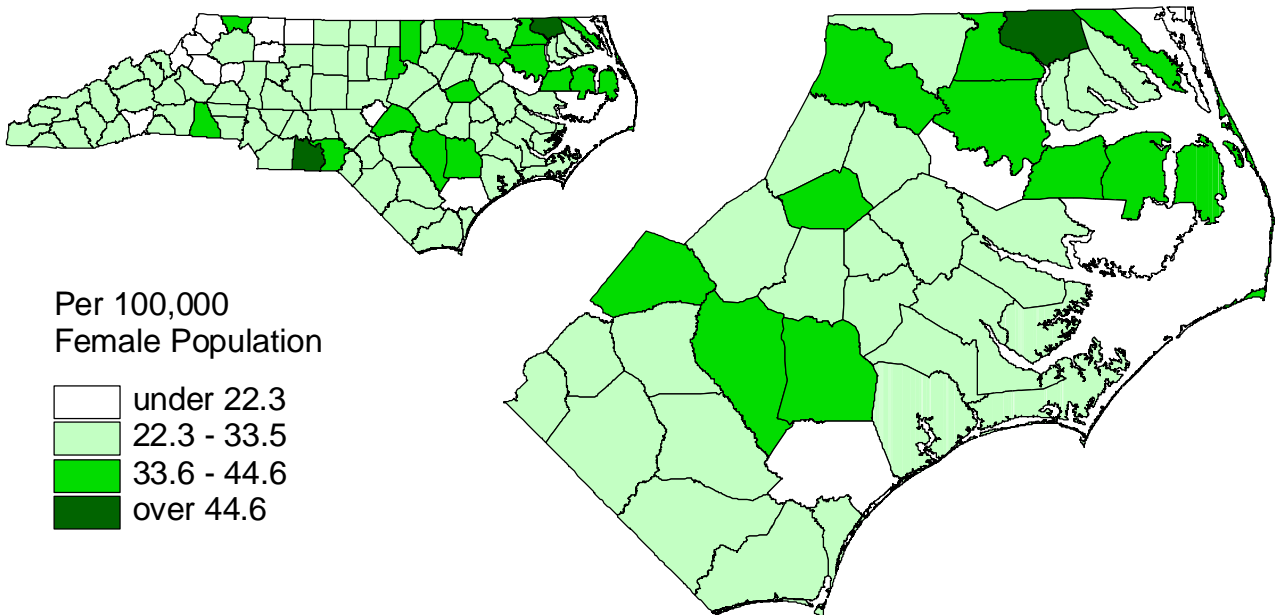
US Data Source: National Center for Health Statistics

Map 5.2 Crude and Age-Adjusted Breast Cancer Mortality Rates: North Carolina and Eastern North Carolina, 1994-1998

