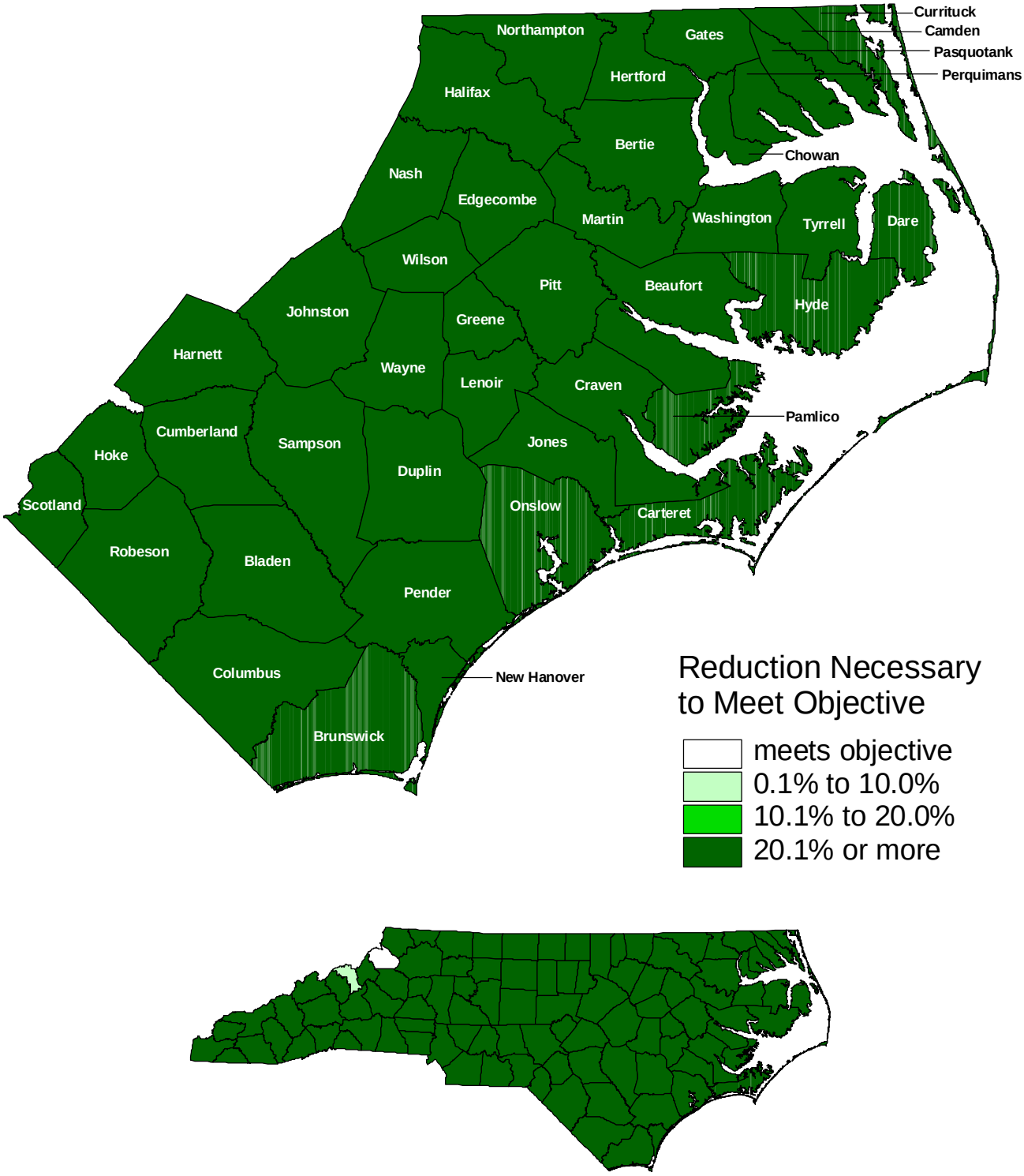
Cirrhosis

Map 16.1 Progress Towards Cirrhosis Mortality Objective



HP 2010 Objective for Cirrhosis Mortality:
Reduce cirrhosis deaths to no more than 3.0 per 100,000 population

Cirrhosis ICD-9 Code: 571
Based on Five-Year Average, Age-Adjusted Rates Standardized to US 2000 SM

Data Source: NC State Center for Health Statistics

CIRRHOSIS

Cirrhosis of the liver, the 10th leading cause of death in the United States (US), claimed 25,192 lives in 1998. More than 400,000 people suffer from cirrhosis, with 100,000 experiencing serious disabilities. For those with severe cirrhosis, liver transplant offers the only hope for survival. The estimated total costs of this procedure range from $225,000 to $300,000. Approximately 3,600 liver transplants were performed in 1994. The costs of cirrhosis, though difficult to quantify, are clearly high in terms of human suffering, lost productivity, and health care spending. Much of the excess morbidity and mortality associated with cirrhosis is preventable.

