



**Northeastern North Carolina
Partnership for Public Health**

Cardiovascular Disease

In Northeastern North Carolina

March 2005

The NENCPPH Governing Board

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Introduction

The Northeastern North Carolina Partnership has selected heart disease and stroke (cardiovascular disease) as one of its priorities, for the development of regional health programs and interventions.

The following report provides detailed current cardiovascular disease data for the region, a description of current local public health department programs that address cardiovascular disease, and a discussion of the strength and gaps in current local health department efforts to address cardiovascular disease in Northeastern North Carolina. This information will be used by the Northeastern North Carolina Partnership for Public Health as it develops a regional strategic plan to address the problem of cardiovascular disease.

The Northeastern North Carolina Partnership for Public Health is a network of 11 local health departments that serve a 19-county region in the northeastern region of the state. This demonstration project is exploring ways that independent local health departments can work together, across jurisdictional boundaries, to carry out the core public health functions and essential services.

Currently the NENCPPH is collaborating to reduce the burden of Diabetes, HIV and AIDS, Heart Disease and Stroke in Northeastern North Carolina. A particular focus is to eliminate the existing racial, gender, and geographic disparities in the disease rates for these conditions.

The NENCPPH, formed in 1999, is guided by a governing board comprised of the directors of the 11 network health departments, and of representatives from the North Carolina Division of Public Health and the North Carolina Institute for Public Health at the University of North Carolina, School of Public Health. In 2002, the NENCPPH received a federal grant to help it achieve its goals.

In addition, the NENCPPH is working toward legislative change that will provide funding to local health departments for the delivery of core public health functions. Unlike some other states, local health departments in North Carolina do not receive funding to carry out this important health department role.

Summary

Cardiovascular Disease Data

Mortality, Hospitalizations and Prevalence

	Total Cardiovascular Disease		Heart Disease		Stroke	
	NENC	NC	NENC	NC	NENC	NC
Deaths 2003	1,848	25,840	828	12,658	379	27,109
Mortality Rate 2003 <i>deaths per 100,000</i>	357.6	315.8	158.9	153.9	77.7	64.0
White Males	428.1		246.5		62.8	
Black Males	544.3		234.2		116.5	
White Females	312.1		141.9		68.2	
Black Females	356.7		140.2		84.4	
Premature Mortality						
White Males	22.8%		25.4%		15.5%	
Black Males	32.6%		33.7%		26.1%	
White Females	8.2%		9.3%		5.3%	
Black Females	18.7%		16.6%		15.7%	
Decrease in Mortality Rate 2000 to 2003	-11.5%		-21.6%		-4.3%	
Prevalence	9.4%	8.1%	4.3%	4.2%	3.8%	2.6%

Prevalence of Risk Factors			
	Total NENC Population	Age less than 45	Age 45 +
Current Smoker	25.3%	30.8%	20.9%
High Blood Cholesterol	32.7%	17.7%	41.2%
High Blood Pressure	35.4%	14.0%	53.5%
Diabetes	12.3%	3.1%	20.0%
Overweight or Obese	67.1%	65.4%	68.4%
Vigorous Physical Activity	13.6%	18.8%	9.2%
Moderate Physical Activity	33.3%	34.9%	31.9%

Knowledge and Behavior	Total NENC Population	Age less than 45	Age 45+
Know Signs of Heart Attack	11.0%	9.7%	12.1%
Know Signs of Stroke	16.2%	15.7%	16.5%
Eating Fewer high fat or high cholesterol food to reduce risk of heart disease	69.4%	61.8%	75.5%

Recommendations

- **Expand the number of counties offering the WiseWoman program and enhance existing programs to include a lay health advisor component**
- **Consider developing programs that target males**
- **Increase awareness of signs of heart attack and stroke**
- **Increase access to quality health care**
- **Educate public about stroke and its implications for mortality and disability**
- **Promote smoke free environments**
- **Promote environmental changes that promote healthy eating and exercise**
- **Advocate for hospitals in region to participate in stroke registry**

Background

Definition of Cardiovascular Disease

Cardiovascular Disease (CVD) is a group of conditions affecting the heart and blood vessels. Coronary Heart Disease and Stroke (cerebrovascular disease) are the leading forms of CVD. Coronary heart disease is a condition where the arteries of the heart are narrowed, resulting in angina (chest pain) or heart attack. Stroke, also called a brain attack or cerebrovascular accident, is caused by an insufficient blood supply to the brain that results in a loss of muscle function, mental function, vision, sensation, or speech. Other conditions that are included in the category of CVD are rheumatic fever/rheumatic heart disease, hypertensive diseases, pulmonary heart disease and diseases of the pulmonary circulation, atherosclerosis, other diseases of the arteries, arterioles and capillaries, diseases of the veins, lymphatics and lymph nodes, other disorders of the circulatory system, other forms of heart disease, and congenital heart defects

Risk Factors

High blood pressure and high blood cholesterol are two of the leading risk factors for CVD. Other important risk factors for heart disease and stroke are diabetes, tobacco use, physical inactivity, poor nutrition, and overweight and obesity

Prevention

In the Publication, promising Practices in Chronic Disease Prevention, heart disease and stroke prevention activities are categorized as general health promotion activities, primary prevention activities, and secondary prevention activities:

General Cardiovascular Health promotion

Target general population through education campaigns to increase public awareness of signs of heart attack and stroke, policies to ensure universal coverage of 911, policy and environmental changes that support heart-healthy behaviors in the general population

Primary Prevention activities target people with high blood pressure, high cholesterol, tobacco use, poor nutrition, physical inactivity, overweight and obesity, and diabetes. They are activities that encourage lifestyle changes to reduce the risk of disease, and also accessing quality healthcare to keep blood pressure and cholesterol under control.

Secondary prevention targets people with established CVD to prevent a recurrent event. These strategies include: ensuring compliance with guidelines on the use of aspirin, beta-blockers, ACE inhibitors, anticoagulants, and other anti-platelet agents. In addition, are reducing risk factors through lifestyle changes such as losing weight and quitting smoking.

Cardiovascular Disease Data for Northeastern North Carolina

Cardiovascular Disease Mortality Rates

- Number of cardiovascular disease deaths in NENC Region
 - 1848 deaths (2003)
 - 1,945 deaths per year (average of 2000 to 2003)
- Unadjusted Mortality Rates
 - 423.9 per 100,000 (2003)
 - 449.6 per 100,000 (average of 2000 to 2003)
- Age-Adjusted Mortality Rates
 - 357.6 per 100,000 (2003)
 - 383.2 (average of 2000 to 2003)
- Heart disease and stroke account for 65% of the total CVD deaths (2003 data). Other cardiovascular disease-related causes include hypertensive disease (10%), congestive heart failure (4%), congenital heart defects (0.1%), and other types of CVD (21%).
- Rates declined 11.5% from 2000 to 2003
- NENC mortality rates slightly elevated (15%) compared to the state

Figure 1. Total Cardiovascular Disease Unadjusted Mortality Rates

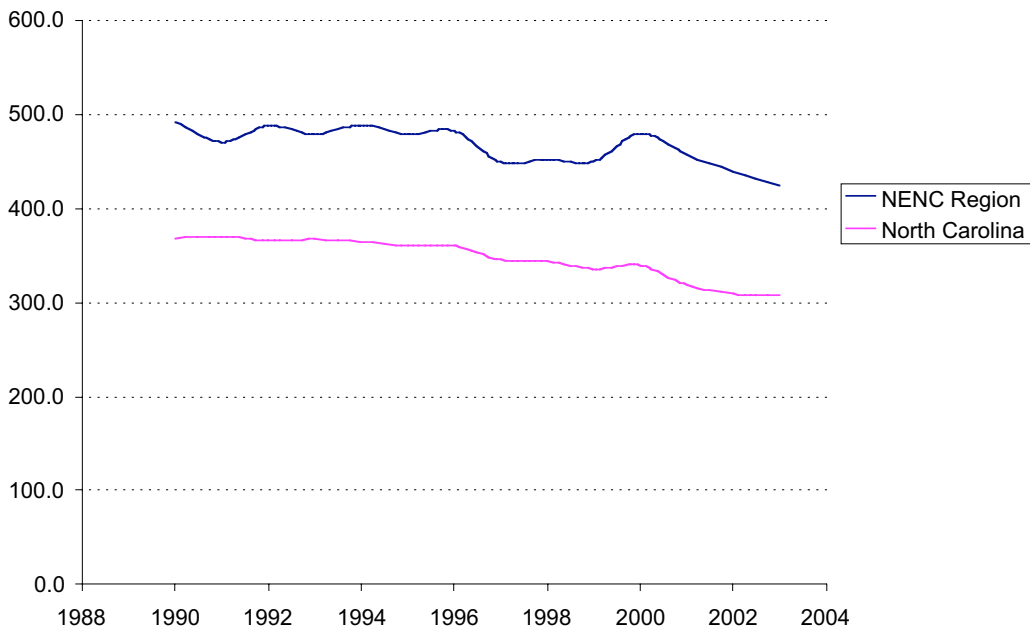


Table 1. Cardiovascular Disease Adjusted Mortality Rates

	2000	2001	2002	2003	2000 TO 2003
NENC REGION	413.8	390.5	372.1	357.6	383.2
NORTH CAROLINA	358.7	334.4	320.8	315.8	332.0

Table 2. Number of Deaths from Cardiovascular Disease

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
NENC Region	1979	1904	1989	1974	2034	2010	2037	1910	1936	1936	2063	1967	1901	1848
Beaufort	211	177	249	241	228	247	231	215	243	236	246	233	213	217
Bertie	109	102	106	92	109	99	125	83	104	99	105	104	92	82
Camden	25	22	23	25	26	20	26	17	22	39	27	24	30	18
Chowan	71	75	76	85	79	68	76	78	71	81	93	71	77	65
Currituck	55	50	62	47	62	63	51	62	67	56	70	64	66	58
Dare	68	55	64	88	60	89	84	82	86	83	91	73	81	70
Edgecombe	258	277	260	266	276	255	256	237	256	238	260	238	243	261
Gates	46	47	40	60	47	47	48	64	36	39	61	44	48	37
Halifax	313	295	297	291	305	308	307	288	283	260	265	293	277	247
Hertford	131	109	128	99	118	120	116	109	96	96	115	112	116	117
Hyde	36	35	20	36	41	29	37	39	31	34	35	28	24	23
Martin	105	111	121	99	108	129	127	106	115	110	141	115	130	126
Northampton	106	135	128	117	111	92	128	123	101	129	110	102	106	104
Pamlico	66	49	45	41	59	55	46	56	61	55	47	68	50	57
Pasquotank	147	154	129	147	140	149	158	139	133	159	149	143	110	136
Perquimans	59	51	72	57	66	62	58	58	58	66	58	69	64	53
Tyrell	16	21	24	29	17	16	23	15	23	15	18	21	21	10
Warren	92	93	91	85	93	85	84	82	96	79	88	105	86	100
Washington	65	46	54	69	89	77	56	57	54	62	84	60	67	67
North Carolina	24506	25093	25167	25815	26174	26408	26999	26403	26804	26660	27375	26096	25642	25840

Note: the number of cases is artificially smaller before 1999 because the classification system for cause of death was revised. Deaths before 1999 were classified using ICD-9, and those 1999 and later were classified using ICD-10.

Table 3. Cardiovascular Disease Unadjusted Mortality Rates

	Mortality from Cardiovascular Diseases, Number of deaths per 100,000 (Unadjusted Mortality Rate)													
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
NENC Region	491.2	470.1	487.2	478.0	488.0	478.4	481.9	448.7	451.6	449.5	478.9	456.7	438.8	423.9
Beaufort	497.9	414.8	579.8	556.0	521.9	562.8	526.4	487.3	547.0	524.4	546.8	516.6	470.9	477.9
Bertie	534.6	498.6	521.7	450.0	533.8	484.4	617.1	412.3	520.9	497.4	532.3	528.2	468.7	419.6
Camden	421.1	365.1	374.2	403.7	409.7	314.2	401.1	255.2	325.3	573.4	389.7	337.0	404.1	228.9
Chowan	524.4	549.0	550.4	611.8	563.8	482.6	530.6	542.0	491.8	556.4	658.6	502.3	542.2	450.4
Currituck	398.6	352.7	425.2	311.5	396.1	392.6	309.3	366.0	383.5	313.6	381.7	339.1	336.1	278.4
Dare	296.6	238.2	271.6	363.7	240.4	343.5	315.0	295.8	300.6	282.6	301.4	235.8	252.3	211.4
Edgecombe	455.8	489.6	459.3	470.2	487.5	447.4	448.8	416.6	453.8	422.8	470.2	430.9	441.9	475.5
Gates	492.7	501.9	420.0	618.8	478.0	472.0	475.9	627.5	345.0	372.2	580.4	416.8	451.1	344.1
Halifax	562.2	526.7	525.9	507.0	526.8	529.3	529.1	497.5	489.2	452.6	462.5	516.1	489.7	437.2
Hertford	586.0	486.8	570.0	436.3	521.3	528.8	512.1	480.7	425.2	425.2	501.2	496.8	517.7	524.4
Hyde	665.9	650.6	368.7	669.0	542.5	540.5	684.0	711.2	524.1	574.9	604.6	492.6	419.5	413.1
Martin	419.2	441.5	481.6	387.2	494.8	495.8	488.7	408.0	446.6	429.3	552.6	455.7	516.7	502.6
Northampton	504.0	641.3	610.0	556.4	433.9	427.8	588.7	562.1	459.4	586.9	498.1	464.1	484.6	477.5
Pamlico	579.2	427.0	387.8	348.7	461.2	456.6	378.1	460.4	494.9	426.4	363.1	529.9	388.3	445.9
Pasquotank	468.1	486.8	399.2	445.9	449.5	447.2	465.4	399.9	379.4	455.4	427.2	410.0	308.7	377.0
Perquimans	563.1	486.5	685.6	537.8	583.1	581.6	532.1	527.3	521.3	587.5	508.4	599.5	552.3	455.2
Tyrell	414.9	553.9	623.1	739.6	412.6	415.5	602.1	397.4	570.3	361.4	434.0	507.1	506.1	240.6
Warren	531.7	532.0	513.1	472.4	468.6	459.1	449.4	431.2	484.7	395.1	441.5	527.7	431.9	504.7
Washington	463.9	325.1	378.3	484.5	534.2	538.0	396.7	407.6	391.2	451.1	612.7	441.9	497.5	500.0
North Carolina	367.7	369.9	364.9	366.5	364.2	359.6	360.0	344.8	343.2	335.4	338.9	318.4	308.7	307.4

Note: the number of cases is artificially smaller before 1999 because the classification system for cause of death was revised. Deaths before 1999 were classified using ICD-9, and those 1999 and later were classified using ICD-10.

CVD Deaths by Race and Gender

- Number of deaths in 2003
 - Males 875 (46.1%)
 - Females (53.9%)
- Average Number of Deaths 2000 to 2003
 - Males 914 (46.7%)
 - Females 1044 (53.3%)
- 59.8% white, 39.6% black, 0.4% American Indian, and 0.1% Hispanic (2000 to 2003 data).
- Mortality rates for males are greater than rates for females
- African American rates are greater for both males and females

Figure 2. Cardiovascular Mortality Rates by Race and Sex (Age Adjusted Rates)

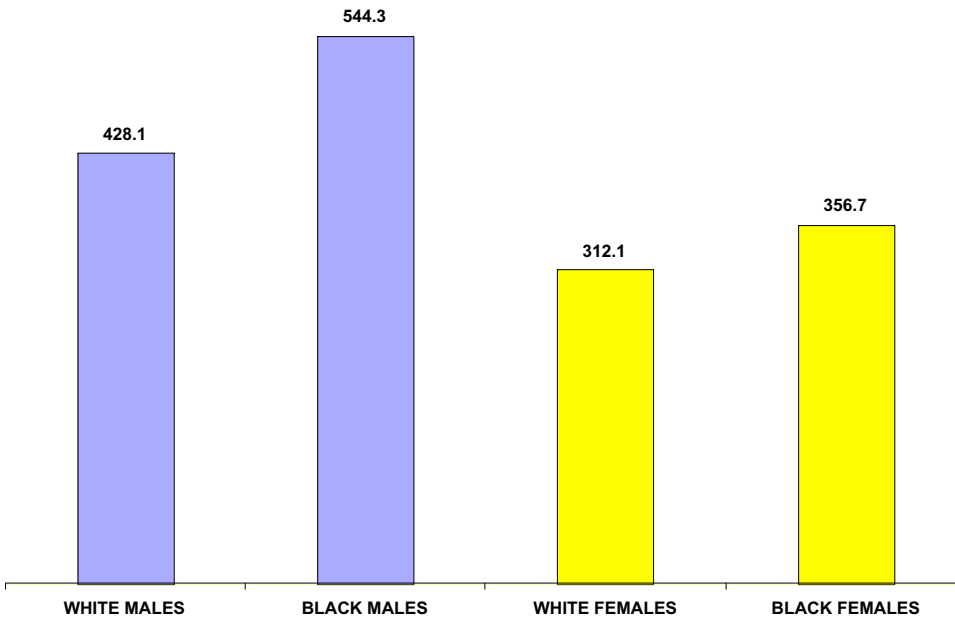


Table 4. Number of Deaths from Cardiovascular Disease by Sex

	2000	2001	2002	2003	AVERAGE	
					NUMBER	PERCENT
MALE	973	920	886	875	913.5	46.7%
FEMALE	1090	1047	1015	1023	1043.8	53.3%
TOTAL	2063	1967	1901	1898	1957.3	

Age Distribution of CVD Deaths

- Median age at CVD death for NENC: 79 years
- Males are more likely to die prematurely (before age 65) from CVD. 22% of white males, 33.2% of black males, 18.6% of black females, and 8% of white females died prematurely (prior to age 65).
- Compared to whites, African American men and women are more likely to die prematurely from CVD compared to white men and women.