Crude Rate



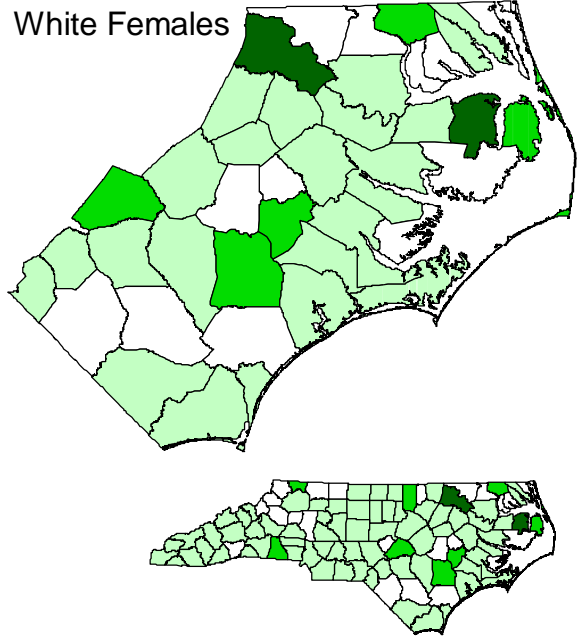
Age-Adjusted Rate



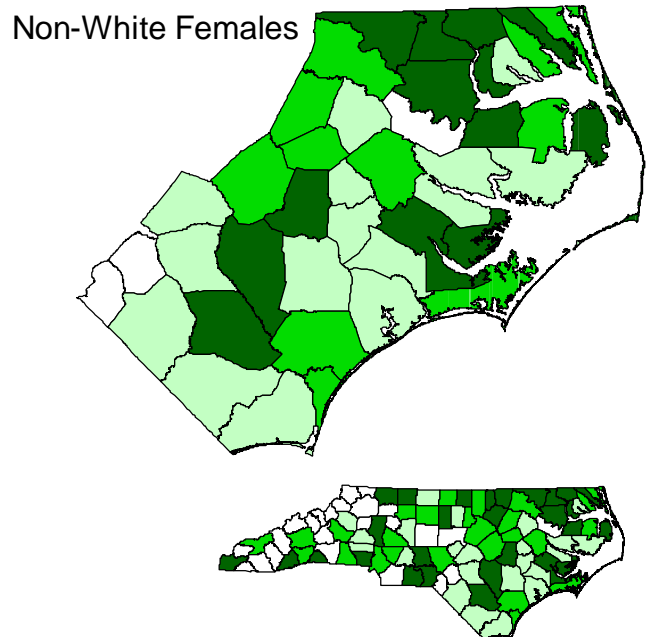
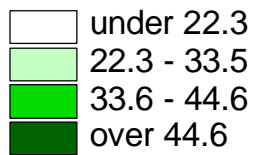
Breast Cancer ICD-9 Code: 174
Five-Year Average, Age-Adjusted Rates Standardized to US 2000 SM

Data Source: NC State Center for Health Statistics

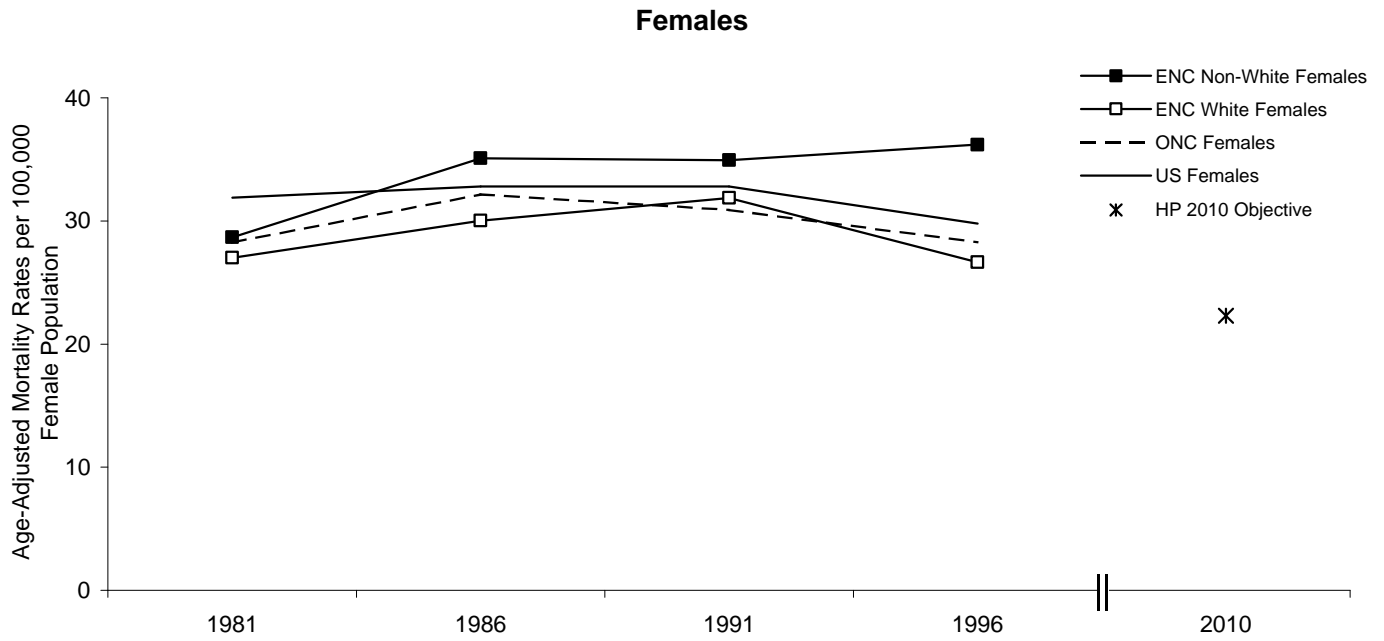
Map 5.3 Race-Gender Specific, Age-Adjusted Breast Cancer Mortality Rates: North Carolina and Eastern North Carolina, 1994-1998