The primary cause of cirrhosis is alcoholism, which accounts for 75% to 80% of all cases. Thus, reductions in cirrhosis morbidity and mortality are dependant on the prevention of alcohol abuse. Another common cause of cirrhosis is viral hepatitis. Other causes of cirrhosis include genetic disorders, a variety of medical conditions, adverse drug reactions, and exposure to certain toxins.

Cirrhosis of the liver occurs when normal liver cells are replaced by scar tissue. As scar tissue accumulates, the liver is unable to carry out important functions such as absorbing vital nutrients, aiding in clot formation, producing agents of immunity, and removing toxins from the blood. Cirrhosis can lead to serious complications such as internal bleeding, kidney failure, body fluid retention, and frequent infection. Regardless of the cause, the treatment of cirrhosis includes abstinence from alcohol, a healthy diet, and medical therapy for symptoms and complications of the disease. When the liver fails completely, a liver transplant is the only treatment option. About 80% of people who receive transplants are still alive five years later. Other potential candidates sometimes die while waiting for a transplant due to a shortage of organs.

Some progress has been made in reducing the cirrhosis death rate. Between 1987 and 1997, the national death rate for cirrhosis fell from 9.2 to 7.2 deaths per 100,000, almost meeting the *Healthy People 2000* objective of 6 deaths per 100,000. Disparities in cirrhosis mortality have persisted, however, with African-Ameicans, Native Americans, and men experiencing excess morbidity and mortality relative to whites and women. In the US, the cirrhosis death rate for males is 126% higher than the rate for females, and the national death rate for non-whites exceeds the rates for whites by 7%. High mortality rates and large disparities in cirrhosis mortality occur in eastern North Carolina (ENC). The rate for males in ENC is 109% higher than rate for females, while non-whites in the eastern region die at a rate that is 25% higher than their white counterparts. In order to meet the *Healthy People 2010* objective for cirrhosis mortality, every county in the region will have to reduce their current rate by more than 20% (see Map 16.1). The large disparities in cirrhosis mortality will also have to be addressed.

HP 2010 OBJECTIVE FOR CIRRHOSIS MORTALITY

Objective: Reduce cirrhosis deaths to no more than 3.0 per 100,000 population

Baseline: 9.5 cirrhosis deaths per 100,000 population in 1998

Currently, none of the counties in the region meet the goal for cirrhosis mortality.

Crude Mortality Rates for Cirrhosis, 1994-1998:

The five-year average, crude mortality rate for ENC (10.6 per 100,000 population) is 20% higher than the rate (8.8) for all other North Carolina counties (ONC) and 13% higher than the rate (9.4) for the US (see Table 16.1). Halifax County has the highest mortality rate in ENC with 18.4 deaths per 100,000. Tyrrell (16.2), Bertie (15.7), Hertford (15.4), and Brunswick (15.3) counties also have high crude mortality rates. High crude mortality rates for cirrhosis are found in the northwestern and central areas of the region and along the southern border (see Map 16.2).

Age-Adjusted Mortality Rates for Cirrhosis, 1994-1998:

The five-year average, age-adjusted mortality rates for ENC (11.3 per 100,000 population) also exceeds the rate for ONC (8.8) by 28% and the rate for the US (9.7) by 16%. Halifax has the highest age-adjusted death rate in the region (18.1), followed by Tyrrell (16.8), Bertie (15.3), Hertford (15.1), and Wilson (14.9) counties. Age-adjusted cirrhosis mortality rates are high throughout the eastern region (see Map 16.2).