Figure 3. Age Distribution of Cardiovascular Disease Deaths by Race and Sex

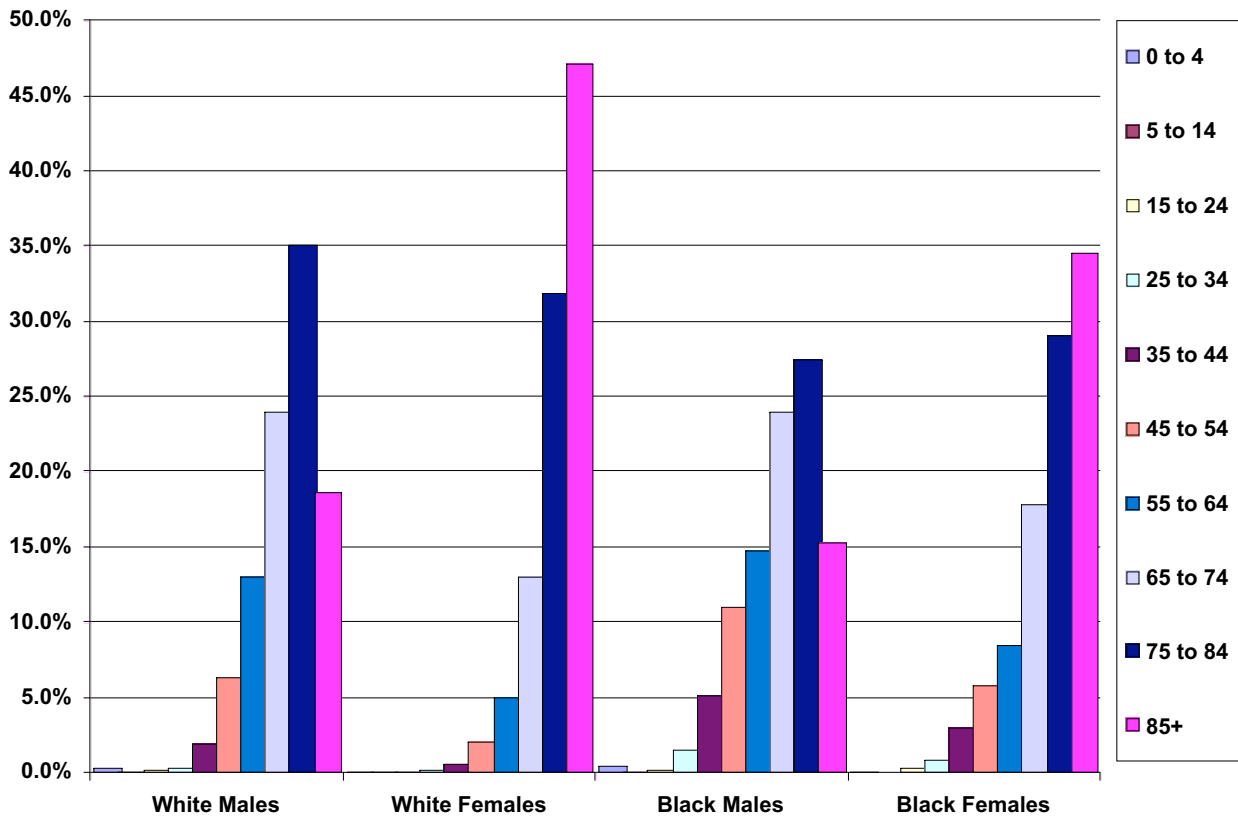


Table 5. Median Age at Death for Cardiovascular Disease-Related Deaths

NENC REGION	79
NORTH CAROLINA	79
WHITE MALES	75
BLACK MALES	71
WHITE FEMALES	84
BLACK FEMALES	79

Table 6. Age Distribution of Cardiovascular Disease-Related Deaths by Race and Sex

	WHITE MALES			BLACK MALES		
	NUMBER	PERCENT	CUMULATIVE PERCENT	NUMBER	PERCENT	CUMULATIVE PERCENT
< 5	2	0.4%	0.4%	1.25	0.3%	0.3%
5-14	0	0.0%	0.4%	0.25	0.1%	0.4%
15-24	1	0.1%	0.5%	1	0.3%	0.7%
25-34	2	0.4%	0.9%	5.5	1.5%	2.2%
35-44	12	2.1%	3.1%	18.75	5.2%	7.5%
45-54	34	6.4%	9.4%	38.5	10.7%	18.2%
55-64	72	13.3%	22.8%	51.5	14.4%	32.6%
65-74	127	23.6%	46.4%	88.75	24.8%	57.4%
75-84	186	34.5%	80.9%	97.25	27.1%	84.5%
85+	103	19.1%	100.0%	55.5	15.5%	100.0%
Total	538			358.25		

	WHITE FEMALES			BLACK FEMALES		
	NUMBER	PERCENT	CUMULATIVE PERCENT	NUMBER	PERCENT	CUMULATIVE PERCENT
< 5	0.5	0.1%	0.1%	0.25	0.1%	0.1%
5-14	0.25	0.0%	0.1%	0	0.0%	0.1%
15-24	0	0.0%	0.1%	1.75	0.4%	0.5%
25-34	1.25	0.2%	0.3%	4	1.0%	1.5%
35-44	3.75	0.6%	0.9%	12.75	3.1%	4.5%
45-54	13.25	2.1%	3.1%	24.25	5.9%	10.4%
55-64	32.25	5.2%	8.2%	34.25	8.3%	18.7%
65-74	80	12.8%	21.1%	70.5	17.1%	35.8%
75-84	199	32.0%	53.0%	119.5	29.0%	64.8%
85+	292.5	47.0%	100.0%	145.25	35.2%	100.0%
Total	622.75			412.5		

 *PREMATURE MORTALITY*

Mortality from Heart Disease (Coronary Heart Disease, Acute Coronary Syndrome, and Angina Pectoris)

- Number of Deaths in NENC
 - 828 (2003)
 - 923.3 (Average 2000 to 2003)
- Unadjusted Mortality Rates
 - 189.9 (2000)
 - 213.5 (Average 2000 to 2003)
- Adjusted Mortality Rates
 - 158.9 per 100,000 (2003)
 - 180.9 per 100,000 (Average 2000 to 2003)
- The age-adjusted mortality rate for NENC exceeds the state rate by 9.2%
- The mortality rate for heart disease declined 21.6% from 2000 to 2003

Figure 4. Heart Disease Mortality Rates (Unadjusted Rates)

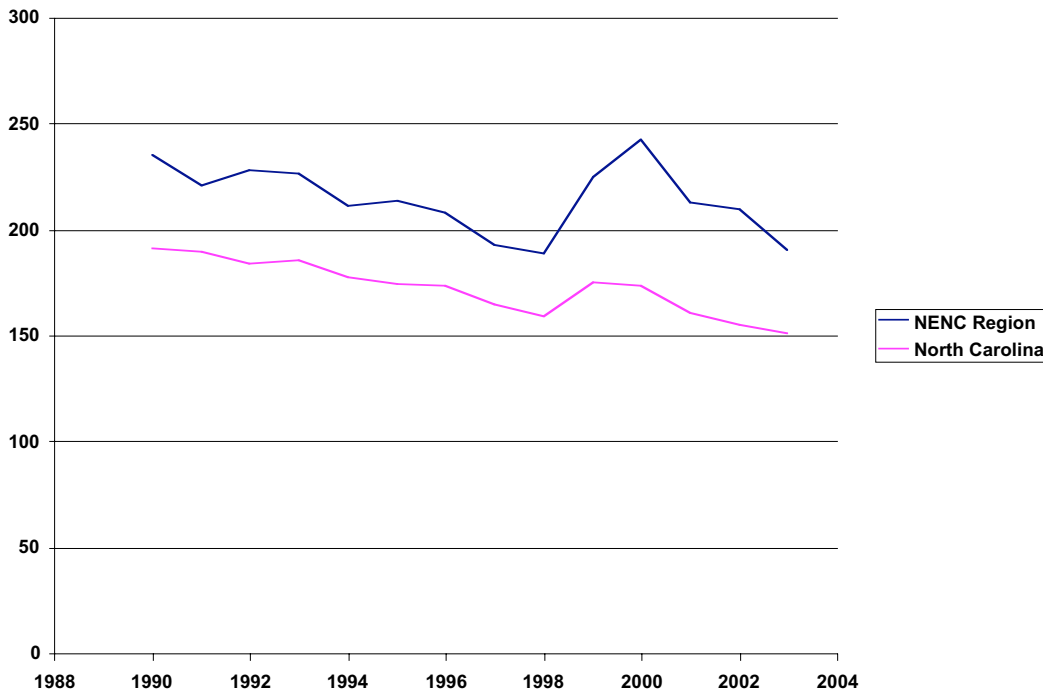


Table 7. Heart Disease Age Adjusted Mortality Rates

	2000	2001	2002	2003	2000 TO 2003
NENC Region	208.4	180.9	176.3	158.9	180.9
North Carolina	182.8	167.3	160.0	153.9	165.7

Table 8. Number of Deaths from Heart Disease (Coronary Heart Disease, Acute Coronary Syndrome and Angina Pectoris)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
NENC														
Region	948	895	931	933	878	895	877	820	809	968	1043	916	906	828
Beaufort	83	80	107	101	80	86	99	81	82	136	129	125	115	104
Bertie	51	51	55	44	36	58	52	36	51	41	51	39	34	37
Camden	9	10	11	16	11	11	10	8	13	16	14	15	16	12
Chowan	28	36	34	36	25	30	27	32	27	32	34	26	23	28
Currituck	28	21	30	19	26	26	27	29	30	28	35	28	29	29
Dare	36	28	30	46	28	34	38	39	38	40	32	40	36	24
Edgecombe	133	127	121	138	128	119	113	99	104	133	143	112	122	120
Gates	25	23	24	34	22	19	15	32	11	17	31	15	15	15
Halifax	161	153	149	145	161	161	144	132	131	135	143	144	152	115
Hertford	71	49	53	45	48	58	47	45	38	44	62	42	50	42
Hyde	17	18	8	17	14	8	15	19	19	21	18	16	13	13
Martin	48	46	56	38	51	50	46	42	47	57	73	50	64	60
Northampton	49	60	66	49	39	40	67	48	52	52	61	55	53	44
Pamlico	36	25	23	18	28	22	19	21	25	31	18	32	24	20
Pasquotank	65	83	65	73	69	66	78	60	49	73	80	63	49	66
Perquimans	21	21	24	16	26	25	12	27	16	31	27	18	31	18
Tyrell	10	14	11	18	8	5	12	9	13	5	7	10	10	4
Warren	46	32	42	45	47	47	38	35	41	45	49	58	46	51
Washington	31	18	22	35	31	30	18	26	22	31	36	28	24	26
North Carolina	12727	12836	12655	13028	12766	12783	13028	12585	12435	13888	14015	13120	12851	12658

Note: the number of cases is artificially smaller before 1999 because the classification system for cause of death was revised. Deaths before 1999 were classified using ICD-9, and those 1999 and later were classified using ICD-10.

Table 9. Mortality Rates from Coronary Heart Disease, Acute Coronary Syndrome and Angina Pectoris (deaths per 100,000)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
NENC Region	235.3	221.0	228.0	225.9	210.6	213.0	207.5	192.6	188.7	224.7	242.1	212.7	209.1	189.9
Beaufort	195.9	187.5	249.2	233.0	183.1	196.0	225.6	183.6	184.6	302.2	286.8	277.2	254.2	229.0
Bertie	250.1	249.3	270.7	215.2	176.3	283.8	256.7	178.8	255.5	206.0	258.5	198.1	173.2	189.3
Camden	151.6	166.0	179.0	258.4	173.3	172.8	154.3	120.1	192.2	235.3	202.0	210.6	215.5	152.6
Chowan	206.8	263.5	246.3	259.1	178.4	212.9	188.5	222.4	187.0	219.8	240.8	183.9	161.9	194.0
Currituck	202.9	148.1	205.7	125.9	166.1	162.0	163.8	171.2	171.7	156.8	190.8	148.3	147.7	139.2
Dare	157.0	121.3	127.3	190.1	112.2	131.2	142.5	140.7	132.8	136.2	106.0	129.2	112.1	72.5
Edgecombe	234.9	224.5	213.8	243.9	226.1	208.8	198.1	174.0	184.4	236.3	258.6	202.8	221.8	218.6
Gates	267.8	245.6	252.0	350.7	223.8	190.8	148.7	313.8	105.4	162.2	295.0	142.1	141.0	139.5
Halifax	289.2	273.2	263.8	252.6	278.1	276.7	248.2	228.0	226.4	235.0	249.6	253.6	268.7	203.6
Hertford	317.6	218.8	236.0	198.3	212.0	255.6	207.5	198.5	168.3	194.9	270.2	186.3	223.1	188.3
Hyde	314.5	334.6	147.5	315.9	261.9	149.1	277.3	346.5	321.2	355.1	310.9	281.5	227.2	233.5
Martin	191.6	183.0	222.9	148.6	195.6	192.2	177.0	161.7	182.5	222.5	286.1	198.1	254.4	239.3
Northampton	233.0	285.0	314.5	233.0	183.9	186.0	308.1	219.3	236.5	236.6	276.2	250.3	242.3	202.0
Pamlico	315.9	217.9	198.2	153.1	234.8	182.6	156.2	172.7	202.8	240.3	139.1	249.4	186.4	156.5
Pasquotank	207.0	262.4	201.1	221.4	208.2	198.1	229.8	172.6	139.8	209.1	229.4	180.6	137.5	183.0
Perquimans	200.4	200.3	228.5	151.0	244.5	234.5	110.1	245.5	143.8	275.9	236.7	156.4	267.5	154.6
Tyrrell	259.3	369.3	285.6	459.1	206.3	129.8	314.1	238.4	322.3	120.5	168.8	241.5	241.0	96.2
Warren	265.8	183.1	236.8	250.1	259.1	253.8	203.3	184.1	207.0	225.1	245.8	291.5	231.0	257.4
Washington	221.2	127.2	154.1	245.8	215.1	209.6	127.5	185.9	159.4	225.5	262.6	206.2	178.2	194.0
North Carolina	191.0	189.2	183.5	185.0	177.6	174.0	173.7	164.4	159.2	174.7	173.5	160.1	154.7	150.6

Note: the number of cases is artificially smaller before 1999 because the classification system for cause of death was revised. Deaths before 1999 were classified using ICD-9, and those 1999 and later were classified using ICD-10.