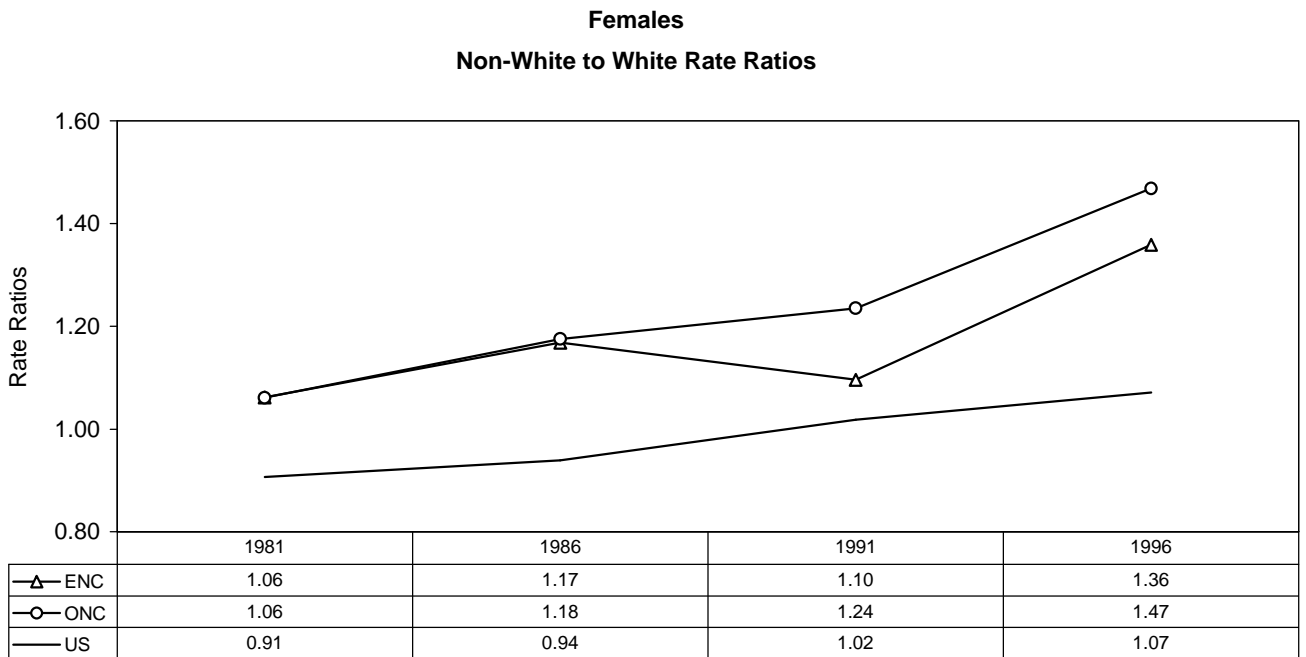
Per 100,000
Female Population



**Figure 5.1 Age-Adjusted Breast Cancer Mortality Rates:
Regional and National Trends, 1979-1998**



**Figure 5.2 Racial Disparities in Age-Adjusted Breast Cancer Mortality Rates:
Regional and National Trends, 1979-1998**



Breast Cancer ICD-9 Code: 174
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

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

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National Cancer Institute
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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 E

ICD-9 Code for Breast Cancer

174: Malignant neoplasm of female breast