Trends in Cirrhosis Mortality, 1979-1998:

Age-adjusted cirrhosis death rates have fallen in ENC, ONC, and the US. Figure 16.1 demonstrates that cirrhosis mortality rates are higher for males than females and greater for non-whites than whites. Figure 16.1 also shows that the cirrhosis mortality rate for white females in ENC has increased in recent years, while the rates for other groups in the population have fallen. As shown in Map 16.1, none of the counties in the region currently meet the national objective for cirrhosis mortality. In order to meet the national objective by 2010, all of the counties in the region will have to reduce their current cirrhosis mortality rate by more than 20%.

Disparities in Cirrhosis Mortality, 1979-1998:

Disparities in cirrhosis mortality by race and gender are depicted in Figure 16.2 and Map 16.3 In the early 1980's, cirrhosis mortality rates for white and non-white men in ENC were nearly equal. By the late 1980's, a large mortality gap emerged and has persisted to the present. The disparity developed because the rate for non-white men in ENC increased while the rate for white males declined. The rising rate of cirrhosis mortality among non-white men occurred at a time when death rates for men in ONC and the US were declining. Only in recent years have rates for both groups shown a downward trend. The trends for females in ENC differ substantially from the male pattern. During the 1980's, non-white females had a considerably higher cirrhosis mortality rate than white females. By the early 1990's, the mortality gap began to narrow because the rate for non-white females declined considerably while the rate for white females slowly increased. Currently, there is only a 7% difference in the death rate of non-white and white females. The growing rate of cirrhosis mortality among white females in ENC is concerning, considering that rates for women in ONC and the US have been declining.