Heart Disease Deaths by Race and Gender

- Number of deaths in 2003
 - Males 397 (47.9%)
 - Females 431 (52.1%)
- Average Number of Deaths 2000 to 2003
 - Males 473 (51.2%)
 - Females 450 (48.8%)
- Rates for males are greater than female rates
- White male rate greater than black male rate
- White female rate similar to black female rate

Figure 5. Heart Disease Mortality Rates by Race and Sex

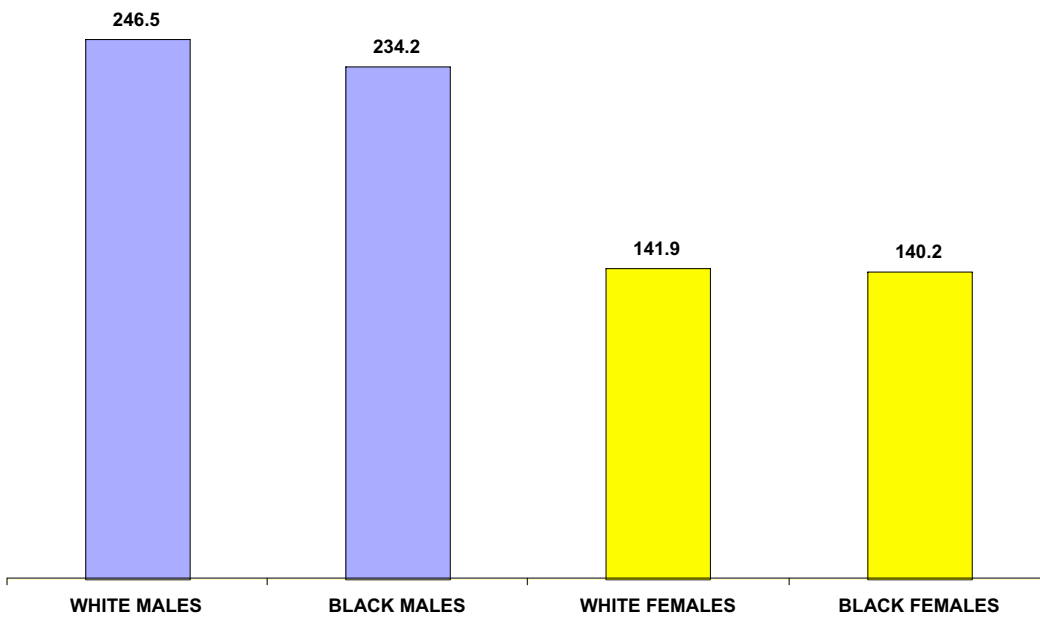


Table 10. Age-Adjusted Mortality Rates from Heart Disease

	2000	2001	2002	2003	AVERAGE	
					NUMBER	PERCENT
MALES	538	478	479	397	473	51.2%
FEMALES	505	438	427	431	450	48.8%
TOTAL	1043	916	906	828	923.25	

Age Distribution of Heart Disease Deaths

- Median age at death in NENC: 78 years
- Males are more likely to die prematurely; 25% of white males, 34% of black males, 9% of white females, and 17% of black females died prior to age 65.

Figure 6. Age Distribution for Heart Disease-Related Deaths

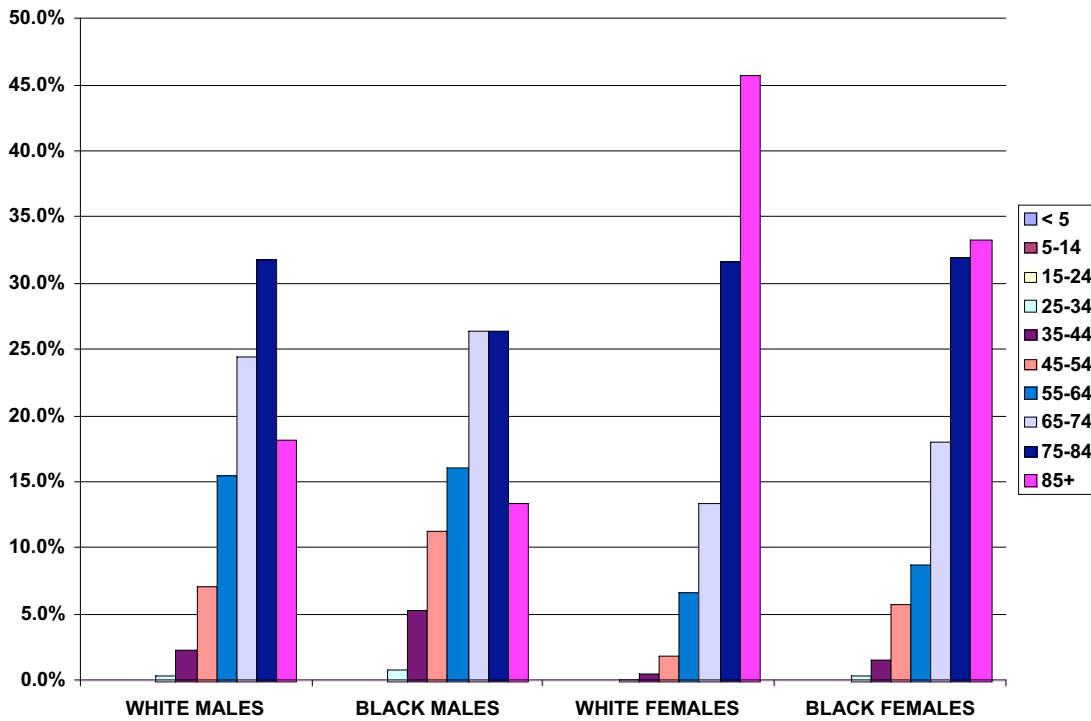


Table 11. Median Age at Death due to Heart Disease

NENC REGION	78
NORTH CAROLINA	78
WHITE MALES	75
BLACK MALES	71
WHITE FEMALES	83
BLACK FEMALES	80

Table 12. Age Distribution of Heart Disease Deaths by Race and Sex

	WHITE MALES			BLACK MALES		
	NUMBER	PERCENT	CUMULATIVE PERCENT	NUMBER	PERCENT	CUMULATIVE PERCENT
< 5	0	0.0%	0.0%	0	0.0%	0.0%
5-14	0	0.0%	0.0%	0	0.0%	0.0%
15-24	0	0.0%	0.0%	0	0.0%	0.0%
25-34	1	0.4%	0.4%	1	0.8%	0.8%
35-44	7	2.3%	2.7%	8	5.3%	6.1%
45-54	23	7.2%	9.9%	18	11.4%	17.5%
55-64	49	15.5%	25.4%	25	16.2%	33.7%
65-74	77	24.5%	49.9%	41	26.4%	60.1%
75-84	100	31.9%	81.8%	41	26.4%	86.5%
85+	57	18.2%	100.0%	21	13.5%	100.0%
	314			156		

	WHITE FEMALES			BLACK FEMALES		
	NUMBER	PERCENT	CUMULATIVE PERCENT	NUMBER	PERCENT	CUMULATIVE PERCENT
< 5	0	0.0%	0.0%	0	0.0%	0.0%
5-14	0	0.0%	0.0%	0	0.0%	0.0%
15-24	0	0.0%	0.0%	0	0.0%	0.0%
25-34	0	0.1%	0.1%	1	0.5%	0.5%
35-44	2	0.5%	0.6%	3	1.5%	2.0%
45-54	6	1.9%	2.6%	10	5.8%	7.8%
55-64	19	6.7%	9.3%	14	8.8%	16.6%
65-74	38	13.4%	22.6%	30	18.1%	34.7%
75-84	90	31.6%	54.3%	52	32.0%	66.7%
85+	130	45.7%	100.0%	54	33.3%	100.0%
	284			163		

 *Premature mortality*

Mortality from Stroke

- Number of deaths
 - 379 (2003)
 - 392 (average 2000 to 2003)
- Unadjusted Mortality Rate
 - 87 per 100,000 in 2003
 - 90.5 per 100,000 (Average 2000 to 2003)
- Adjusted Mortality Rate
 - 73.7 per 100,000 (2003)
 - 77.3 per 100,000 (Average 2000 to 2003)
- The mortality rate for NENC exceeds North Carolina rate by 12.3%
- Rates stable over time (decreased slightly by 4.3% from 2000 to 2003)

Figure 7. Stroke Mortality Rates (deaths per 100,000 Unadjusted)

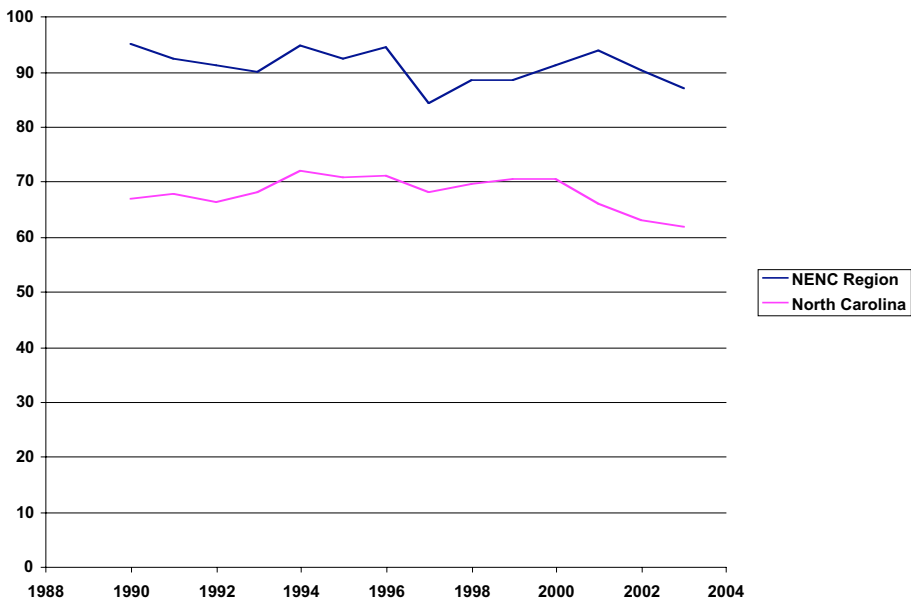


Table 13. Age-Adjusted Stroke Mortality Rates

	2000	2001	2002	2003	2000 TO 2003
NENC REGION	79.0	80.2	76.3	73.7	77.3
NORTH CAROLINA	75.4	69.9	66.2	64.0	68.8

Table 14. Number of Stroke Deaths

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Total
NENC Region	383	374	372	371	395	388	399	359	379	381	393	404	391	379	1948
Beaufort	42	21	35	44	36	49	36	39	28	36	46	38	32	41	193
Bertie	24	19	24	14	24	17	23	11	24	22	20	29	18	13	102
Camden	9	5	5	5	7	4	4	3	4	12	6	6	5	0	29
Chowan	16	16	14	20	14	14	15	13	9	24	23	14	19	11	91
Currituck	10	10	10	7	14	11	3	9	11	16	15	14	14	9	68
Dare	8	7	12	12	11	17	14	16	11	12	19	11	22	15	79
Edgecombe	64	60	53	58	55	60	65	50	69	43	50	64	55	68	280
Gates	9	5	5	9	8	5	12	9	13	6	11	4	13	4	38
Halifax	61	69	50	64	64	51	64	46	59	55	49	59	62	58	283
Hertford	21	21	32	18	30	20	21	24	21	18	24	30	29	27	128
Hyde	6	9	5	4	9	6	4	5	3	4	3	2	3	3	15
Martin	23	13	13	16	19	22	23	13	23	18	20	21	19	22	100
Northampton	19	30	25	23	33	24	24	33	19	27	14	18	24	17	100
Pamlico	12	11	9	9	9	15	9	8	8	7	15	18	11	17	68
Pasquotank	21	31	27	22	20	25	30	32	29	37	31	26	28	22	144
Perquimans	14	7	15	11	15	11	19	14	18	14	10	13	9	15	61
Tyrell	0	2	5	3	3	5	4	2	3	4	2	4	2	4	16
Warren	18	31	24	23	17	23	23	24	22	17	20	25	14	25	101
Washington	6	7	9	9	7	9	6	8	5	9	15	8	12	8	52
North Carolina	4446	4598	4568	4795	5174	5198	5329	5220	5434	5597	5692	5396	5236	5188	27109

Table 15. Unadjusted Stroke Mortality Rates (deaths per 100,000)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
NENC Region	95	92	91	90	95	92	94	84	88	88	91	94	90	87
Beaufort	99	49	81	102	82	112	82	88	63	80	102	84	71	90
Bertie	118	93	118	68	118	83	114	55	120	111	101	147	92	67
Camden	152	83	81	81	110	63	62	45	59	176	87	84	67	0
Chowan	118	117	101	144	100	99	105	90	62	165	163	99	134	76
Currituck	72	71	69	46	89	69	18	53	63	90	82	74	71	43
Dare	35	30	51	50	44	66	52	58	38	41	63	36	69	45
Edgecombe	113	106	94	103	97	105	114	88	122	76	90	116	100	124
Gates	96	53	52	93	81	50	119	88	125	57	105	38	122	37
Halifax	110	123	89	112	111	88	110	79	102	96	86	104	110	103
Hertford	94	94	142	79	133	88	93	106	93	80	105	133	129	121
Hyde	111	167	92	74	168	112	74	91	51	68	52	35	52	54
Martin	92	52	52	63	73	85	89	50	89	70	78	83	76	88
Northampton	90	143	119	109	156	112	110	151	86	123	63	82	110	78
Pamlico	105	96	78	77	75	125	74	66	65	54	116	140	85	133
Pasquotank	67	98	84	67	60	75	88	92	83	106	89	75	79	61
Perquimans	134	67	143	104	141	103	174	127	162	125	88	113	78	129
Tyrell	0	53	130	77	77	130	105	53	74	96	48	97	48	96
Warren	104	177	135	128	94	124	123	126	111	85	100	126	70	126
Washington	43	49	63	63	49	63	43	57	36	65	109	59	89	60
North Carolina	67	68	66	68	72	71	71	68	70	70	70	66	63	62

Stroke Deaths by Race and Gender

- Number of deaths in 2003
- Males 142 (37.5%)
- Females 237 (62.5%)
- Average Number of deaths 2000 to 2003
- Males 153 (39%)
- Females 239 (61%)
- Rates are highest for black males; black female rate greater than white female rate
- White female rate slightly higher than white male rate

Figure 8. Age-Adjusted Stroke Mortality Rates by Race and Sex (deaths per 100,000)

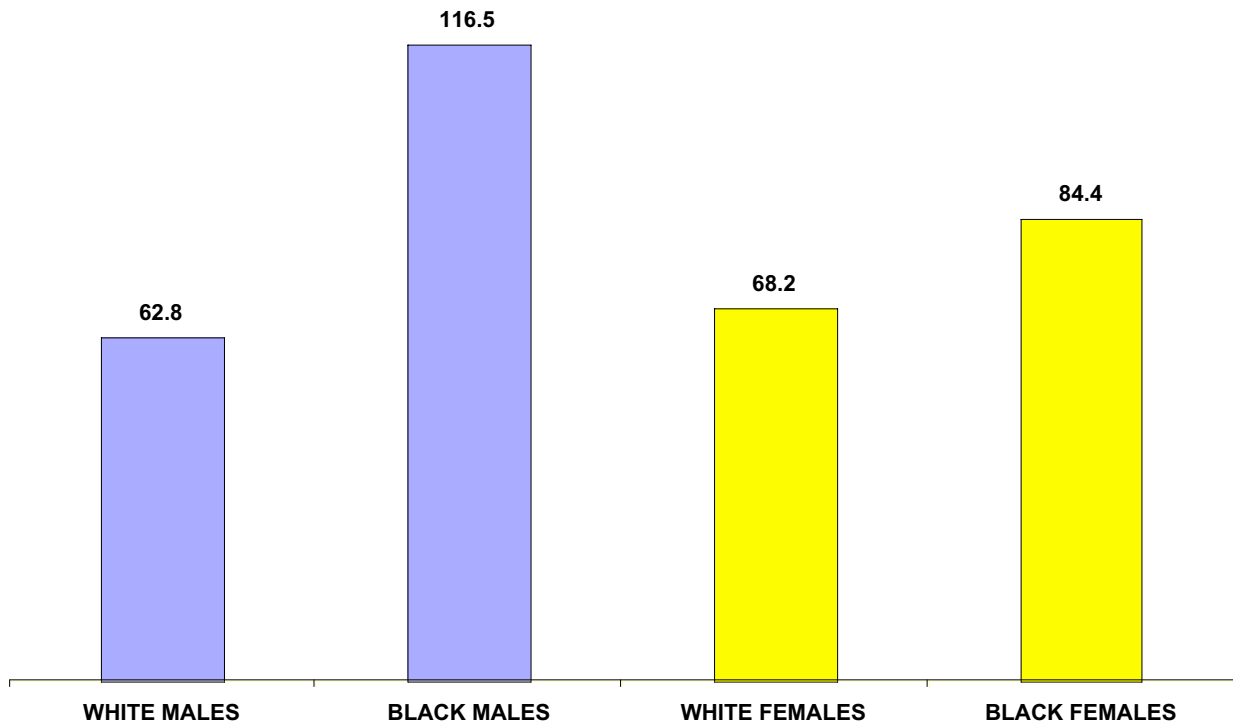


Table 16. Number of Stroke Deaths by Gender

	2000	2001	2002	2003	AVERAGE	
					NUMBER	PERCENT
MALES	150	165	154	142	152.8	39.0%
FEMALES	243	239	237	237	239.0	61.0%
TOTAL	393	404	391	379	391.8	

