An Overview of Local Statistics Describing the Breast Cancer Burden

This report focuses on Edgecombe, Halifax, Nash, Northampton and Wilson Counties. It was prepared for

Reducing the Burden of Breast Cancer: An Evidence Academy for Community, Health Care and Public Health Leaders

Edgecombe Community College

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Introduction

A rich colonial history, cultural diversity and an agricultural economy are some of the features that characterize the towns and cities of eastern North Carolina. Eastern Carolina is home to several Native American tribes. It has a growing Hispanic population. African Americans comprise more than half the population in several counties. North Carolina's coast was also the site of historic Roanoke Colony where the first European child was born in the Americas.

Cotton, peanuts, and sweet potatoes are prevalent crops unique to the southeastern United States. North Carolina is the country's leading producer of tobacco; much of it is grown in our eastern counties. In recent years, livestock, primarily poultry and hogs, have overtaken these crops as a prominent source of revenue for the region.

Five counties are the primary focus of this report: Edgecombe, Halifax, Nash, Northampton and Wilson. These counties comprise the Area L region of the NC Area Health Education Centers (AHEC) program. The Area L region spans 2,678 square miles, or 5.5% of the entire state of North Carolina.[1] Our state's colonial ties, ethnic diversity and rural ways of life are clearly reflected in these five counties

The town of Halifax, founded in 1760, was a commercial and political hub for the Roanoke River Valley, which stretches from Virginia's Appalachian Mountains to North Carolina's Albemarle Sound. This region of the state prospered in wealth, power and political influence up until the late 1830s. During this time, North Carolina's Fourth Provincial Congress adopted "Halifax Resolves," the first official documented action by an entire colony to recommend independence from England. Edgecombe County's Princeville, originally known as Freedom Hill, was established by freed slaves after the Civil War and is the oldest incorporated Black town in the United States. September 25, 2010 will mark the 250th anniversary of Tarboro, the county seat of Edgecombe County.

I. Community Data

Social and Demographic Data

Population growth in the largely rural, five-county Area L region is slower than for the whole of North Carolina. In three counties, Edgecombe, Halifax and Northampton, the population decreased by 4%-7% between 2000 and 2008. Only Nash and Wilson Counties experienced population growth during this period (Table 1). These two counties also include the region's two largest cities, Wilson (population 47,000) and Rocky Mount (population 57,000).[1]

Table 1: Population by county, region and state [1,2]

County	2000 Population	2008 Population	Area (sq mi)	2008 Population Density (pop/sq mi)
Edgecombe	55,606	52,682	505.03	104.3
Halifax	57,370	54,983	725.36	75.8
Nash	87,420	93,674	540.27	173.4
Northampton	22,086	20,487	536.48	38.2
Wilson	73,814	77,527	371.09	208.9
Area L AHEC	296,296	299,353	2,678.23	111.8
North Carolina	8,049,313	9,222,414	48,710.88	189.3

**All calculations are approximate for 2008 population estimates.*

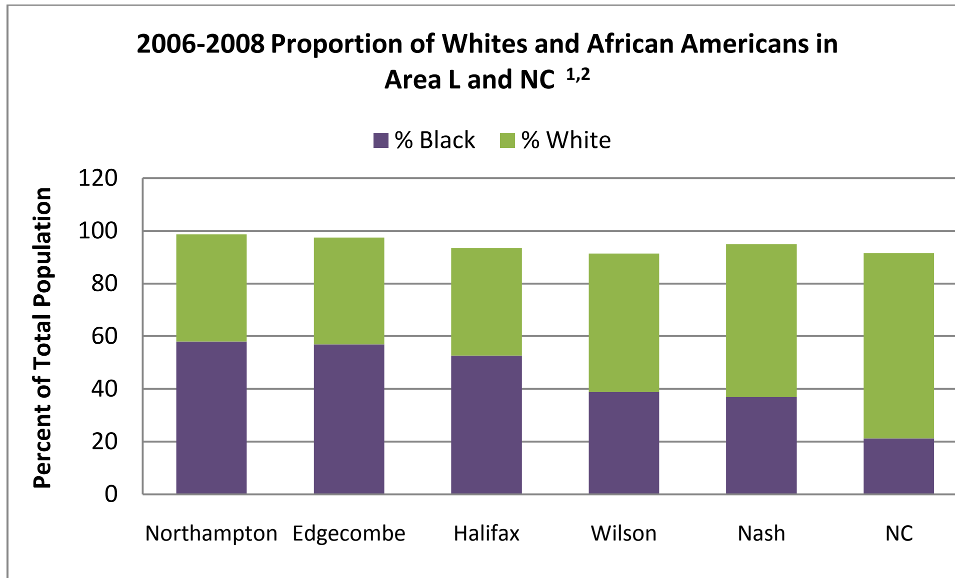
The population of NC is about 70% White, 21% Black, 7% Hispanic, 1.2% American Indian/Alaska Native and 1.4% Asian. The five-county Area L region has a higher percent of African American or Black population than the state as a whole (Figure 1). In Edgecombe, Halifax, and Northampton Counties, African Americans comprise more than half the population. In Halifax County, 3.5% of the total population is American Indian/Alaska Native. More than 8% of the population of Wilson County is Hispanic (Table 2). There are only a few counties in eastern North Carolina with higher Hispanic population ratios, including Duplin (21.4%), Lee (16%), Sampson (16%), Greene (12%), Johnston (11%), and Hoke (10%).[1]