Table 16.1 Cirrhosis Mortality in Eastern North Carolina, 1994-1998

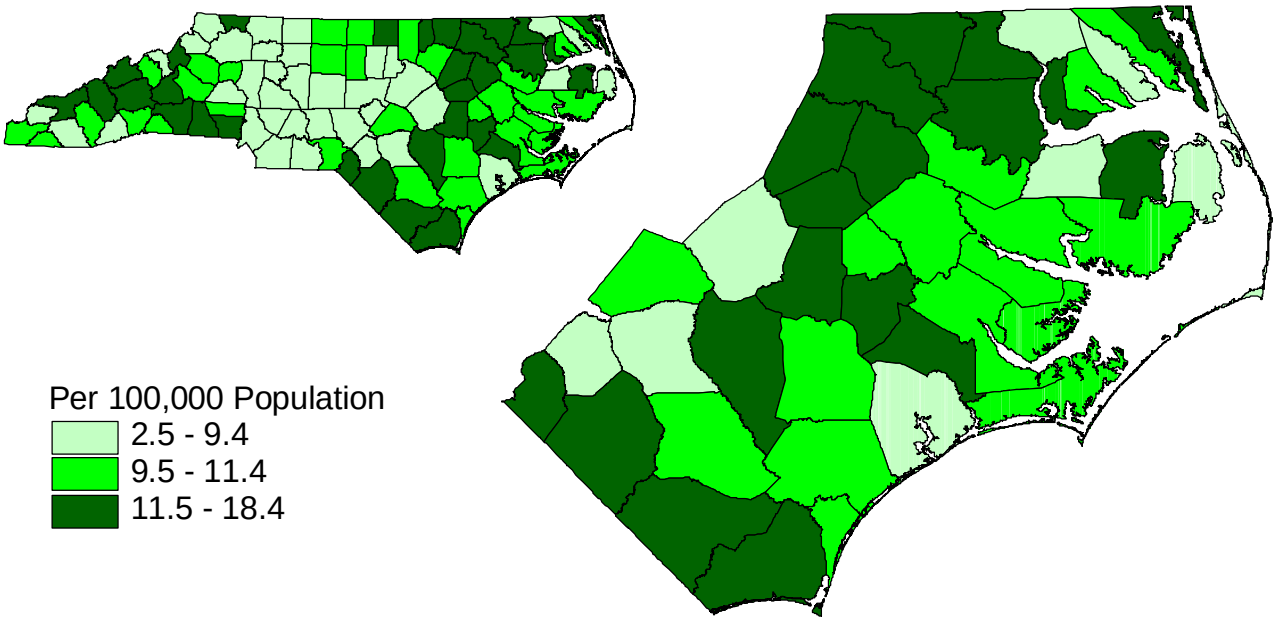
	Totals			Race-Gender Specific Age-Adjusted Death Rates							
		Rates		Non-White Males		Non-White Females		White Males		White Females	
County	Deaths	Crude	Adjusted	Deaths	Rate	Deaths	Rate	Deaths	Rate	Deaths	Rate
Beaufort	21	9.7	8.5	3	11.7	2	4.6	12	13.8	4	4.0
Bertie	16	15.7	15.3	4	20.2	2	5.9	5	23.2	5	15.7
Bladen	16	10.6	9.8	1	4.1	3	9.2	8	17.0	4	6.5
Brunswick	48	15.3	12.6	1	4.5	1	3.4	37	24.9	9	5.4
Camden	3	9.5	8.0	1	26.0	0	0.0	1	7.5	1	6.3
Carteret	28	9.6	8.2	2	21.5	2	14.8	14	8.9	10	6.0
Chowan	10	14.1	12.6	3	30.5	2	15.9	3	11.4	2	4.9
Columbus	33	12.8	12.3	6	19.9	3	7.2	9	9.5	15	12.6
Craven	44	10.1	11.0	12	31.6	3	5.7	19	13.2	10	5.6
Cumberland	101	6.9	9.4	27	16.6	14	6.9	34	9.5	26	7.0
Currituck	12	14.8	13.3	1	21.5	2	41.5	8	19.5	1	2.3
Dare	8	6.0	6.4	0	0.0	0	0.0	5	10.7	3	4.5
Duplin	22	10.1	9.5	3	10.5	3	8.0	10	15.0	6	6.3
Edgecombe	39	14.0	14.8	18	32.6	4	5.2	6	10.3	11	14.0
Gates	2	4.1	3.9	1	10.1	0	0.0	1	7.1	0	0.0
Greene	9	10.5	9.8	1	4.7	1	7.0	5	17.0	2	5.9
Halifax	52	18.4	18.1	24	40.7	7	9.6	18	23.7	3	3.7
Harnett	41	10.4	11.1	6	17.6	3	7.7	16	11.0	16	9.5
Hertford	17	15.4	15.1	7	30.9	4	11.6	5	20.6	1	2.2
Hoke	11	7.8	9.0	2	7.2	1	3.1	5	16.6	3	9.7
Hyde	3	11.4	9.2	0	0.0	0	0.0	2	19.3	1	8.5
Johnston	40	8.1	7.9	1	2.9	2	4.9	23	11.2	14	5.8
Jones	6	13.0	11.8	2	25.0	0	0.0	3	18.8	1	4.8
Lenoir	38	12.9	12.1	15	34.5	6	9.0	10	10.5	7	6.0
Martin	13	10.1	9.3	5	22.6	1	3.4	4	11.2	3	5.2
Nash	50	11.7	11.7	8	16.0	5	7.7	26	17.4	11	5.8
New Hanover	76	10.6	10.3	10	19.3	5	6.5	42	15.0	19	5.6
Northampton	13	12.5	10.5	5	20.4	2	4.1	5	15.8	1	2.4
Onslow	42	5.7	11.8	4	10.5	3	6.3	20	12.1	15	10.5
Pamlico	6	10.1	7.9	1	18.5	0	0.0	2	5.5	3	10.1
Pasquotank	14	8.2	8.3	3	14.7	1	2.9	4	9.3	6	9.1
Pender	20	11.1	10.6	4	20.2	0	0.0	6	8.6	10	13.1
Perquimans	6	11.1	7.8	2	25.3	0	0.0	3	13.6	1	3.3
Pitt	61	10.2	12.4	8	11.8	12	12.3	22	16.0	19	9.7
Robeson	72	12.9	14.3	22	16.2	19	12.0	19	20.2	12	9.9
Sampson	39	15.1	13.9	8	21.9	2	4.5	18	19.7	11	10.0
Scotland	24	13.8	14.8	11	40.6	1	2.9	8	19.7	4	6.5
Tyrrell	3	16.2	16.8	3	128.2	0	0.0	0	0.0	0	0.0
Washington	5	7.4	6.7	1	10.8	1	6.8	3	13.5	0	0.0
Wayne	67	12.0	12.7	14	20.8	11	12.0	20	11.7	22	11.1
Wilson	52	15.2	14.9	14	30.2	10	15.4	17	15.6	11	7.4
ENC 29	662	11.0	11.5	165	22.6	84	8.5	253	13.7	160	7.0
ENC 41	1,183	10.6	11.3	264	19.8	138	7.8	478	13.9	303	7.3
ONC	2,246	8.8	8.8	322	18.5	174	7.7	1,161	11.8	589	4.7
PNC	1,632	8.3	8.6	270	17.1	151	7.4	790	11.4	421	4.8
WNC	614	10.5	9.3	52	30.8	23	10.4	371	13.2	168	4.7
NC	3,429	9.4	9.5	586	19.0	312	7.8	1,639	12.3	892	5.4
US, 1996	25,047	9.4	9.7	2,319	14.8	1,306	6.6	13,992	13.6	7,430	6.0