Age Distribution of Stroke Deaths

- Median Age at Death in NENC: 80 years
- Males are more likely to die prematurely; 16% of white males, 26% of black males, 5% of white females, 16% of black females died prior to age 65.
- Median age for males less than that for females

Table 17. Age Distribution of Stroke Deaths by Race and Sex

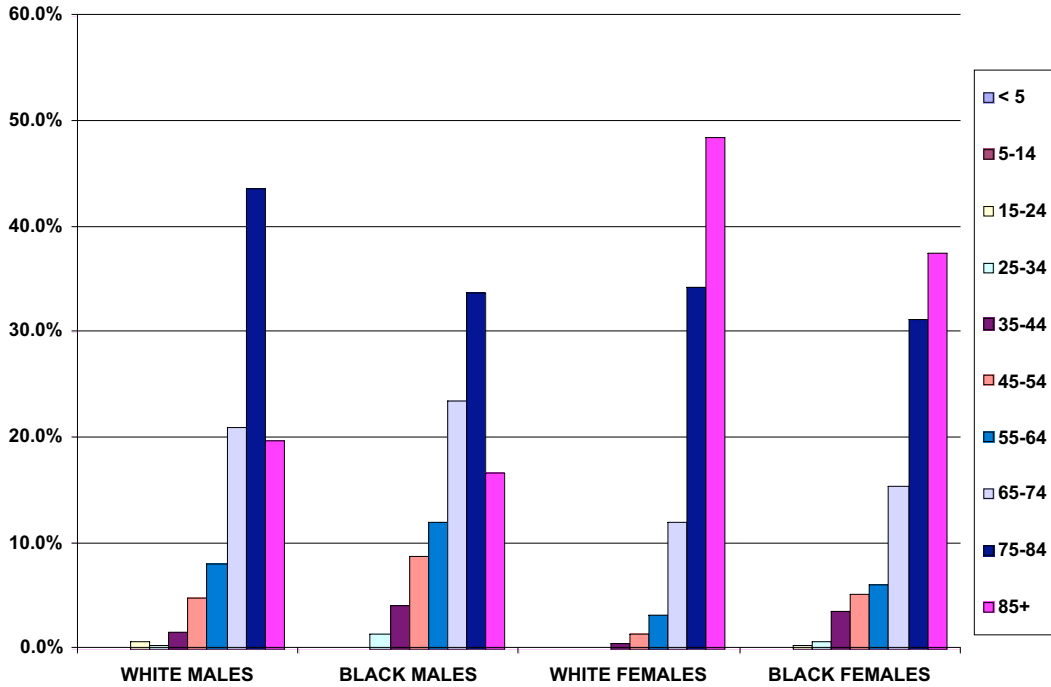


Table 18. Median Age at Stroke Death

NENC REGION	80
NORTH CAROLINA	81
WHITE MALES	77
BLACK MALES	75
WHITE FEMALES	84
BLACK FEMALES	80

Table 19. Age Distribution of Stroke Deaths by Race and Sex

	WHITE MALES			BLACK MALES		
	NUMBER	PERCENT	CUMULATIVE PERCENT	NUMBER	PERCENT	CUMULATIVE PERCENT
< 5	0	0.0%	0.0%	0	0.0%	0.0%
5-14	0	0.0%	0.0%	0	0.0%	0.0%
15-24	1	0.6%	0.6%	0	0.0%	0.0%
25-34	0	0.3%	1.0%	1	1.3%	1.3%
35-44	1	1.6%	2.6%	3	4.0%	5.4%
45-54	4	4.9%	7.4%	7	8.7%	14.0%
55-64	6	8.1%	15.5%	9	12.0%	26.1%
65-74	16	21.0%	36.6%	18	23.4%	49.5%
75-84	34	43.7%	80.3%	25	33.8%	83.3%
85+	15	19.7%	100.0%	13	16.7%	100.0%
Total	77			75		

	WHITE FEMALES			BLACK FEMALES		
	NUMBER	PERCENT	CUMULATIVE PERCENT	NUMBER	PERCENT	CUMULATIVE PERCENT
< 5	0	0.0%	0.0%	0	0.0%	0.0%
5-14	0	0.0%	0.0%	0	0.0%	0.0%
15-24	0	0.0%	0.0%	0	0.3%	0.3%
25-34	0	0.0%	0.0%	1	0.8%	1.0%
35-44	1	0.5%	0.5%	4	3.6%	4.6%
45-54	2	1.5%	2.0%	5	5.1%	9.6%
55-64	5	3.3%	5.3%	6	6.1%	15.7%
65-74	17	12.0%	17.3%	15	15.5%	31.2%
75-84	47	34.2%	51.5%	31	31.2%	62.4%
85+	67	48.5%	100.0%	37	37.6%	100.0%
Total	138			99		

premature mortality

Cardiovascular Disease-related Hospitalizations

- In 2002, there were 10,794 inpatient hospitalizations for cardiovascular disease with a total cost of \$157,375,370. Of those, 7,406 were for heart disease and 1,934 were for stroke.

Table 20. Cardiovascular Disease Hospitalizations, 2002

COUNTY	TOTAL CASES	RATE (PER 1,000 POP)	TOTAL CHARGES	CHARGE PER CASE
NENC REGION	10,794	24.9	\$157,375,370	\$14,579
Beaufort	1,264	27.7	\$17,839,575	\$14,114
Bertie	478	24.1	\$6,161,469	\$12,890
Camden	93	12.7	\$1,144,043	\$12,302
Chowan	366	25.6	\$5,423,436	\$14,818
Currituck	154	7.8	\$2,047,732	\$13,297
Dare	261	8.1	\$2,872,463	\$11,006
Edgecombe	1,638	29.8	\$24,451,070	\$14,927
Gates	103	9.6	\$1,961,815	\$19,047
Halifax	2,029	35.5	\$30,106,726	\$14,838
Hertford	483	20.2	\$7,076,934	\$14,652
Hyde	132	22.6	\$1,599,144	\$12,115
Martin	967	38.6	\$13,063,793	\$13,510
Northampton	747	34.3	\$12,422,915	\$16,630
Pamlico	318	24.4	\$4,492,769	\$14,128
Pasquotank	734	20.5	\$10,445,166	\$14,230
Perquimans	312	26.9	\$4,675,736	\$14,986
Tyrrell	93	22.3	\$1,280,608	\$13,770
Warren	304	15.2	\$6,005,775	\$19,756
Washington	318	23.4	\$4,304,201	\$13,535

Table 21. Heart Disease Hospitalizations, 2002

COUNTY	TOTAL CASES	RATE (PER 1,000 POP)	TOTAL CHARGES	CHARGE PER CASE
NENC REGION	7,406	17.1	\$ 110,324,233	\$14,896
Beaufort	920	20.1	\$13,390,019	\$14,554
Bertie	303	15.3	\$4,191,134	\$13,832
Camden	65	8.9	\$803,657	\$12,364
Chowan	255	17.8	\$3,755,059	\$14,726
Currituck	97	4.9	\$1,233,225	\$12,714
Dare	177	5.5	\$1,803,024	\$10,187
Edgecombe	1,123	20.4	\$16,529,462	\$14,719
Gates	63	5.9	\$1,129,754	\$17,933
Halifax	1,474	25.8	\$22,840,078	\$15,495
Hertford	311	13.0	\$4,691,664	\$15,086
Hyde	84	14.4	\$1,134,378	\$13,505
Martin	636	25.4	\$9,646,083	\$15,167
Northampton	548	25.2	\$8,734,570	\$15,939
Pamlico	214	16.4	\$3,122,198	\$14,590
Pasquotank	460	12.8	\$6,041,660	\$13,134
Perquimans	214	18.4	\$3,346,696	\$15,639
Tyrrell	74	17.7	\$997,063	\$13,474
Warren	191	9.6	\$3,820,144	\$20,001
Washington	197	14.5	\$3,114,365	\$15,809

Table 22. Stroke Hospitalizations, 2002

COUNTY	TOTAL CASES	RATE (PER 1,000 POP)	TOTAL CHARGES	CHARGE PER CASE
NENC REGION	1,934	4.5	\$25,551,031	\$13,211
Beaufort	199	4.4	\$1,769,820	\$8,894
Bertie	92	4.6	\$890,324	\$9,677
Camden	16	2.2	\$212,761	\$13,298
Chowan	63	4.4	\$967,783	\$15,362
Currituck	32	1.6	\$397,500	\$12,422
Dare	48	1.5	\$574,902	\$11,977
Edgecombe	294	5.4	\$4,328,686	\$14,723
Gates	20	1.9	\$451,752	\$22,588
Halifax	313	5.5	\$4,157,048	\$13,281
Hertford	89	3.7	\$1,187,759	\$13,346
Hyde	27	4.6	\$200,729	\$7,434
Martin	181	7.2	\$1,867,406	\$10,317
Northampton	120	5.5	\$2,000,960	\$16,675
Pamlico	53	4.1	\$479,183	\$9,041
Pasquotank	179	5.0	\$2,822,098	\$15,766
Perquimans	62	5.3	\$935,188	\$15,084
Tyrrell	13	3.1	\$196,387	\$15,107
Warren	67	3.4	\$1,405,969	\$20,985
Washington	66	4.9	\$704,776	\$10,678

Prevalence of Any Cardiovascular Disease

Self-reported history of cardiovascular disease is available through the Behavioral Risk factor Surveillance Survey, conducted by the NC State Center for Health Statistics. Of the adults surveyed, 9.4% reported a history of any cardiovascular disease (heart disease or stroke). The prevalence increased with age. 16.8% of adults 45 years and older reported a positive history.

History of Coronary Heart Disease

4.3% of adults in NENC have a history of coronary heart disease. Of those older than 45 years, the prevalence is 7.8%.

History of Heart Attack

4.7% of adults in NENC have a history of heart attack. Of adults age 45 and above, 8.5% reported having been diagnosed with a heart attack. The prevalence was higher for adults with less education. History of heart attack was reported by 6.6% of those with a high school education or less versus 2.2% of those with some college or more.

History of Stroke

3.8% of adults in NENC reported having been diagnosed with a stroke. The prevalence varied by age and education level. 6.6% of those age 45 or more, and 5.4% of those with high school degree or less reported a positive history of stroke.

Prevalence of Risk Factors

Current Smokers

Overall, 25.3% of adults in NENC are current smokers. Smoking status varies by income level. 33.3% of those with less than \$50,000 household income are smokers, compared to 12.8% of those with income greater than or equal to \$50,000 per year.

High Blood Cholesterol

32.9% of adults in NENC have ever been told by a health professional that they had high cholesterol. The prevalence varied by race and age. Persons who are white were more likely (36.8%) to report a positive history compared to those who are African American or other races (25.8%). The prevalence for adults age 45 years or above was 41.2% compared to 17.7% for those less than 45 years of age.

High Blood Pressure

Overall, 35.4% of adults in NENC reported a diagnosis of high blood pressure. This is higher than the state prevalence of 28.6%. The prevalence is higher for adults age 45 and above (53.5%) and those with a high school education or less (39.2%).

Diabetes

12.3% of adults in NENC reported having a diagnosis of diabetes. This is higher than the state average of 8.1%, and is higher than any other region of the state. For adults age 45 years or above, 20% reported a history of diabetes.

Overweight or Obese Adults

67.1% of adults in NENC are obese or overweight which is higher than the state average of 61%, and is higher than all other regions of the state (Piedmont: 59.9%; Western: 58.9%).

Vigorous Physical Activity

13.6% of adults in NENC report participating in vigorous physical activity. This is lower than the state average of 19.3%. Older adults, African Americans, and those with less education are less likely to participate in vigorous physical activity. (7% of African Americans versus 7% of whites; 9.2% of adults age 45+ versus 18.8% of adults less than 45 years; 9.6% of those with high school degree or less versus 18.8% of those with at least some college).

Moderate Physical Activity

33.3% of adults in NENC report participating in moderate physical activity. African-Americans, and those with less education are less likely to participate in moderate physical activity (23.5% of African Americans versus 39.9% of whites; 27.2% of those with high school degree or less versus 41.2% of those with at least some college).

Knowledge and Behavior

Knowledge of Symptoms of Heart Attack or Stroke

11.1% of adults correctly identified all the signs of a heart attack. African Americans were less likely to correctly identify the symptoms (5.8% for African Americans versus 14.8% of whites). 16.2% of adults correctly identified all the signs and symptoms of a stroke. This varied by race. Only 7.3% of African Americans and other non-white races correctly identified the signs, versus 22.2% of whites.

Lifestyle Changes

69.4% of adults reported that that are trying to eat fewer high fat or high cholesterol foods in order to reduce their risk of heart disease or stroke.

Table 23. History of Any Cardiovascular Diseases (heart attack or coronary heart disease or stroke)*

	Total		Yes		No		C.I.(95%)
	Respondents	N	%	C.I.(95%)	N	%	
North Carolina	9,268	969	8.1	7.4- 8.9	8,299	91.9	91.1-92.6
NENC	952	108	9.4	7.6-11.6	844	90.6	88.4-92.4
GENDER							
Male	319	47	10.7	7.8-14.5	272	89.3	85.5-92.2
Female	633	61	8.4	6.3-11.0	572	91.6	89.0-93.7
RACE							
White	549	72	10.6	8.2-13.6	477	89.4	86.4-91.8
Other	400	36	7.9	5.4-11.3	364	92.1	88.7-94.6
AGE							
18-44	345	4	0.8	0.3- 2.2	341	99.2	97.8-99.7
45+	603	104	16.8	13.7-20.5	499	83.2	79.5-86.3
EDUCATION							
H.S. or Less	523	74	11.8	9.2-15.2	449	88.2	84.8-90.8
Some College +	426	34	6.5	4.4- 9.4	392	93.5	90.6-95.6
HOUSEHOLD INCOME							
Less than \$50,000	572	67	10.0	7.6-12.9	505	90.0	87.1-92.4
\$50,000+	163	10	5.0	2.6- 9.7	153	95.0	90.3-97.4
COUNTY/REGION**							
Buncombe	447	60	12.2	9.3-15.9	387	87.8	84.1-90.7
Guilford	442	46	10.5	7.6-14.4	396	89.5	85.6-92.4
Mecklenburg	443	41	7.4	5.2-10.2	402	92.6	89.8-94.8
Orange	450	26	4.0	2.6- 6.1	424	96.0	93.9-97.4
Wake	443	25	4.4	2.8- 7.1	418	95.6	92.9-97.2
Chatham/Lee	392	36	6.4	4.5- 9.2	356	93.6	90.8-95.5
Nash/Wilson	370	38	8.7	6.1-12.2	332	91.3	87.8-93.9
Craven/Pamlico	447	50	8.8	6.4-11.8	397	91.2	88.2-93.6
Stokes/Surry/Yadkin	425	63	13.4	10.2-17.3	362	86.6	82.7-89.8
Appalachian/Wilkes	450	48	8.8	6.1-12.4	402	91.2	87.6-93.9
Franklin/Gran./Vance	471	53	7.8	5.3-11.4	418	92.2	88.6-94.7
Graham/Swain/Jackson	419	46	7.4	5.1-10.5	373	92.6	89.5-94.9
Hoke/Robeson/Scotland	466	59	12.2	9.3-15.9	407	87.8	84.1-90.7
Bladen/Columbus/Sampson	408	52	12.8	8.9-18.0	356	87.2	82.0-91.1
Northeast NC I	450	44	8.3	5.9-11.4	406	91.7	88.6-94.1
Northeast NC II	502	64	10.1	7.7-13.1	438	89.9	86.9-92.3
Mountain AHEC	1,287	155	10.5	8.5-12.9	1,132	89.5	87.1-91.5
NC REGIONS***							
Eastern NC	3,243	362	8.4	7.2- 9.7	2,881	91.6	90.3-92.8
Piedmont	3,980	359	7.3	6.3- 8.4	3,621	92.7	91.6-93.7
Western NC	2,045	248	10.7	8.8-13.1	1,797	89.3	86.9-91

Table 24. Has a doctor, nurse, or other health professional ever told you that you had angina or coronary heart disease?