Table 2: 2006-2008 Ethnicity by county [1,2]

County	White		Black		Hispanic	
	#	%	#	%	#	%
Edgecombe	21,393	40.5	30,056	56.9	2,034	3.9
Halifax	22,587	41.0	28,946	52.6	714	1.3
Nash	53,647	58.0	34,105	36.9	4,194	4.5
Northampton*	--	40.6	--	58.0	--	1.2
Wilson	40,257	52.6	29,691	38.8	6,529	8.5
North Carolina	6,350,905	70.3	1,917,297	21.2	636,786	7.0

* *The 2006-2008 American Community Survey 3-year estimates did not have data for Northampton County. The percentages in this table reflect data obtained from the 2008 US Census Bureau's State and County QuickFacts.*

Figure 1



Each of the five counties has a lower median household income and lower educational attainment than the state. Nash County, home to the metropolitan area of Rocky Mount, has the highest median household income in the region at about $46,000 per year. There are several large employers in Rocky Mount, including Nash Health Care Systems, RBC Bank, Inc., and Hospira Pharmaceuticals. Wilson County, with the largest farm economy in NC and growing manufacturing industries in Firestone (tires), Bruce Foods (processed foods) and Merck (pharmaceuticals), has the second highest median household income in Area L at about $38,000 per year. In both Wilson and Nash counties, about 21% of the adult population (25 years and older) has completed college (Table 3).

Table 3: Income and education by county [2]

County	Economic Data		Educational Attainment (% for population 25 years and over)		
	Median household income	% Individuals below poverty level	Did not graduate high school	Undergraduate degree	Graduate or professional degree
Edgecombe	$31,775	22.9	26.7	15.0	2.6
Halifax	$29,393	23.8	27.4	15.5	4.1
Nash	$45,726	14.3	18.1	21.4	6.0
Northampton	$28,493	22.4	31.3	14.6	5.1
Wilson	$38,384	19.5	23.7	21.0	4.8
North Carolina	$46,107	14.6	17.1	25.3	8.5

According to 2006 U.S. Census Small Area Health Insurance Estimates, about 26,000, or 17%, of women in the five-county region are completely uninsured (Table 4).

Table 4: 2006 Female uninsured estimates by age and poverty status[3]

County	Total number of women[3]	Number of uninsured women younger than 65	Number of uninsured women 40-64	Number of women 40-64 at or below 250% poverty
Edgecombe	28,273	2,547	997	675
Halifax	28,884	3,477	1,610	631
Nash	48,364	6,369	2,256	1,458
Northampton	10,890	1,305	582	403
Wilson	40,024	5,061	1,889	1,402
Area L Totals	156,435	18,759	7,334	4,569
NC Totals	4,613,121	685,045	232,591	157,328

II. Breast Cancer Data

In North Carolina, the burden of cancer tends to be concentrated in rural, lower-income, and often, minority communities. This section describes the burden of cancer and breast cancer, specifically, in eastern North Carolina with a focus on the five Area L Counties. *Incidence* describes the number of people – in a population of 100,000 people -- diagnosed with cancer. *Mortality* describes the number of cancer-related deaths in a population of 100,000 people.