Cirrhosis ICD-9 Code: 571
Age-Adjusted Rates Standardized to US 2000 SM
Total Number of Deaths and Rates for Five-Year Period, except US

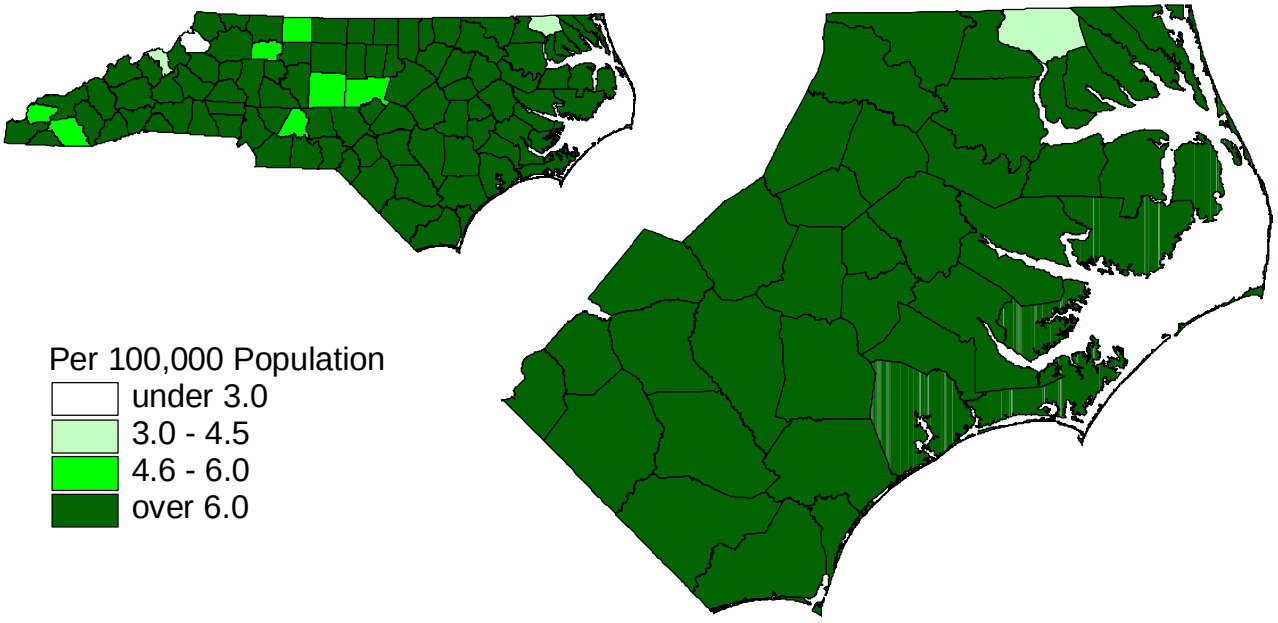
NC Data Source: NC State Center for Health Statistics
US Data Source: National Center for Health Statistics

Map 16.2 Crude and Age-Adjusted Cirrhosis Mortality Rates: North Carolina and Eastern North Carolina, 1994-1998