	Total		Yes		No		
	Respondents	N	%	C.I.(95%)	N	%	C.I.(95%)
North Carolina	9,265	517	4.2	3.6- 4.7	8,748	95.8	95.3-96.4
NENC	953	51	4.3	3.2- 5.8	902	95.7	94.2-96.8
GENDER							
Male	318	23	4.6	2.9- 7.0	295	95.4	93.0-97.1
Female	635	28	4.0	2.7- 6.1	607	96.0	93.9-97.3
RACE							
White	549	38	5.6	3.9- 7.9	511	94.4	92.1-96.1
Other	401	13	2.4	1.4- 4.4	388	97.6	95.6-98.6
AGE							
18-44	346	1	0.2	0.0- 1.5	345	99.8	98.5- 100
45+	603	50	7.8	5.7-10.4	553	92.2	89.6-94.3
EDUCATION							
H.S. or Less	524	31	4.7	3.2- 6.9	493	95.3	93.1-96.8
Some College +	426	20	3.8	2.4- 6.0	406	96.2	94.0-97.6
HOUSEHOLD INCOME							
Less than \$50,000	573	30	4.0	2.7- 5.8	543	96.0	94.2-97.3
\$50,000+	163	7	4.1	1.9- 8.7	156	95.9	91.3-98.1
COUNTY/REGION**							
Buncombe	443	32	6.9	4.8-10.0	411	93.1	90.0-95.2
Guilford	443	18	3.8	2.3- 6.2	425	96.2	93.8-97.7
Mecklenburg	442	23	4.3	2.8- 6.7	419	95.7	93.3-97.2
Orange	450	12	2.1	1.2- 3.8	438	97.9	96.2-98.8
Wake	442	7	1.0	0.5- 2.3	435	99.0	97.7-99.5
Chatham/Lee	390	14	2.6	1.4- 4.7	376	97.4	95.3-98.6
Nash/Wilson	369	25	5.0	3.3- 7.6	344	95.0	92.4-96.7
Craven/Pamlico	447	33	5.5	3.8- 8.0	414	94.5	92.0-96.2
Stokes/Surry/Yadkin	425	34	7.0	4.8-10.0	391	93.0	90.0-95.2
Appalachian/Wilkes	448	25	5.2	3.1- 8.7	423	94.8	91.3-96.9
Franklin/Gran./Vance	470	32	4.8	2.8- 8.2	438	95.2	91.8-97.2
Graham/Swain/Jackson	422	30	4.7	3.0- 7.1	392	95.3	92.9-97.0
Hoke/Robeson/Scotland	467	32	5.6	3.8- 8.0	435	94.4	92.0-96.2
Bladen/Columbus/Sampson	408	28	7.4	4.4-12.3	380	92.6	87.7-95.6
Northeast NC I	450	20	3.7	2.3- 6.0	430	96.3	94.0-97.7
Northeast NC II	503	31	4.6	3.1- 6.7	472	95.4	93.3-96.9
Mountain AHEC	1,286	95	6.5	4.9- 8.5	1,191	93.5	91.5-95.1
NC REGIONS***							
Eastern NC	3,246	198	4.4	3.6- 5.4	3,048	95.6	94.6-96.4
Piedmont	3,976	171	3.5	2.8- 4.3	3,805	96.5	95.7-97.2
Western NC	2,043	148	6.4	4.9- 8.1	1,895	93.6	91.9-95.1

Table 25. Has a doctor, nurse, or other health professional ever told you that you had a heart attack (myocardial Infarction)?

	Total		Yes		No		
	Respondents	N	%	C.I.(95%)	N	%	C.I.(95%)
North Carolina	9,300	483	4.1	3.5- 4.6	8,817	95.9	95.4-96.5
NENC	955	48	4.7	3.4- 6.4	907	95.3	93.6-96.6
GENDER							
Male	319	24	6.2	4.0- 9.6	295	93.8	90.4-96.0
Female	636	24	3.3	2.1- 5.2	612	96.7	94.8-97.9
RACE							
White	552	36	6.1	4.3- 8.7	516	93.9	91.3-95.7
Other	400	12	2.5	1.2- 5.2	388	97.5	94.8-98.8
AGE							
18-44	345	1	0.2	0.0- 1.3	344	99.8	98.7- 100
45+	606	47	8.5	6.2-11.6	559	91.5	88.4-93.8
EDUCATION							
H.S. or Less	524	36	6.6	4.6- 9.5	488	93.4	90.5-95.4
Some College +	428	12	2.2	1.1- 4.4	416	97.8	95.6-98.9
HOUSEHOLD INCOME							
Less than \$50,000	574	29	5.0	3.4- 7.5	545	95.0	92.5-96.6
\$50,000+	163	3	1.2	0.3- 4.5	160	98.8	95.5-99.7
COUNTY/REGION**							
Buncombe	448	36	7.7	5.4-10.9	412	92.3	89.1-94.6
Guilford	444	24	5.7	3.5- 9.1	420	94.3	90.9-96.5
Mecklenburg	444	24	4.5	2.9- 7.0	420	95.5	93.0-97.1
Orange	450	13	1.9	1.1- 3.4	437	98.1	96.6-98.9
Wake	444	11	1.7	0.9- 3.3	433	98.3	96.7-99.1
Chatham/Lee	393	16	3.1	1.8- 5.3	377	96.9	94.7-98.2
Nash/Wilson	370	16	4.2	2.5- 7.1	354	95.8	92.9-97.5
Craven/Pamlico	448	25	4.3	2.8- 6.6	423	95.7	93.4-97.2
Stokes/Surry/Yadkin	429	34	6.9	4.7- 9.9	395	93.1	90.1-95.3
Appalachian/Wilkes	452	26	4.3	2.8- 6.4	426	95.7	93.6-97.2
Franklin/Gran./Vance	471	24	4.4	2.4- 7.8	447	95.6	92.2-97.6
Graham/Swain/Jackson	422	26	4.3	2.7- 6.8	396	95.7	93.2-97.3
Hoke/Robeson/Scotland	469	31	6.9	4.7-10.0	438	93.1	90.0-95.3
Bladen/Columbus/Sampson	411	25	6.5	4.1-10.1	386	93.5	89.9-95.9
Northeast NC I	452	17	3.1	1.9- 5.2	435	96.9	94.8-98.1
Northeast NC II	503	31	5.5	3.7- 8.1	472	94.5	91.9-96.3
Mountain AHEC	1,292	85	5.3	4.0- 7.0	1,207	94.7	93.0-96.0
NC REGIONS***							
Eastern NC	3,254	173	4.1	3.3- 5.1	3,081	95.9	94.9-96.7
Piedmont	3,991	171	3.5	2.9- 4.3	3,820	96.5	95.7-97.1
Western NC	2,055	139	6.1	4.5- 8.2	1,916	93.9	91.8-95.5

Table 26. Has a doctor, nurse, or other health professional ever told you that you had a stroke?

	Total		Yes		No		
	Respondents	N	%	C.I.(95%)	N	%	C.I.(95%)
North Carolina	9,284	312	2.6	2.2- 3.0	8,972	97.4	97.0-97.8
NENC	954	45	3.8	2.7- 5.2	909	96.2	94.8-97.3
GENDER							
Male	320	18	3.9	2.4- 6.3	302	96.1	93.7-97.6
Female	634	27	3.7	2.4- 5.6	607	96.3	94.4-97.6
RACE							
White	552	29	3.8	2.5- 5.7	523	96.2	94.3-97.5
Other	399	16	3.8	2.2- 6.3	383	96.2	93.7-97.8
AGE							
18-44	345	2	0.4	0.1- 1.7	343	99.6	98.3-99.9
45+	605	43	6.6	4.8- 9.1	562	93.4	90.9-95.2
EDUCATION							
H.S. or Less	524	35	5.4	3.8- 7.7	489	94.6	92.3-96.2
Some College +	427	10	1.7	0.8- 3.5	417	98.3	96.5-99.2
HOUSEHOLD INCOME							
Less than \$50,000	573	31	4.4	3.0- 6.5	542	95.6	93.5-97.0
\$50,000+	163	3	1.5	0.4- 5.2	160	98.5	94.8-99.6
COUNTY/REGION**							
Buncombe	448	16	2.6	1.5- 4.3	432	97.4	95.7-98.5
Guilford	443	15	3.5	2.0- 6.1	428	96.5	93.9-98.0
Mecklenburg	443	11	1.6	0.8- 2.9	432	98.4	97.1-99.2
Orange	450	7	0.9	0.4- 2.0	443	99.1	98.0-99.6
Wake	444	13	2.6	1.3- 5.1	431	97.4	94.9-98.7
Chatham/Lee	393	17	2.8	1.7- 4.7	376	97.2	95.3-98.3
Nash/Wilson	369	13	2.7	1.5- 4.8	356	97.3	95.2-98.5
Craven/Pamlico	447	14	3.2	1.8- 5.7	433	96.8	94.3-98.2
Stokes/Surry/Yadkin	428	18	3.8	2.3- 6.4	410	96.2	93.6-97.7
Appalachian/Wilkes	451	14	2.0	1.1- 3.6	437	98.0	96.4-98.9
Franklin/Gran./Vance	471	18	2.1	1.3- 3.5	453	97.9	96.5-98.7
Graham/Swain/Jackson	420	9	1.2	0.6- 2.5	411	98.8	97.5-99.4
Hoke/Robeson/Scotland	468	19	5.0	3.0- 8.0	449	95.0	92.0-97.0
Bladen/Columbus/Sampson	409	12	2.2	1.1- 4.1	397	97.8	95.9-98.9
Northeast NC I	451	18	3.3	2.0- 5.5	433	96.7	94.5-98.0
Northeast NC II	503	27	4.0	2.7- 6.0	476	96.0	94.0-97.3
Mountain AHEC	1,289	40	2.8	1.8- 4.4	1,249	97.2	95.6-98.2
NC REGIONS***							
Eastern NC	3,249	120	2.7	2.2- 3.5	3,129	97.3	96.5-97.8
Piedmont	3,985	127	2.4	1.8- 3.0	3,858	97.6	97.0-98.2
Western NC	2,050	65	2.9	1.9- 4.5	1,985	97.1	95.5-98.1

Table 27. Current Smoker

	Total		No			Yes		
	Respondents	N	%	C.I.(95%)	N	%	C.I.(95%)	
North Carolina	9,412	7,255	75.2	73.7-76.6	2,157	24.8	23.4-26.3	
NENC	972	751	74.7	71.0-78.1	221	25.3	21.9-29.0	
GENDER								
Male	329	241	71.8	65.2-77.5	88	28.2	22.5-34.8	
Female	643	510	77.4	73.1-81.1	133	22.6	18.9-26.9	
RACE								
White	558	425	72.3	67.3-76.8	133	27.7	23.2-32.7	
Other	411	324	78.4	72.6-83.2	87	21.6	16.8-27.4	
AGE								
18-44	351	246	69.2	62.6-75.1	105	30.8	24.9-37.4	
45+	616	500	79.1	74.8-82.8	116	20.9	17.2-25.2	
EDUCATION								
H.S. or Less	533	395	71.0	65.7-75.8	138	29.0	24.2-34.3	
Some College +	436	353	79.3	73.9-83.9	83	20.7	16.1-26.1	
HOUSEHOLD INCOME								
Less than \$50,000	583	418	66.7	61.5-71.4	165	33.3	28.6-38.5	
\$50,000+	165	144	87.2	80.2-91.9	21	12.8	8.1-19.8	
COUNTY/REGION**								
Buncombe	454	347	76.1	71.1-80.5	107	23.9	19.5-28.9	
Guilford	446	360	76.7	71.2-81.5	86	23.3	18.5-28.8	
Mecklenburg	445	356	80.2	74.9-84.7	89	19.8	15.3-25.1	
Orange	450	399	85.3	77.8-90.6	51	14.7	9.4-22.2	
Wake	453	384	83.9	78.9-87.8	69	16.1	12.2-21.1	
Chatham/Lee	399	311	78.1	72.7-82.7	88	21.9	17.3-27.3	
Nash/Wilson	378	286	71.5	65.3-76.9	92	28.5	23.1-34.7	
Craven/Pamlico	456	353	77.2	72.3-81.4	103	22.8	18.6-27.7	
Stokes/Surry/Yadkin	436	301	67.3	61.8-72.4	135	32.7	27.6-38.2	
Appalachian/Wilkes	452	341	71.7	64.9-77.7	111	28.3	22.3-35.1	
Franklin/Gran./Vance	473	366	75.1	68.4-80.7	107	24.9	19.3-31.6	
Graham/Swain/Jackson	426	325	68.6	55.5-79.3	101	31.4	20.7-44.5	
Hoke/Robeson/Scotland	471	339	69.6	64.4-74.3	132	30.4	25.7-35.6	
Bladen/Columbus/Sampson	418	311	70.9	65.1-76.1	107	29.1	23.9-34.9	
Northeast NC I	458	359	77.5	72.3-82.0	99	22.5	18.0-27.7	
Northeast NC II	514	392	73.2	68.2-77.8	122	26.8	22.2-31.8	
Mountain AHEC	1,308	1,005	73.4	68.6-77.7	303	26.6	22.3-31.4	
NC REGIONS***								
Eastern NC	3,306	2,511	74.2	71.5-76.7	795	25.8	23.3-28.5	
Piedmont	4,032	3,185	76.7	74.6-78.6	847	23.3	21.4-25.4	
Western NC	2,074	1,559	71.5	67.8-75.0	515	28.5	25.0-32.2	

Table 28. Have you ever been told by a doctor, nurse or other health professional that your blood cholesterol is high?

	Total		Yes		No		
	Respondents	N	%	C.I.(95%)	N	%	
North Carolina	7,617	2,752	34.0	32.4-35.6	4,865	66.0	64.4-67.6
Northeastern Partnership	786	291	32.7	29.1-36.6	495	67.3	63.4-70.9
GENDER							
Male	250	100	34.1	27.9-40.8	150	65.9	59.2-72.1
Female	536	191	31.8	27.5-36.3	345	68.2	63.7-72.5
RACE							
White	473	195	36.8	32.0-41.9	278	63.2	58.1-68.0
Other	312	96	25.8	20.8-31.7	216	74.2	68.3-79.2
AGE							
18-44	229	47	17.7	12.9-23.7	182	82.3	76.3-87.1
45+	553	243	41.2	36.5-46.1	310	58.8	53.9-63.5
EDUCATION							
H.S. or Less	412	169	34.9	29.8-40.3	243	65.1	59.7-70.2
Some College +	371	121	30.4	25.4-36.0	250	69.6	64.0-74.6
HOUSEHOLD INCOME							
Less than \$50,000	461	174	32.5	27.8-37.6	287	67.5	62.4-72.2
\$50,000+	144	50	32.7	24.7-41.8	94	67.3	58.2-75.3
COUNTY/REGION**							
Buncombe	378	134	33.2	28.1-38.7	244	66.8	61.3-71.9
Guilford	374	125	32.8	27.5-38.6	249	67.2	61.4-72.5
Mecklenburg	361	131	34.0	28.7-39.8	230	66.0	60.2-71.3
Orange	346	100	21.0	16.3-26.6	246	79.0	73.4-83.7
Wake	374	107	25.7	21.2-30.9	267	74.3	69.1-78.8
Chatham/Lee	321	117	36.8	30.0-44.2	204	63.2	55.8-70.0
Nash/Wilson	310	106	33.8	27.9-40.3	204	66.2	59.7-72.1
Craven/Pamlico	365	133	34.9	29.2-40.9	232	65.1	59.1-70.8
Stokes/Surry/Yadkin	357	143	36.4	30.7-42.5	214	63.6	57.5-69.3
Appalachian/Wilkes	370	163	43.5	37.6-49.7	207	56.5	50.3-62.4
Franklin/Gran./Vance	381	129	32.4	26.5-39.0	252	67.6	61.0-73.5
Graham/Swain/Jackson	330	108	29.1	23.8-34.9	222	70.9	65.1-76.2
Hoke/Robeson/Scotland	372	134	35.7	30.3-41.5	238	64.3	58.5-69.7
Bladen/Columbus/Sampson	335	143	42.6	35.7-49.8	192	57.4	50.2-64.3
Northeast NC I	365	142	35.9	30.5-41.6	223	64.1	58.4-69.5
Northeast NC II	421	149	31.1	26.4-36.2	272	68.9	63.8-73.6
Mountain AHEC	1,055	362	32.4	28.8-36.3	693	67.6	63.7-71.2
NC REGIONS***							
Eastern NC	2,660	976	33.2	30.4-36.0	1,684	66.8	64.0-69.6
Piedmont	3,286	1,147	33.9	31.7-36.2	2,139	66.1	63.8-68.3
Western NC	1,671	629	35.9	32.6-39.4	1,042	64.1	60.6-67.4

Table 29. Have you ever been told by a doctor, nurse, or other health professional that you have high blood pressure?