For the *most* part, in Area L counties, incidence and mortality rates for **all** cancers and for breast cancer are higher than North Carolina rates (Table 5). Northampton County may be a notable exception. While residents of this county appear to have a lower incidence of cancer, in general, and of breast cancer, specifically, the small population size in this county makes it hard to generate reliable statistics describing the impact of cancer.

Table 5: 2002-2006 Incidence and mortality for all cancers and breast cancer[4]

County	Incidence				Mortality			
	Breast Cancer		All Cancers		Breast Cancer		All Cancers	
	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Edgecombe	267	165.6	1,497	531.8	61	36.9	658	239.1
Halifax	276	152.9	1,568	480.1	58	31.3	720	218.5
Nash	450	167.3	2,465	504.9	76	27.5	974	202.1
Northampton	95	131.3	621	435.0	24	30.7	317	213.0
Wilson	338	150.3	1,974	488.6	78	34.1	825	206.0
North Carolina	35,163	147.2	207,251	477.0	6,110	25.3	82,648	194.9

White women in the U.S. have a higher incidence of breast cancer than African American women, but are less likely to die from the disease. These trends persist across the state, as well as in the Area L Counties (Table 6). The troubling breast cancer mortality gap between African American and White women is pronounced in Wilson County, where African American women diagnosed with breast cancer are more than twice as likely to die from the disease compared to White women. This disparity warrants more exploration, particularly given that Wilson County may have more ample resources than some of its more rural neighboring counties to improve screening and treatment outcomes. In the Area L region, Wilson ranks second highest in its median household income and college education (See Table 3).

Table 6: 2002-2006 Breast cancer incidence and mortality by race (per 100,000 population)[5]

County	Incidence				Mortality			
	Whites		African Americans		Whites		African Americans	
	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Edgecombe	129	173.1	138	160.6	27	34.2	34	39.1
Halifax	151	167.4	116	137.0	27	29.9	29	33.5
Nash	316	167.8	134	164.4	49	24.1	26	31.8
Northampton	40	129.8	52	129.3	11	33.7	12	26.7
Wilson	225	156.2	112	141.0	34	22.6	44	54.9
Area L AHEC	861	162.4	552	147.6	148	26.4	145	38.3
North Carolina	27,926	148.5	6,555	142.7	4,514	23.1	1,521	33.5

Across the region, incidence (Figure 2) and mortality rates (Figure 3) for both White and African Americans are above NC rates. Understanding and eliminating the mortality gap between African American and White women deserves as attention in these counties, as it does elsewhere in the state.

Figure 2

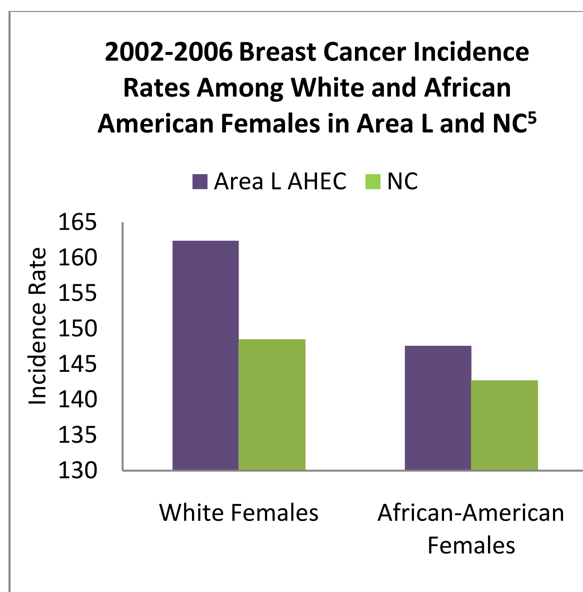
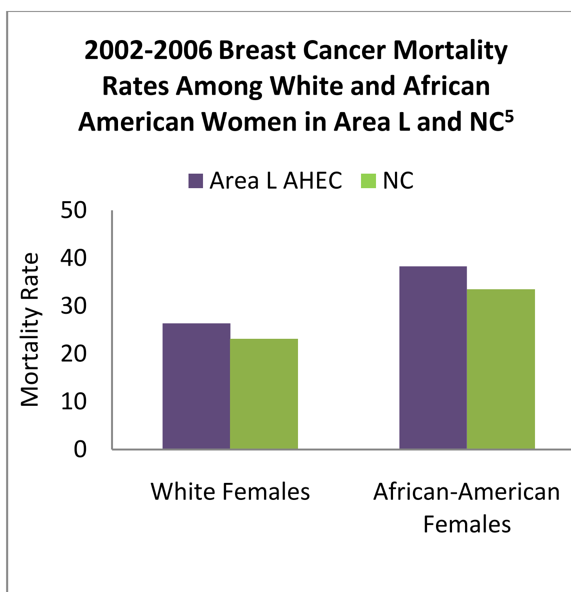