Crude Rate



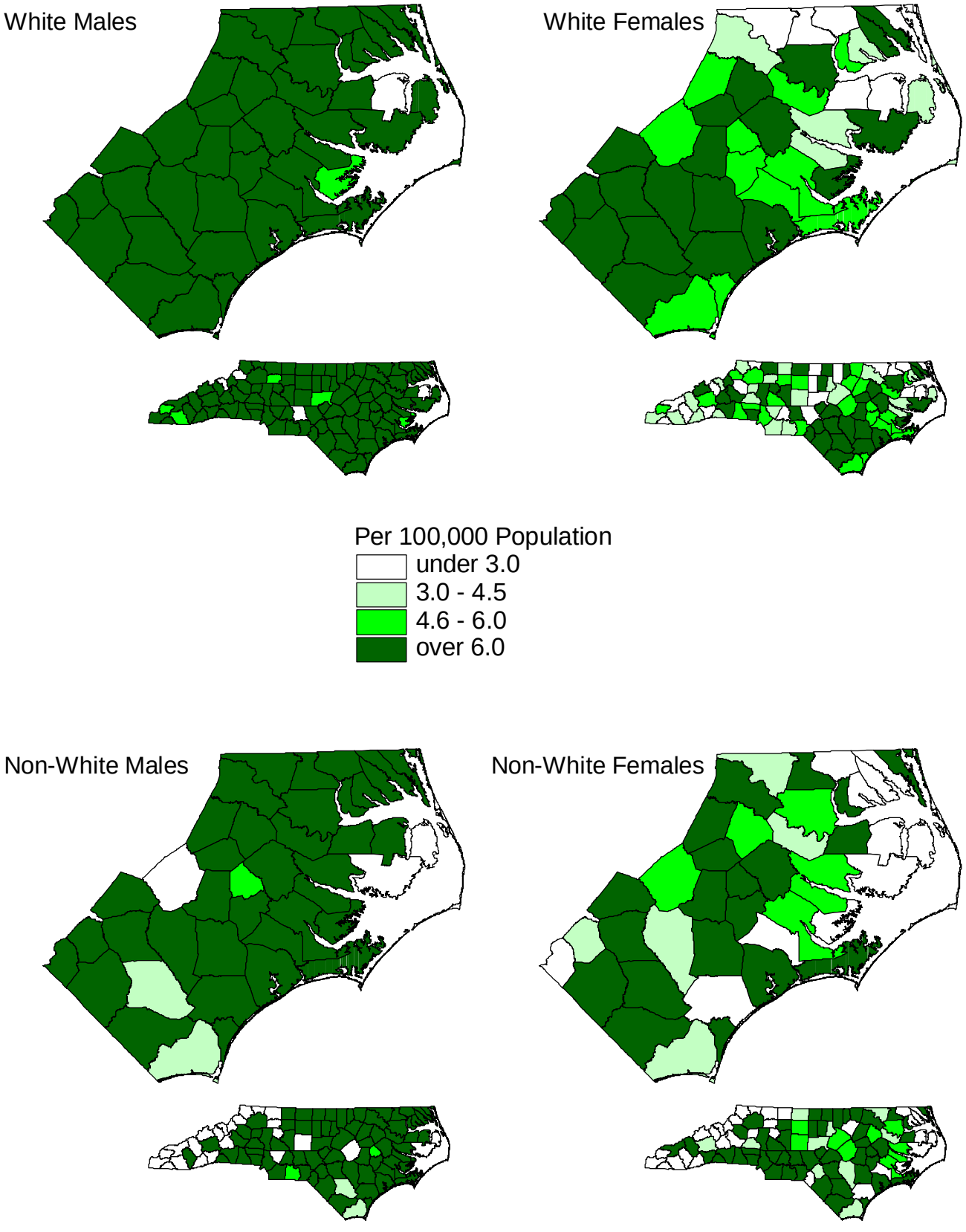
Age-Adjusted Rate



Cirrhosis ICD-9 Code: 571
Five-Year Average, Age-Adjusted Rates Standardized to US 2000 SM