	Total		Yes			Yes, during pregnancy			No		
	Respondents	N	%	C.I.(95%)	N	%	C.I.(95%)	N	%	C.I.(95%)	
North Carolina	9,446	3,188	28.6	27.3-30.0	104	1.1	0.8- 1.4	6,154	70.3	68.9-71.7	
NENC	973	387	35.4	31.7-39.1	10	0.8	0.4- 1.5	576	63.9	60.1-67.5	
GENDER											
Male	329	135	34.9	28.9-41.4	0	0.0	. - .	194	65.1	58.6-71.1	
Female	644	252	35.8	31.7-40.1	10	1.4	0.7- 2.8	382	62.8	58.4-66.9	
RACE											
White	558	191	32.6	28.2-37.4	6	0.7	0.3- 1.8	361	66.6	61.8-71.1	
Other	412	196	39.5	33.5-45.9	4	0.8	0.3- 2.3	212	59.7	53.3-65.8	
AGE											
18-44	352	62	14.0	10.2-19.0	8	1.6	0.7- 3.2	282	84.4	79.3-88.4	
45+	616	323	53.5	48.7-58.2	2	0.1	0.0- 0.4	291	46.4	41.7-51.2	
EDUCATION											
H.S. or Less	533	252	39.2	34.1-44.6	5	0.6	0.2- 1.7	276	60.2	54.8-65.4	
Some College +	437	134	30.5	25.4-36.0	5	1.0	0.4- 2.5	298	68.6	63.0-73.6	
HOUSEHOLD INCOME											
Less than \$50,000	585	238	35.5	31.0-40.4	7	0.9	0.4- 2.1	340	63.5	58.7-68.1	
\$50,000+	165	54	33.8	25.7-42.9	1	0.7	0.1- 4.5	110	65.6	56.5-73.7	
COUNTY/REGION**											
Buncombe	454	161	30.3	25.8-35.1	6	1.2	0.4- 3.2	287	68.6	63.6-73.1	
Guilford	446	134	28.0	23.3-33.1	9	1.8	0.9- 3.6	303	70.2	65.0-75.0	
Mecklenburg	448	126	24.9	20.3-30.2	4	0.9	0.3- 2.4	318	74.2	68.9-78.9	
Orange	452	96	14.3	11.1-18.1	1	0.2	0.0- 1.2	355	85.5	81.7-88.7	
Wake	453	108	20.5	16.6-25.1	8	1.4	0.6- 2.9	337	78.1	73.4-82.1	
Chatham/Lee	399	139	30.5	25.3-36.4	3	0.4	0.1- 1.3	257	69.1	63.2-74.4	
Nash/Wilson	380	156	37.0	31.6-42.7	4	1.6	0.5- 4.7	220	61.4	55.6-66.9	
Craven/Pamlico	456	170	32.4	27.7-37.5	2	0.4	0.1- 1.6	284	67.2	62.1-71.9	
Stokes/Surry/Yadkin	437	138	30.8	25.2-37.1	6	0.9	0.3- 2.2	293	68.3	62.1-73.9	
Appalachian/Wilkes	454	149	26.4	21.8-31.6	6	1.4	0.6- 3.3	299	72.2	67.0-77.0	
Franklin/Gran./Vance	479	183	37.3	28.9-46.6	3	0.4	0.1- 1.3	293	62.3	53.0-70.7	
Graham/Swain/Jackson	425	136	23.9	18.1-30.8	2	0.4	0.1- 1.9	287	75.7	68.8-81.5	
Hoke/Robeson/Scotland	476	185	34.3	29.6-39.2	5	1.0	0.4- 2.4	286	64.7	59.8-69.4	
Bladen/Columbus/Sampson	420	173	35.0	29.3-41.2	6	1.5	0.6- 3.3	241	63.5	57.3-69.3	
Northeast NC I	460	186	35.8	30.4-41.5	5	0.9	0.3- 2.3	269	63.4	57.6-68.8	
Northeast NC II	513	201	35.1	30.4-40.1	5	0.7	0.3- 1.8	307	64.2	59.1-68.9	
Mountain AHEC	1,307	429	27.8	24.6-31.4	12	0.8	0.4- 1.5	866	71.4	67.9-74.7	
NC REGIONS***											
Eastern NC	3,320	1,262	31.2	28.8-33.8	32	0.9	0.6- 1.5	2,026	67.8	65.3-70.3	
Piedmont	4,050	1,237	27.2	25.3-29.2	48	1.1	0.7- 1.6	2,765	71.7	69.7-73.6	
Western NC	2,076	689	28.8	26.0-31.9	24	1.3	0.7- 2.2	1,363	69.9	66.8-72.8	

Table 30. Have you ever been told by a doctor that you have diabetes?

	Total		Yes		Yes, during pregnancy			No		
	Respondents	N	%	C.I.(95%)	N	%	C.I.(95%)	N	%	C.I.(95%)
North Carolina	9,441	959	8.1	7.4- 8.9	78	0.9	0.6- 1.2	8,404	91	90.2-91.8
NENC	972	137	12.3	10.1-14.8	8	0.6	0.3- 1.4	827	87.1	84.5-89.3
GENDER										
Male	329	51	12.4	9.0-16.7	0	0.0	. - .	278	87.6	83.3-91.0
Female	643	86	12.1	9.6-15.3	8	1.2	0.6- 2.7	549	86.6	83.4-89.3
RACE										
White	558	67	11.1	8.4-14.4	5	0.8	0.3- 2.1	486	88.1	84.8-90.9
Other	411	70	14.1	10.6-18.4	3	0.4	0.1- 1.6	338	85.5	81.1-89.0
AGE										
18-44	352	14	3.1	1.7- 5.5	2	0.3	0.1- 1.3	336	96.6	94.1-98.1
45+	615	122	20.0	16.5-24.1	6	0.9	0.4- 2.3	487	79.1	75.0-82.7
EDUCATION										
H.S. or Less	532	93	14.2	11.1-17.9	3	0.3	0.1- 1.2	436	85.5	81.8-88.6
Some College +	437	44	9.9	7.2-13.6	5	1.1	0.4- 2.7	388	89.0	85.3-91.9
HOUSEHOLD INCOME										
Less than \$50,000	584	89	12.8	10.0-16.2	4	0.5	0.2- 1.5	491	86.7	83.3-89.5
\$50,000+	165	11	8.2	4.4-14.6	3	1.6	0.4- 5.5	151	90.3	83.7-94.4
COUNTY/REGION**										
Buncombe	454	41	8.1	5.8-11.3	2	0.5	0.1- 2.1	411	91.4	88.1-93.8
Guilford	446	36	6.7	4.7- 9.5	7	2.3	0.9- 5.8	403	91.0	87.4-93.7
Mecklenburg	447	39	7.0	4.9- 9.9	2	0.6	0.1- 2.7	406	92.4	89.4-94.7
Orange	451	25	4.7	3.0- 7.4	1	0.6	0.1- 4.3	425	94.6	91.6-96.6
Wake	453	31	5.3	3.6- 7.9	4	0.8	0.3- 2.3	418	93.9	91.1-95.8
Chatham/Lee	399	33	6.8	4.6-10.0	5	1.1	0.5- 2.6	361	92.1	88.7-94.5
Nash/Wilson	380	44	10.2	7.4-14.1	3	0.8	0.3- 2.6	333	88.9	85.0-91.9
Craven/Pamlico	454	55	10.3	7.7-13.7	6	1.4	0.6- 3.5	393	88.3	84.7-91.1
Stokes/Surry/Yadkin	438	45	10.4	7.3-14.7	4	0.6	0.2- 1.6	389	89.0	84.7-92.2
Appalachian/Wilkes	456	33	5.1	3.5- 7.5	2	0.7	0.2- 3.0	421	94.1	91.5-96.0
Franklin/Gran./Vance	479	32	4.6	3.1- 6.8	3	1.3	0.3- 5.1	444	94.1	91.0-96.2
Graham/Swain/Jackson	426	48	8.7	6.0-12.3	6	1.0	0.4- 2.4	372	90.3	86.4-93.1
Hoke/Robeson/Scotland	474	80	15.0	11.9-18.9	0	0.0	. - .	394	85.0	81.1-88.1
Bladen/Columbus/Sampson	420	55	10.6	7.8-14.1	3	0.8	0.2- 2.6	362	88.6	84.9-91.5
Northeast NC I	461	72	13.6	10.4-17.4	5	0.8	0.3- 2.1	384	85.7	81.7-88.9
Northeast NC II	511	65	11.5	8.8-15.0	3	0.6	0.2- 1.8	443	87.9	84.4-90.7
Mountain AHEC	1,308	133	8.4	6.7-10.5	11	0.5	0.3- 1.1	1,164	91.1	89.0-92.8
NC REGIONS***										
Eastern NC	3,315	425	9.6	8.4-11.1	24	0.6	0.3- 1.1	2,866	89.8	88.3-91.1
Piedmont	4,047	334	7.4	6.4- 8.5	38	1.1	0.7- 1.7	3,675	91.5	90.3-92.6
Western NC	2,079	200	7.9	6.5- 9.5	16	0.6	0.3- 1.2	1,863	91.5	89.8-92.9

Table 31. Overweight or Obese

	Total		No		Yes		
	Respondents	N	%	C.I.(95%)	N	%	
North Carolina	8,893	3,463	39	37.4-40.7	5,430	61	59.3-62.6
NENC	925	300	32.9	29.2-36.9	625	67.1	63.1-70.8
GENDER							
Male	320	98	31.1	25.1-37.8	222	68.9	62.2-74.9
Female	605	202	34.6	30.3-39.2	403	65.4	60.8-69.7
RACE							
White	543	206	35.7	31.0-40.7	337	64.3	59.3-69.0
Other	380	93	28.5	22.7-35.1	287	71.5	64.9-77.3
AGE							
18-44	335	109	34.6	28.5-41.3	226	65.4	58.7-71.5
45+	586	190	31.6	27.3-36.2	396	68.4	63.8-72.7
EDUCATION							
H.S. or Less	501	155	32.0	27.0-37.5	346	68.0	62.5-73.0
Some College +	421	143	34.0	28.7-39.8	278	66.0	60.2-71.3
HOUSEHOLD INCOME							
Less than \$50,000	565	160	29.6	24.9-34.7	405	70.4	65.3-75.1
\$50,000+	159	58	34.1	26.4-42.7	101	65.9	57.3-73.6
COUNTY/REGION**							
Buncombe	432	198	46.7	41.1-52.4	234	53.3	47.6-58.9
Guilford	423	168	39.6	34.1-45.4	255	60.4	54.6-65.9
Mecklenburg	421	181	45.1	38.9-51.4	240	54.9	48.6-61.1
Orange	429	231	54.6	46.7-62.2	198	45.4	37.8-53.3
Wake	420	178	41.9	36.3-47.7	242	58.1	52.3-63.7
Chatham/Lee	366	153	39.8	33.7-46.3	213	60.2	53.7-66.3
Nash/Wilson	351	114	30.8	25.4-36.6	237	69.2	63.4-74.6
Craven/Pamlico	430	162	39.1	33.6-44.9	268	60.9	55.1-66.4
Stokes/Surry/Yadkin	401	156	37.2	31.6-43.1	245	62.8	56.9-68.4
Appalachian/Wilkes	431	200	46.4	39.6-53.3	231	53.6	46.7-60.4
Franklin/Gran./Vance	459	154	31.3	25.0-38.3	305	68.7	61.7-75.0
Graham/Swain/Jackson	409	156	40.6	29.6-52.7	253	59.4	47.3-70.4
Hoke/Robeson/Scotland	448	125	28.7	23.9-34.1	323	71.3	65.9-76.1
Bladen/Columbus/Sampson	397	129	35.5	29.6-42.0	268	64.5	58.0-70.4
Northeast NC I	438	138	33.1	28.0-38.6	300	66.9	61.4-72.0
Northeast NC II	487	162	32.9	28.0-38.2	325	67.1	61.8-72.0
Mountain AHEC	1,241	529	43.0	38.8-47.4	712	57.0	52.6-61.2
NC REGIONS***							
Eastern NC	3,131	1,051	35.9	33.0-38.9	2,080	64.1	61.1-67.0
Piedmont	3,800	1,582	40.1	37.8-42.4	2,218	59.9	57.6-62.2
Western NC	1,962	830	41.1	37.7-44.7	1,132	58.9	55.3-62.3

Table 32. Knew all heart attack symptoms

	Total		Yes			No		
	Respondents	N	%	C.I.(95%)	N	%	C.I.(95%)	
North Carolina	9,435	1,073	10.6	9.7-11.6	8,362	89.4	88.4-90.3	
NENC	973	99	11.0	8.8-13.7	874	89.0	86.3-91.2	
GENDER								
Male	330	33	10.3	7.0-14.9	297	89.7	85.1-93.0	
Female	643	66	11.7	9.0-15.1	577	88.3	84.9-91.0	
RACE								
White	560	80	14.8	11.6-18.5	480	85.2	81.5-88.4	
Other	410	19	5.8	3.3-10.0	391	94.2	90.0-96.7	
AGE								
18-44	351	29	9.7	6.4-14.5	322	90.3	85.5-93.6	
45+	617	69	12.1	9.4-15.4	548	87.9	84.6-90.6	
EDUCATION								
H.S. or Less	534	49	10.4	7.5-14.3	485	89.6	85.7-92.5	
Some College +	436	49	11.6	8.6-15.6	387	88.4	84.4-91.4	
HOUSEHOLD INCOME								
Less than \$50,000	585	48	10.7	7.7-14.6	537	89.3	85.4-92.3	
\$50,000+	165	31	17.1	11.8-24.2	134	82.9	75.8-88.2	
COUNTY/REGION**								
Buncombe	452	60	11.1	8.4-14.4	392	88.9	85.6-91.6	
Guilford	444	62	13.9	10.4-18.4	382	86.1	81.6-89.6	
Mecklenburg	448	50	10.2	7.5-13.7	398	89.8	86.3-92.5	
Orange	452	69	9.3	7.0-12.2	383	90.7	87.8-93.0	
Wake	453	59	13.6	10.3-17.7	394	86.4	82.3-89.7	
Chatham/Lee	400	47	11.8	8.1-16.9	353	88.2	83.1-91.9	
Nash/Wilson	379	38	9.0	6.3-12.7	341	91.0	87.3-93.7	
Craven/Pamlico	454	55	11.3	8.3-15.1	399	88.7	84.9-91.7	
Stokes/Surry/Yadkin	437	58	14.8	10.1-21.2	379	85.2	78.8-89.9	
Appalachian/Wilkes	456	63	12.0	9.0-15.8	393	88.0	84.2-91.0	
Franklin/Gran./Vance	479	44	7.2	4.8-10.6	435	92.8	89.4-95.2	
Graham/Swain/Jackson	425	62	13.0	9.7-17.2	363	87.0	82.8-90.3	
Hoke/Robeson/Scotland	476	34	6.6	4.5- 9.6	442	93.4	90.4-95.5	
Bladen/Columbus/Sampson	418	37	7.4	5.1-10.5	381	92.6	89.5-94.9	
Northeast NC I	459	35	7.5	5.0-10.9	424	92.5	89.1-95.0	
Northeast NC II	514	64	13.0	9.9-16.8	450	87.0	83.2-90.1	
Mountain AHEC	1,303	166	9.3	7.6-11.3	1,137	90.7	88.7-92.4	
NC REGIONS***								
Eastern NC	3,313	314	9.1	7.6-10.8	2,999	90.9	89.2-92.4	
Piedmont	4,048	495	11.7	10.4-13.1	3,553	88.3	86.9-89.6	
Western NC	2,074	264	9.5	8.0-11.3	1,810	90.5	88.7-92.0	

Table 33. Knew all stroke symptoms

	Total		Yes		No		C.I.(95%)
	Respondents	N	%	C.I.(95%)	N	%	
North Carolina	9,431	1,740	16.9	15.8-18.1	7,691	83.1	81.9-84.2
NENC	973	165	16.2	13.7-19.0	808	83.8	81.0-86.3
GENDER							
Male	330	57	14.1	10.6-18.5	273	85.9	81.5-89.4
Female	643	108	18.0	14.8-21.8	535	82.0	78.2-85.2
RACE							
White	560	128	22.2	18.5-26.4	432	77.8	73.6-81.5
Other	410	36	7.3	5.0-10.7	374	92.7	89.3-95.0
AGE							
18-44	351	63	15.7	11.9-20.4	288	84.3	79.6-88.1
45+	617	101	16.5	13.4-20.2	516	83.5	79.8-86.6
EDUCATION							
H.S. or Less	534	60	10.3	7.6-13.7	474	89.7	86.3-92.4
Some College +	436	105	23.7	19.4-28.6	331	76.3	71.4-80.6
HOUSEHOLD INCOME							
Less than \$50,000	585	85	15.2	12.0-19.0	500	84.8	81.0-88.0
\$50,000+	165	53	28.8	21.9-36.9	112	71.2	63.1-78.1
COUNTY/REGION**							
Buncombe	452	99	19.3	15.6-23.7	353	80.7	76.3-84.4
Guilford	444	97	20.7	16.8-25.3	347	79.3	74.7-83.2
Mecklenburg	447	92	17.5	13.5-22.3	355	82.5	77.7-86.5
Orange	451	132	24.9	19.6-31.0	319	75.1	69.0-80.4
Wake	451	103	22.4	18.1-27.4	348	77.6	72.6-81.9
Chatham/Lee	400	60	11.6	8.8-15.3	340	88.4	84.7-91.2
Nash/Wilson	378	69	15.3	11.8-19.6	309	84.7	80.4-88.2
Craven/Pamlico	454	83	17.2	13.6-21.6	371	82.8	78.4-86.4
Stokes/Surry/Yadkin	437	76	21.0	15.7-27.5	361	79.0	72.5-84.3
Appalachian/Wilkes	456	75	13.8	10.7-17.6	381	86.2	82.4-89.3
Franklin/Gran./Vance	479	89	14.9	11.3-19.5	390	85.1	80.5-88.7
Graham/Swain/Jackson	425	77	17.9	13.3-23.7	348	82.1	76.3-86.7
Hoke/Robeson/Scotland	476	62	11.6	8.7-15.3	414	88.4	84.7-91.3
Bladen/Columbus/Sampson	419	59	12.5	9.5-16.4	360	87.5	83.6-90.5
Northeast NC I	459	74	15.3	11.9-19.4	385	84.7	80.6-88.1
Northeast NC II	514	91	16.7	13.4-20.5	423	83.3	79.5-86.6
Mountain AHEC	1,303	258	18.2	15.7-21.2	1,045	81.8	78.8-84.3
NC REGIONS***							
Eastern NC	3,313	534	14.6	12.7-16.6	2,779	85.4	83.4-87.3
Piedmont	4,044	817	18.2	16.6-19.9	3,227	81.8	80.1-83.4
Western NC	2,074	389	16.8	14.7-19.2	1,685	83.2	80.8-85.3

Table 34. To lower your risk of developing heart disease or stroke, are you eating fewer high fat or high cholesterol foods?