Figure 3



Examining incidence and mortality rates by age as well as by race or ethnicity may help identify populations at risk or that are most likely to benefit from public health, screening and treatment services. Tables 7 and 8 show breast cancer incidence and mortality by age for White and African American women in Area L compared to NC.

Table 7: 2002-2006 Breast cancer incidence by age and race in Area L (per 100,000 population)[4]

Age-group	North Carolina				Area L Counties			
	Whites		African Americans		Whites		African Americans	
	cases	rate	cases	rate	cases	rate	cases	rate
20-29	112	5.5	41	5.7	6	14.9	6	13.0
30-39	1,180	51.5	476	64.2	33	67.2	38	77.1
40-49	4,623	188.9	1,429	188.1	109	181.1	114	194.5
50-59	6,713	312.1	1,749	309.2	220	376.5	153	346.4
60-69	6,627	448.7	1,309	411.0	211	495.7	116	435.4
70-79	5,549	511.7	1,025	457.5	189	542.0	76	373.2
80+	3,120	411.4	524	350.1	93	386.3	49	363.3

In women younger than 40 years, the incidence rate of breast cancer is higher for African American women than for White women. This holds true statewide and in the five-county region. For women ages 50-59 and 60-69, the incidence rate is higher in Area L compared to the state. In the 70-79 year age group, breast cancer incidence continues to increase at the state level for Whites by 63 points (from 448.7 to 511.7) and African Americans by 46.5 points (from 411.0 to 457.5) and for Whites in Area L by 46.3 points (from 495.7 to 542.0); however, for African American women in Area L, breast cancer incidence decreases precipitously by 62.2 points (from 435.4 to 373.2). Incidence data are difficult to interpret. High rates could be due to more women initiating screening in response to improved health care access or increased awareness, or they could be due to greater exposure to risk factors. The low breast cancer incidence rate among African American women 70 and older could be due to decreased use of mammography screening in this age group.

Table 8: 2002-2006 Breast Cancer Mortality by Age and Race in Area L AHEC (per 100,000 population)[5]