Data Source: NC State Center for Health Statistics

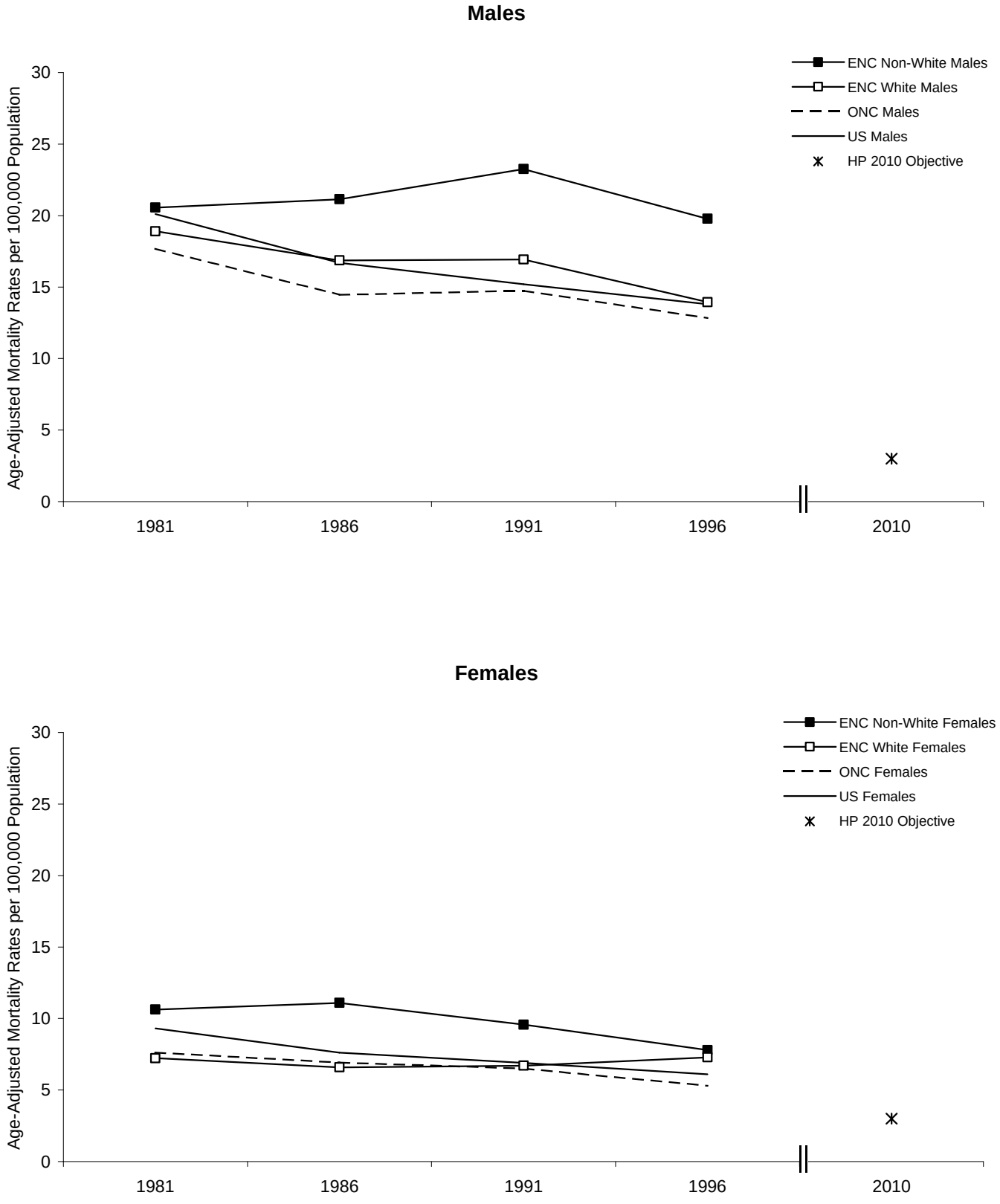
Map 16.3 Race-Gender Specific, Age-Adjusted Cirrhosis Mortality Rates: North Carolina and Eastern North Carolina, 1994-1998



Cirrhosis ICD-9 Code: 571
Five-Year Average, Age-Adjusted Rates Standardized to US 2000 SM

Data Source: NC State Center for Health Statistics

Figure 16.1 Age-Adjusted Cirrhosis Mortality Rates by Gender: Regional and National Trends, 1979-1998