	Total		Yes		No		
	Respondents	N	%	C.I.(95%)	N	%	C.I.(95%)
North Carolina	9,161	6,667	71.4	69.8-72.9	2,494	28.6	27.1-30.2
NENC	936	680	69.4	65.1-73.4	256	30.6	26.6-34.9
GENDER							
Male	314	212	64.2	56.6-71.2	102	35.8	28.8-43.4
Female	622	468	73.8	69.4-77.9	154	26.2	22.1-30.6
RACE							
White	543	395	69.6	64.4-74.4	148	30.4	25.6-35.6
Other	390	283	69.1	61.5-75.8	107	30.9	24.2-38.5
AGE							
18-44	341	225	61.8	54.3-68.7	116	38.2	31.3-45.7
45+	591	451	75.5	71.0-79.5	140	24.5	20.5-29.0
EDUCATION							
H.S. or Less	507	350	64.3	58.1-70.2	157	35.7	29.8-41.9
Some College +	426	328	75.4	69.9-80.3	98	24.6	19.7-30.1
HOUSEHOLD INCOME							
Less than \$50,000	564	389	65.2	59.9-70.2	175	34.8	29.8-40.1
\$50,000+	163	133	80.6	72.7-86.6	30	19.4	13.4-27.3
COUNTY/REGION**							
Buncombe	443	321	70.1	64.6-75.0	122	29.9	25.0-35.4
Guilford	439	328	72.7	67.2-77.6	111	27.3	22.4-32.8
Mecklenburg	442	326	70.4	64.0-76.0	116	29.6	24.0-36.0
Orange	449	329	62.2	53.9-69.9	120	37.8	30.1-46.1
Wake	439	339	77.1	72.1-81.4	100	22.9	18.6-27.9
Chatham/Lee	390	285	67.9	60.8-74.2	105	32.1	25.8-39.2
Nash/Wilson	366	256	68.0	61.7-73.6	110	32.0	26.4-38.3
Craven/Pamlico	443	313	67.6	61.9-72.9	130	32.4	27.1-38.1
Stokes/Surry/Yadkin	420	307	72.7	67.3-77.5	113	27.3	22.5-32.7
Appalachian/Wilkes	449	321	67.3	60.3-73.7	128	32.7	26.3-39.7
Franklin/Gran./Vance	464	328	71.7	65.0-77.5	136	28.3	22.5-35.0
Graham/Swain/Jackson	413	305	62.0	48.3-74.0	108	38.0	26.0-51.7
Hoke/Robeson/Scotland	458	325	69.3	64.0-74.1	133	30.7	25.9-36.0
Bladen/Columbus/Sampson	401	277	65.8	59.7-71.5	124	34.2	28.5-40.3
Northeast NC I	441	310	65.4	58.1-72.1	131	34.6	27.9-41.9
Northeast NC II	495	370	71.5	66.2-76.3	125	28.5	23.7-33.8
Mountain AHEC	1,270	948	71.6	66.7-76.0	322	28.4	24.0-33.3
NC REGIONS***							
Eastern NC	3,192	2,273	68.6	65.7-71.4	919	31.4	28.6-34.3
Piedmont	3,947	2,894	72.9	70.8-74.8	1,053	27.1	25.2-29.2
Western NC	2,022	1,500	71.3	67.5-74.8	522	28.7	25.2-32.5

Table 35. Vigorous Physical Activity

	Total		Yes		No		
	Respondents	N	%	C.I.(95%)	N	%	C.I.(95%)
North Carolina	9,311	1,465	19.3	17.9-20.7	7,846	80.7	79.3-82.1
NENC	958	114	13.6	11.0-16.9	844	86.4	83.1-89.0
GENDER							
Male	322	52	15.8	11.4-21.6	270	84.2	78.4-88.6
Female	636	62	11.7	8.8-15.4	574	88.3	84.6-91.2
RACE							
White	550	84	17.8	13.9-22.6	466	82.2	77.4-86.1
Other	405	28	7.0	4.5-10.8	377	93.0	89.2-95.5
AGE							
18-44	347	60	18.8	13.9-25.0	287	81.2	75.0-86.1
45+	607	53	9.2	6.8-12.2	554	90.8	87.8-93.2
EDUCATION							
H.S. or Less	526	41	9.6	6.3-14.3	485	90.4	85.7-93.7
Some College +	429	73	18.8	14.8-23.6	356	81.2	76.4-85.2
HOUSEHOLD INCOME							
Less than \$50,000	577	63	13.3	9.7-18.0	514	86.7	82.0-90.3
\$50,000+	162	37	23.3	16.8-31.4	125	76.7	68.6-83.2
COUNTY/REGION**							
Buncombe	450	80	21.3	16.7-26.7	370	78.7	73.3-83.3
Guilford	443	95	24.2	19.6-29.6	348	75.8	70.4-80.4
Mecklenburg	445	98	24.2	18.9-30.4	347	75.8	69.6-81.1
Orange	447	121	27.4	21.9-33.8	326	72.6	66.2-78.1
Wake	449	104	22.3	18.0-27.2	345	77.7	72.8-82.0
Chatham/Lee	392	47	12.2	8.5-17.2	345	87.8	82.8-91.5
Nash/Wilson	374	40	12.0	8.4-16.7	334	88.0	83.3-91.6
Craven/Pamlico	448	74	20.1	15.7-25.5	374	79.9	74.5-84.3
Stokes/Surry/Yadkin	430	57	14.0	10.5-18.3	373	86.0	81.7-89.5
Appalachian/Wilkes	448	55	17.6	11.7-25.6	393	82.4	74.4-88.3
Franklin/Gran./Vance	472	64	20.1	11.8-32.1	408	79.9	67.9-88.2
Graham/Swain/Jackson	419	78	21.0	15.2-28.2	341	79.0	71.8-84.8
Hoke/Robeson/Scotland	471	43	10.7	7.6-14.7	428	89.3	85.3-92.4
Bladen/Columbus/Sampson	413	34	9.6	6.7-13.6	379	90.4	86.4-93.3
Northeast NC I	452	42	9.5	6.8-13.1	410	90.5	86.9-93.2
Northeast NC II	506	72	15.9	12.1-20.5	434	84.1	79.5-87.9
Mountain AHEC	1,288	223	19.0	16.0-22.4	1,065	81.0	77.6-84.0
NC REGIONS***							
Eastern NC	3,268	415	17.2	14.9-19.8	2,853	82.8	80.2-85.1
Piedmont	3,996	729	20.3	18.4-22.4	3,267	79.7	77.6-81.6
Western NC	2,047	321	19.6	16.8-22.7	1,726	80.4	77.3-83.2

Table 36. Moderate Physical Activity

	Total		Yes		No		
	Respondents	N	%	C.I.(95%)	N	%	C.I.(95%)
North Carolina	9,118	3,242	37.7	36.1-39.4	5,876	62.3	60.6-63.9
NENC	932	312	33.3	29.6-37.3	620	66.7	62.7-70.4
GENDER							
Male	312	113	32.4	26.3-39.2	199	67.6	60.8-73.7
Female	620	199	34.1	29.8-38.6	421	65.9	61.4-70.2
RACE							
White	535	206	39.9	34.8-45.1	329	60.1	54.9-65.2
Other	394	104	23.5	18.8-29.0	290	76.5	71.0-81.2
AGE							
18-44	342	123	34.7	28.5-41.6	219	65.3	58.4-71.5
45+	586	187	31.9	27.7-36.5	399	68.1	63.5-72.3
EDUCATION							
H.S. or Less	508	147	27.2	22.4-32.5	361	72.8	67.5-77.6
Some College +	421	165	41.2	35.6-47.0	256	58.8	53.0-64.4
HOUSEHOLD INCOME							
Less than \$50,000	560	184	33.5	28.7-38.7	376	66.5	61.3-71.3
\$50,000+	161	76	45.5	36.9-54.3	85	54.5	45.7-63.1
COUNTY/REGION**							
Buncombe	439	169	39.5	34.1-45.2	270	60.5	54.8-65.9
Guilford	437	165	41.0	35.5-46.7	272	59.0	53.3-64.5
Mecklenburg	443	167	37.3	31.6-43.5	276	62.7	56.5-68.4
Orange	440	212	45.7	38.5-53.1	228	54.3	46.9-61.5
Wake	440	177	38.9	33.5-44.5	263	61.1	55.5-66.5
Chatham/Lee	382	124	30.2	24.9-36.2	258	69.8	63.8-75.1
Nash/Wilson	367	100	29.3	24.0-35.2	267	70.7	64.8-76.0
Craven/Pamlico	442	158	37.1	31.8-42.8	284	62.9	57.2-68.2
Stokes/Surry/Yadkin	424	124	29.6	24.7-35.0	300	70.4	65.0-75.3
Appalachian/Wilkes	441	163	41.1	34.4-48.2	278	58.9	51.8-65.6
Franklin/Gran./Vance	463	144	35.0	26.3-44.9	319	65.0	55.1-73.7
Graham/Swain/Jackson	409	186	42.9	33.3-53.1	223	57.1	46.9-66.7
Hoke/Robeson/Scotland	459	132	31.3	26.4-36.7	327	68.7	63.3-73.6
Bladen/Columbus/Sampson	404	115	29.0	24.0-34.6	289	71.0	65.4-76.0
Northeast NC I	441	135	28.9	24.1-34.3	306	71.1	65.7-75.9
Northeast NC II	491	177	35.7	30.7-41.0	314	64.3	59.0-69.3
Mountain AHEC	1,256	510	41.3	36.8-45.9	746	58.7	54.1-63.2
NC REGIONS***							
Eastern NC	3,193	1,053	36.6	33.7-39.5	2,140	63.4	60.5-66.3
Piedmont	3,921	1,421	37.6	35.3-39.9	2,500	62.4	60.1-64.7
Western NC	2,004	768	40.4	36.8-44.2	1,236	59.6	55.8-63.2

Key Informant Interviews

During February of 2005, NENCPPH staff conducted interviews with professionals in North Carolina and Eastern North Carolina working in the area of chronic disease, heart disease and stroke, and emergency medical services. These key informants were asked their opinion about why heart disease and stroke rates are so high in NENC, what are the barriers to preventing heart disease and stroke in the region, and what they think should be done to prevent heart disease and stroke mortality and morbidity in the region. The main results of these interviews are summarized below.

Thoughts on why the rates so high

- Lifestyles that include unhealthy foods and inadequate physical activity
- People are more resistant to make lifestyle changes
- The region has a high proportion of persons with multiple cardiovascular disease risk factors which seem to act synergistically to increase the risk of disease
- There is still some unexplained excess risk of stroke in this part of the country beyond what can be explained by lifestyle factors
- Fatalism "You have to die of something"

Barriers to heart disease and stroke prevention

- Amount of funding for heart disease and stroke prevention is small in relation to the size of the problem
- Personal perception of risk is low;
 - The attitude that "I feel okay, therefore I am okay" and do not need to make any changes;
 - They think it is just something that happens to old people
- People are not sufficiently afraid of stroke
 - People don't know about premature deaths (less than 65), that African Americans die much younger
 - people have seen a family member have a heart attack, or high blood pressure or high cholesterol and they seemed to do okay, so they have the attitude that "I don't need to be worried , I will just deal with it when it happens"
- Lack of information about risk factors and how risk factors can be changed
- Other priorities in life take precedence over health
- Emergency medical system training needs to be improved (ex. EM Dispatchers are not getting the training to be able to provide CPR instruction over the phone to a 911 caller)
- ENC is very rural and the 911 system is not as efficient as we think;
- There is lack of coordination of the entire emergency network; there is no centralized coordination of 911 in this state;
- Voice over IP is not connected to the 911 system;
- Getting location information through cell phone 911 calls is a problem in rural areas
- Would be good to have linkage between OnStar system and 911 system
- Lack of community advisors ; we need community members to serve as lay health advisors
- Physician knowledge ; resistance to change; need provider education about treatment of blood pressure; they feel its so hard to even meet the old blood pressure guidelines
- Difficult for EMS because people don't have visible house numbers
- Fatalistic attitude of citizens
- Lack of understanding for heart attacks. People want to "just fix the plumbing" rather than deal with the root of the problem.
- Behavior change is hard

What can be done?

- Work with a group of people over time (a cohort) to help them and their families to be healthy
- Work on economic development. If people have a steady source of income, then they might more easily be able to make health a priority; partner with the council of government and dept of commerce to raise the standard of living in NENC (Agricultural development; tourism)
- partner with community colleges to help spread health information
- Worksite wellness programs because they are a captive audience; might be able to get employers to pay for screenings and education (prevention partners has a list of successful worksite wellness programs)
- Work with schools, worksites, vending machines, grocery stores
- Educate people about healthier choices
- Partner with grocery stores to highlight food that is heart healthy
- Promote Winners Circle program in restaurants
- Publicize restaurants that are smoke-free
- Place AEDs in public buildings

Public Health Department Activities

Cardiovascular Disease Programs at Local Health Departments in NENC

ALBEMARLE REGIONAL HEALTH SERVICES

<p>Health Promotion</p>	<p><u>Educational campaigns</u> were geared region-wide with the Wear Red Day and purchased and supported by Healthy Carolinians of the Albemarle, Gates Partners for Health, and Three Rivers Healthy Carolinians. The red dress pins and educational materials were distributed to concerned community members and to area hospitals for their employees. Media was a community partner in this program.</p> <p><u>Winner's Circle</u> in the local restaurants. Promoting healthy eating and physical activity policies for businesses, and groups</p> <p>Winner's Circle highlights healthy dining options on menus to promote healthy eating choice when dining out. Healthy eating and physical activity policies promote offering healthy eating choices and offering physical activity during meeting and other events.</p>
<p>Primary Prevention</p>	<p><u>Wisewoman program</u> provides screening for women who meet criteria. Screens for lifestyle, BP, cholesterol, HgA1C, glucose. Education done at time of interview. Yearly screening with F/U on abnormal results. Provided in Pasquotank, Perquimans, Chowan, and Camden.</p> <p><u>Employee screenings</u> address BP, cholesterol, and blood glucose. Screenings done once a year. Employee counseled at time of screening/testing, done in all counties. Pasquotank, Perquimans, Camden, Chowan, Currituck, Gates, and Bertie. Some screening done at businesses, industries, community groups, health fairs and festivals, who contract with agency, same procedure as above</p> <p><u>Diabetes support groups</u> 2 groups exist in Bertie county; focus on diabetes control and self-management. Media partners include the seven counties' newspapers, cable companies, and radio stations. Fliers are also submitted to area businesses, chambers, and to health and human service organizations/agencies. At least weekly in all counties.</p> <p><u>Albemarle Regional Diabetes Care Center</u> focuses on individualized counseling with the client and his/her family while working closely with the RD and the RN upon the physician's referral. Diabetes program provides teaching and screening at designated times with people who have diabetes. Also, Diabetes Group Class is offered once monthly; Free eye screening is also facilitated by the Albemarle Regional Diabetes Care Coordinator and the regional ophthalmologists/optometrist.</p> <p><u>Sugar Babies, a Support Group for children</u> and adolescents and their families, is offered once per month.</p> <p><u>Dining with Diabetes</u> is also scheduled quarterly in conjunction with Cooperative Extension, ARHS, and the Senior Centers in each of the counties. Bertie County has two support groups, one meets in the evening and one in the am. Gates (merged with ARHS July 1, 2005) and offers a Support Group at Regional Medical Center in Gatesville once/month.</p> <p><u>Wisewoman program</u> in Perquimans, Pasquotank, Chowan, Camden counties</p>
<p>Secondary Prevention</p>	<p><u>Wisewoman program</u> lifestyle changes education provided at all BCCCP/Wisewoman clinics. Health education has training in smoking cessation and provides as requested. Registered Dietitians work closely with all members of multidisciplinary team members to provide nutritional assessments and counseling during clinic appointments and during outreach. Doctor referrals are required.</p>