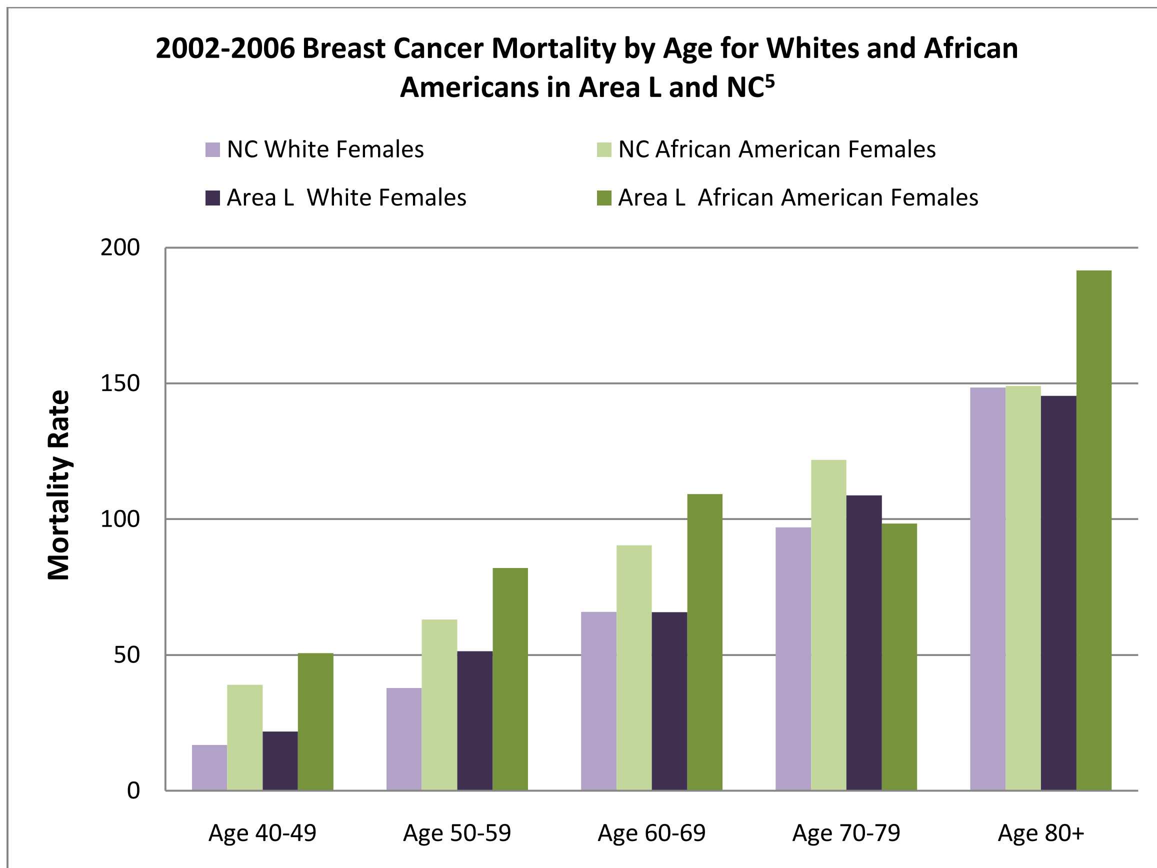
Age-Group	NORTH CAROLINA				Area L AHEC			
	Whites		African Americans		Whites		African Americans	
	cases	rate	cases	rate	cases	rate	cases	rate
20-29	2	0.1	3	0.4	0	0.0	0	0.0
30-39	120	5.4	80	11.1	4	8.4	4	8.1
40-49	415	16.8	298	39.0	13	21.8	30	50.7
50-59	822	37.8	356	63.1	30	51.4	36	82.0
60-69	970	65.9	286	90.4	28	65.8	29	109.2
70-79	1,054	97.0	273	121.8	38	108.8	20	98.4
80+	1,131	148.5	224	149.1	35	145.4	26	191.6

In all of North Carolina, the mortality gap between African American and White women is wide and fairly stable across each of the ten-year age groups between 40 and 79 years (the difference in mortality rates ranges from 22.2 to 25.3 points for each of the four age groups). By age 80, the breast cancer mortality gap has disappeared. In contrast, the breast cancer mortality gap between African American and White women who are 40 years or older and living in Area L, is much wider at every decade except for women in the 70-79 age group, and the mortality gap varies greatly across the older years (Table 9 and Figure 4).

Table 9: Difference in mortality rates between African-Americans and Whites by age

	NORTH CAROLINA			Area L AHEC		
Age-Group	White	African American	Point Difference	White	African American	Point difference
20-29	0.1	0.4	0.3	0.0	0.0	0.0
30-39	5.4	11.1	5.7	8.4	8.1	-0.3
40-49	16.8	39.0	22.2	21.8	50.7	28.9
50-59	37.8	63.1	25.3	51.4	82.0	30.6
60-69	65.9	90.4	24.5	65.8	109.2	43.4
70-79	97.0	121.8	24.8	108.8	98.4	-10.4
80+	148.5	224	75.5	145.4	191.6	46.2

Figure 4



Women living in the Area L region are less likely to have their cancer diagnosed at an early (in situ) stage. Screening promotion may help to increase the number of cases diagnosed at an earlier, more treatable stage. The proportion of diagnosed African-Americans in Area L with carcinoma in situ, at 13%, is lower than the proportion of diagnosed White females in Area L (15.8%), White females in NC (18.4%) and African-American females in NC (17.7%) (Table 10).