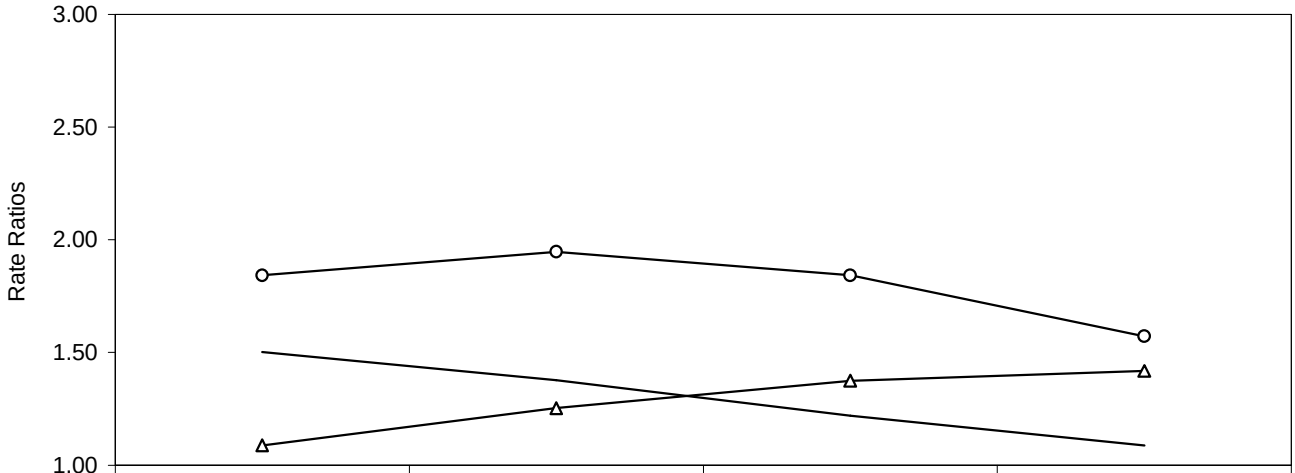
Cirrhosis ICD-9 Code: 571
Five-Year Average, Age-Adjusted Rates Standardized to US 2000 SM
US Rates for Middle Year of Five Year Periods

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

Figure 16.2 Racial Disparities in Age-Adjusted Cirrhosis Mortality Rates by Gender: Regional and National Trends, 1979-1998

Males

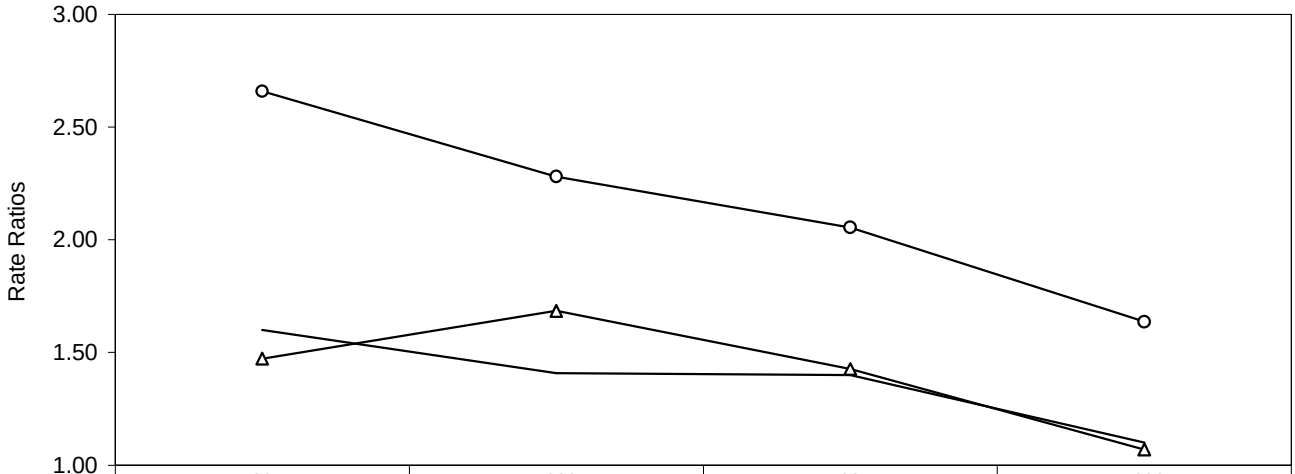
Non-White to White Rate Ratios



	1981	1986	1991	1996
ENC	1.09	1.25	1.37	1.42
ONC	1.84	1.95	1.84	1.57
US	1.50	1.38	1.22	1.09

Females

Non-White to White Rate Ratios



	1981	1986	1991	1996
ENC	1.47	1.68	1.43	1.07
ONC	2.66	2.28	2.05	1.64
US	1.60	1.41	1.40	1.10

Cirrhosis ICD-9 Code: 571
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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Centers for Disease Control and Prevention
(http://www.cdc.gov)

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

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

National Institute of Diabetes and Digestive and Kidney Diseases
National Institutes of Health
(http://www.niddk.nih.gov)

National Institute on Alcohol Abuse and Alcoholism
National Institute of Health
(http://www.niaaa.nih.gov)

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

Appendix P

ICD-9 Code for Cirrhosis

571: Chronic liver disease and cirrhosis