BEAUFORTCOUNTY HEALTH DEPARTMENT	
Health Promotion	
Primary Prevention	The adult health nurse of the Beaufort County Health Department provides educational information (pamphlets, booklets, brochures, etc) during blood pressure screenings to individuals at risk.
Secondary Prevention	
DARE COUNTY DEPARTMENT OF PUBLIC HEALTH	
Health Promotion	<p><u>Our Community Education and Public Awareness</u> plans highlight observances/activities monthly. News releases, PSAs, airing on local government channel, Health Department newsletter and County (employee) email and website highlight our activities.</p> <p><u>Winner's Circle</u> -low fat, low sodium, healthy menu items offered and promoted in all Dare County schools. A one-day (lunch time) kick-off at each school. Disseminate PSAs, news articles and information on local government channel.</p>
Primary Prevention	<p><u>Stepping Stones</u>-diabetes support group educating on Cardiovascular Disease meets monthly. 2 grocery store tours were provided last month. <u>Medical Nutrition Therapy</u> receives referrals from physicians for patients with high cholesterol, triglycerides, obesity and overweight individuals. <u>Family planning patients</u> (gyno) receive counseling on weight loss, smoking cessation and referrals to Medical Nutrition Therapy (for weight loss).</p>
Secondary Prevention	<p><u>Diabetes Education Program</u> (DEP) curriculum educates on link between diabetes and heart disease, ways to prevent and signs of a heart attack; Registered Dietician in DEP educates on weight loss and physical activity.</p>
EDGECOMBE COUNTY HEALTH DEPARTMENT	
Health Promotion	Health Promotion Coordinator presents <u>5-A-Day presentations</u> , <u>presentations about importance of water and how it affects the body</u> . <u>Water pitcher and vending machine policies</u> also help people to conduct healthier behaviors. <u>Winners circle in schools</u> is a big environmental change that is in planning process. <u>Worksites in County</u> are working to increase health awareness to employees by implementing wellness policy.
Primary Prevention	<p><u>Stroke assessments</u> are being conducted at local industry and faith community groups. Health Promotion and stroke educator from Pitt County memorial conducted assessment. There has been one assessment conducted at the sites. Other Screenings have been conducted with schools, for County employees and future ones are planned for spring 2005 for community. <u>Summer programs in the school</u> will take place to encourage physical activity. This is all in Edgecombe. How often varies for each. Some are on going others couple times a year.</p>
Secondary Prevention	Along with encouraging people to move more eat less Health Promotion in conjunction with local hospital are trying change smoking policy to influence those that need secondary prevention and those against second hand smoke.
HALIFAX COUNTY HEALTH DEPARTMENT	
Health Promotion	<p><u>Walking Trail</u> Currently working to prevent heart disease and stroke by having an operating walking trail around Halifax. The walking trail is an environmental change to the county that provides residents the opportunity to exercise and gain educational facts about historic Halifax. <u>Stayin' Alive Longer</u> is another program that we have implemented in Halifax County that strives to improve the health and well being of African American churches. The program provides several opportunities for healthy eating options and a detailed manual that encourages different physical activities and nutritional education and menu ideas. Weekly weigh-ins and daily walking logs recording are carried out at Stayin' Alive Longer churches. An additional benefit to the program is blood pressure screenings and blood sugar screenings.</p>
Primary	<u>Wisewoman program</u> offers health screenings for women over the age of forty for wellness, breast

Prevention	and cervical cancer. These programs are offered regularly as a scheduled for residents of Halifax County. Information concerning these programs is distributed through our health educators <u>Industry and Church screenings</u> which give blood pressure, sugar, and cholesterol screenings. This is done by contracts with industries. We are also involved in Healthy Carolinian screenings in the various churches and community organizations. <u>School Obesity Program</u> Health and Wellness Trust fund grant which focuses on decreasing obesity in the schools.
Secondary Prevention	Our <u>primary care physician</u> conducts a health assessment of patients diagnosed with heart disease and stroke. A family assessment, cholesterol screening, blood pressure check, and nutrition referral is provided to each patient. Patients are seen every three months unless blood pressure is at a critical level, and then appointments are scheduled monthly until blood pressure is controlled. Medicine is administered for patients with cardiovascular disease. Patients of the health department are referred to the dietician for nutrition help and maintaining weight control. <u>After-School Program</u> children of the health department diagnosed with high blood pressure are referred to an after-school program that is based on nutrition education and physical activity. <u>Smoking cessation counseling</u> is limited but the physician will write prescriptions for patches.
HERTFORD COUNTY PUBLIC HEALTH AUTHORITY	
Health Promotion	Information provided at Health fairs, through media, Civic group presentations, Hospital Viquet Hertford Partners for Health <u>Health Hearts & Souls Program</u> is an exercise program that is held in African American Churches
Primary Prevention	Information provided at Health fairs, through media, Civic group presentations, Hospital Viquet Hertford Partners for Health Working with Health Hearts & Souls; Screenings for high blood pressure and obesity <u>Dining with diabetes Program</u>
Secondary Prevention	Diabetes Self Management Education classes Free blood pressure offered in church programs
HYDE COUNTY HEALTH DEPARTMENT	
Health Promotion	<u>Health department lobby displays</u> for public and staff education on National Red Day for women's CV health (Feb. 05) <u>Education through churches</u> Informational displays provided to Faith groups <u>Quarterly newsletter</u> sent to all Hyde County Residents promoting heart healthy behaviors
Primary Prevention	<u>Wisewoman program</u> promoted to all eligible women <u>Screen for all Family Planning and Adult Health clients</u> for CV risks and refer all who need follow-up to local or other county providers (HTN, smoking, obesity, decreased physical activity, etc.) <u>School Screenings</u> Collaborate with a local school district in doing cholesterol screening/ blood pressure checks for its employees <u>Health department client education</u> Capitalize on "teachable moments" with all patients who come in "to have their blood pressure checked" regarding stroke, heart disease and risk factors
Secondary Prevention	Encourage patients who have established CV disease to maintain ongoing relationships with their primary healthcare provider. We refer patients that we screen to providers who can do secondary prevention.
MARTIN TYRRELL WASHINGTON DISTRICT HEALTH DEPARTMENT	
Health Promotion	The Healthy Carolinians Community Health Access Group (CHAG) has conducted presentations to the Ministerial Association to educate the Community about Cardiovascular Disease and associated risk factors. Group member also facilitate the expansion of the "Search Your Heart" cardiovascular health program for the faith-based communities. This group also has conducted presentations at the Washington County Board of Education and the Parent Teacher Organization to advocate for a policy change that will support Washington County School campuses being 100% Smoke free. We feel that smoking is a big risk factor for cardiovascular disease. We also created safe and accessible walking trails throughout Washington County to increase physical activity for community members. This only occurs in Washington County. Information is disseminated through our Health Education Program and we also work with our Outreach Workers to get information out.
Primary Prevention	Wisewoman Program in Martin county

	<p>We currently conduct cholesterol/blood sugar screenings in Martin, Tyrrell and Washington Counties at local health fairs and at other organizations when invited to screen for total cholesterol. If these ranges are high the patient is referred to their doctor for care. We also conduct screenings for high blood pressure, cholesterol and blood sugar at the local senior centers in each county.</p>
Secondary Prevention	
NORTHAMPTON COUNTY HEALTH DEPARTMENT	
Health Promotion	<p><u>Stroke education programs</u> are provided, upon request, by a stroke survivor; education includes signs and symptoms of stroke, types of stroke, and other general information about stroke. Educational materials including a magnet listing the signs and symptoms of stroke are distributed to program participants.</p> <p><u>Winner's Circle Healthy Dining Program</u> in 5 local restaurants</p> <p><u>Stayin' Alive...Longer</u>" physical activity and nutrition initiative is in five Northampton County African-American churches. This program provides a presentation to the church about the program and a "train the trainers" session to educate the church volunteer leaders in the program. The churches receive a SAL manual, bulletin board for nutrition information or for program announcements or events coming up and weight scales and participants receive pedometers. Participants weigh in using identification number and write down their weights; this data is collected and monitored. This initiative also has a diabetes component in which a blood sugar screening is offered. The program is provided in conjunction with the Halifax-Northampton Healthy Carolinians</p> <p><u>Health Promotion Healthy Foods Policy and Physical Activity Policy</u> has been signed by four African-American churches; the health department provides educational materials, programs, assistance in implementation of policies, and healthy snacks for church selected events.</p> <p><u>Halifax-Northampton Healthy Carolinians</u> has a <u>cardiopulmonary subcommittee</u> which includes stroke awareness in its action plan. Educational materials are available at health fairs and other events; stroke presentations are provided monthly. Healthy Carolinians also has a physical activity and nutrition subcommittee.</p> <p><u>Walking trail</u> Health promotion program provided signs and opened up a walking trail which had been previously closed.</p>
Primary Prevention	<p><u>Wise Woman program</u> is offered to women, in the BCCCP program, with diabetes, high blood pressure, or high cholesterol; the program addresses physical activity and nutrition. Participants receive a Wise Woman book, cookbook, and theraband; group and individual counseling is offered. Programs are occasionally provided such as luncheon with participants being shown healthy foods being prepared, 5 a day bingo, and other physical activities.</p> <p>Tobacco education is provided to all prenatal clients in the health department setting and smoking cessation is provided to those who smoke. This occurs throughout the pregnancy.</p> <p><u>Community Care Plan Diabetes Support Group</u> is held monthly at the health department; covers Halifax and Northampton counties; staff include a project coordinator (employed by ECU), 4 nurses and 1 social worker</p>
Secondary Prevention	Wise Woman program provides lipid panels, high blood pressure and blood sugar checks
PAMLICO COUNTY HEALTH DEPARTMENT	
Health Promotion	Implemented a "Red Dress" Campaign; activities are ongoing, but had intensive campaign in February; written info was available; speakers made available to the public; articles in newspaper; provided red dress pins to women at meetings and through the health department
Primary Prevention	<p>Wisewoman Program</p> <p>Monitor blood pressure and weight; offer smoking cessation information and individual counseling; certified family nurse practitioner has grant to assist with smoking cessation using medications and counseling; monitor blood sugar for general population; monitor cholesterol, Blood sugar, blood pressure; weight, and activity level for women at risk for heart disease; provide one-on-one</p>

	counseling to these women; women seen at least every 3 months with mail-out educational materials in between and blood work every 6 months for cholesterol or Hemoglobin A1C; patients are seen by appointment, walk-in; and contact by phone; they have been provided with pedometers, therabands for exercise; also provide a chronic disease monitoring program for high blood pressure, obesity and diabetes through the nurse practitioner; clients are from the health department and from HOPE clinic.
Secondary Prevention	Ongoing monitoring for clients already diagnosed; nurse practitioner sees patients diagnosed with diseases and health department works in conjunction with HOPE clinic to provide medication and education to patients; clients seen by appointment and as walk-in; advertisements to let people know these interventions are available; also this info gets a large "word of mouth" campaign; and this is probably the best way that information is disseminated; the wise woman program also participates in secondary prevention once diagnosis is made.
WARREN COUNTY HEALTH DEPARTMENT	
Health Promotion	<u>Educational campaigns</u> which consist of billboards, brochures, newspapers, Radio PSA's and community presentations Exerstyle Program- the regular program offers equipment and aerobic classes <u>Wellness councils</u> implemented at industries; measured off walking area and employees walk on breaks <u>Walking trails</u> - have been marked in three localities in the county; Developed walking trails at the elementary schools
Primary Prevention	<u>Exerstyle Plus (High Risk)</u> - offers equipment and is monitored by a RN to individuals with diabetes <u>Diabetes support group</u> - has speakers from different area to give information <u>Health promotion screenings</u> - check blood pressure, cholesterol, glucose and has an educational component in the community <u>Freshstart program</u> - smoke cessation classes
Secondary Prevention	<u>Exerstyle Programs</u> - exercising program <u>Diabetes support group</u> - help reduce risk factors through lifestyle changes

What challenges does your county(ies) face in preventing heart disease and stroke?

- High incidence of HTN and many clients have BMI > 30
- One of the poorest counties in the state
- No hospital in the county
- Not enough physicians to care for the population
- The nearest specialized physicians is 20 miles in neighboring counties
- The level of poverty and lack of educate people has been a challenge in preventing heart disease and stroke; low salaries and high job demand create a high turnover rate, which makes it hard to implement preventative measures
- Poverty
- Educational and economic depression
- We experience difficulty in getting clients and citizens to participate in programs and also, those who do participate need a lot of follow-up and encouragement in carrying out their physical activities and healthy eating behaviors
- Eating establishments that offer unhealthy eating choices, facilities that allow smoking.
- behavior modification for weight loss and exercise.
- Staff is limited to provide outreach and smoking cessation programs in the health department and community
- Limited educational activities that partner with other health care provider agencies. For example, health fairs and screenings.
- Socio economic lifestyle
- Acceptance from community to change lifestyle.
- Laws that need to be change to allow certain policies/changes to take place.
- High rate of obesity/diabetes/high blood pressure, existing nutritional traditions, and lack of accurate information/health education resources
- Smoking in young population that continues into adulthood; inactivity; high rate of obesity in children and adults

What do you think could be done to lessen the burden of heart disease and stroke in your county(ies)?

- Increase physical activity and nutritional intake adjusted to heart healthy diets
- Restaurants could have more healthy eating options on their menus
- Restaurants could offer a smoke-free environment while eating
- Citizens could take advantage of the exerstyle program and the walking trails that have been marked
- Starting at an early age will help to prevent future cases of heart disease; education in the schools and daycares where children are exposed to unhealthy food choice
- Having the government regulate more on food served will help alleviate the future onset of heart disease
- Free case management to those who need (not Medicaid)
- Continue to stress the importance and benefits of physical activity and good nutrition to adults and youth. Healthy foods need to be available at schools and physical education should be required of all students
- More programs that focus on removing barriers to services and provide education.
- (Data is limited) so we are unaware of the (true) current burden of HD and stroke in Dare County.
- Smoking Cessation resources for adult patients (predominately).
- Access to quality care
- People accepting need for change (exercising, eating healthier)
- Increased educational opportunities
- Start in preschools/day care centers with education and activity programs; make activity a way of life not just with athletes; more walking/hiking trails; more competitions and fun activities associated with being and staying active; recognize children who walk 100,000 steps in 2 weeks; give pedometers and make a big deal

Recommendations

- **Expand the number of counties offering the WiseWoman program;** explore sharing of staff in order to overcome financial barriers that small counties sometimes have in offering this program; explore opportunities with the state health department to enhance wisewoman program with the addition of a lay health advisor component.
- **Consider developing a WiseMan program;** there are no programs specifically targeting men; males are more likely to die prematurely from cardiovascular disease.
- **Increase awareness of signs of heart attack and stroke;** only 11% of adults in NENC knew all the signs of a heart attack, and 16% knew the signs of a stroke; the public needs to know the symptoms and know that prompt medical care is needed in order to prevent morbidity and mortality.
- **Increase access to quality health care;** work with providers to ensure that they are following are informed of and follow guidelines for blood pressure and cholesterol control; educate the public of importance of seeking prompt medical care for stroke and heart attack signs.
- **Educate public about stroke and its implications for mortality and disability**
- **Promote smoke free environments** in schools, restaurants and public spaces
- **Promote environmental changes that promote healthy eating and exercise**
- **Advocate for hospital participation in the North Carolina Stroke Registry;** only 2 hospitals (Piit and the Outer Banks Hospital) in the northeast are currently participating in the state registry; increased participation will provide incidence and quality of care data for stroke cases.