Table 10: 2002-2006 Stage at Diagnosis of Breast Cancer for White and African-American females in Area L AHEC and North Carolina[5]

Stage at Diagnosis*	Area L AHEC				North Carolina			
	White		African American		White		African American	
	#	%	#	%	#	%	#	%
In situ	136	15.8	72	13.0	5,137	18.4	1,160	17.7
Local	463	53.8	258	46.7	14,256	51.1	2,785	42.5
Regional	205	23.8	167	30.3	6,838	24.5	1,962	29.9
Distant	28	3.2	32	5.8	960	3.4	402	6.1
Unknown	29	3.4	23	4.2	735	2.6	246	3.8

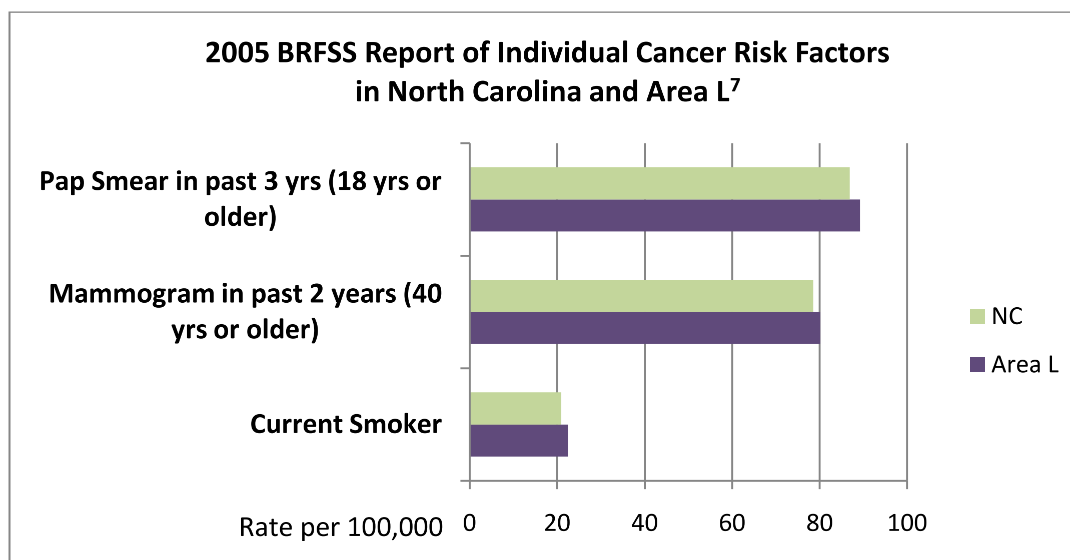
*Stage at Diagnosis Definitions[6]

- In situ – An early stage of cancer in which the tumor is confined to the organ where it first developed. The disease has not invaded other parts of the organ or spread to distant parts of the body. Most *in situ* carcinomas are highly curable.
- Local – A cancer that is confined to the organ where it started; it has not spread to other parts of the body.
- Regional – Cancer that has spread from its original site to nearby areas such as lymph nodes, but not to distant sites
- Distant – Cancer that has spread far from its original location or primary site to other organs or lymph nodes. Distant cancer is sometimes referred to as *distant metastases*
- Unknown – Breast cancer cases in NC with an unknown stage at diagnosis

III. Risk Factor Data

Data that are most readily available to describe risk factors for breast cancer mortality paint an incomplete picture. To understand the reasons and remedies for high breast cancer mortality in some populations is likely to require richer data. Tobacco use, a risk factor for many types of cancer including breast, is more prevalent in Area L counties than in the rest of the state. (Figure 5).

Figure 5



Possibly because of robust community education and outreach efforts, mammography and Pap smear screening rates are higher in Area L counties compared to all of North Carolina. Access to more detailed local data may reveal whether screening activities are reaching those women at greatest risk, such as older women. There is also potential to link administrative data from Medicare or health insurance carriers to cancer outcome data that can be provided by the North Carolina Cancer Registry. Such analyses may help us better understand whether and to what extent treatment decisions or patients' ability to adhere to treatment guidelines are associated with regional differences in cancer mortality. Local and community expertise are especially critical in identifying what additional data are needed, how to interpret those data, and designing and launching evidence-based initiatives to continue improving community health and breast cancer outcomes.

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