Buncombe County Community Health Assessment

December 3

2012

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EXECUTIVE SUMMARY

Overview of CHA Purpose and Process

Community health assessment (CHA) is the foundation for improving and promoting the health of county residents. **Community health assessment is a key step in the continuous community health improvement process**. The role of CHA is to identify factors that affect the health of a population and determine the availability of resources within the county to adequately address these factors.

In 2010, Buncombe County completed a comprehensive Community Health Assessment, resulting in the selection of six priorities by a diverse group of community stakeholders who drew from data and information gathered during the process to make their decisions. The priorities selected did not negate the importance of other areas of contribution. Yet, these priorities offered opportunities for dramatically improving health impact based on the data that was collected and analyzed. The CHA Steering Committee engaged 68 community leaders throughout Buncombe County to review the evidence, listen to community members' input, and select priorities that will help us attain our community health vision.

In 2012, Buncombe County has had the opportunity to partner across the region and with our local non-profit hospitals, (Mission Hospital, Park Ridge Health, and Care Partners) in new ways through the development of WNC Healthy Impact.

WNC Healthy Impact is a partnership between hospitals and health departments in North Carolina to improve community health. As part of a larger, and continuous, community health improvement process, these partners are collaborating to conduct community health (needs) assessments across western North Carolina. See www.WNCHealthyImpact.com for more details about the purpose and participants of this region-wide effort. The regional work of WNC Healthy Impact is supported by a steering committee, workgroups, local agency representatives, and a public health/data consulting team. In addition, for this data collection phase of our regional efforts, a survey vendor (PRC – Professional Research Consultants, Inc.) was hired to administer a region-wide telephone survey. Various partners, coalitions, and community members are also engaged at the local level.

In order to enable full participation in WNC Healthy Impact, the decision was made to transition the Buncombe County CHA timeline to match that of the region and meet the needs of local non-profit hospital partners. While this has great benefits for regional partnerships, it does mean that the 2012 CHA is taking place after only two years of community action around the previous priority areas. For this reason, the 2012 CHA has involved the examination of the 2010 priority areas and the engagement of a smaller number of community leaders rather than re-creating the extensive process that took place in 2010.

After reviewing changes in the data surrounding these priority areas, progress made in the corresponding 2010 Action Plans, and any changes in the overall landscape and potential capacity to address them, it was decided that the 2010 priority areas needed to be kept. However, a few changes were made to the combine areas and create a clearer focus of what each priority area entails. For more information on this, please see the full report, Chapter 9.

List of Health Priorities

The 2010 Community Health Assessment resulted in the following priorities:

- Improve Women's Health During Childbearing Years
- Promote Healthy Weight and Healthy Living
- Improve Children's Health Outcomes through a Focus on Family Support and Education
- Increase Readiness of all Children to Learn and Succeed in School
- Access to and Continuity of a Primary Care Home
- Access to and Continuity of a Mental Health Home

The Buncombe County 2012 Community Health Assessment Priority Areas are:

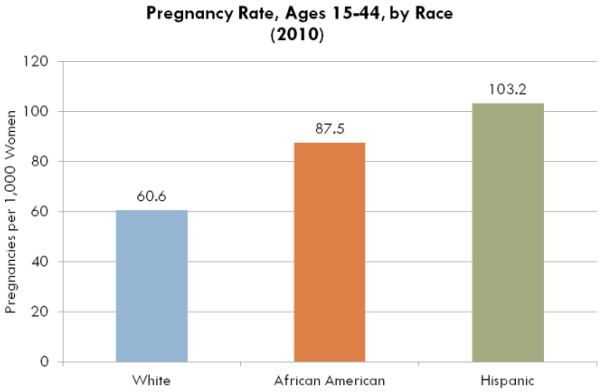
1. Women's Preconception Health
2. Healthy Weight and Healthy Living
3. Children's Health and Early Child Development
4. Access to Primary and Mental Health Care

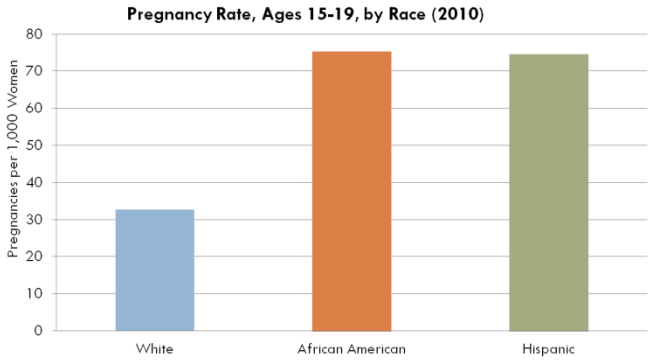
General Review of Data and Trends

The following key data and trends helped support the determination of each of the four health priorities. Note that this is only a snapshot of each area and that more detail, source information, and additional analysis can be found in the full report.

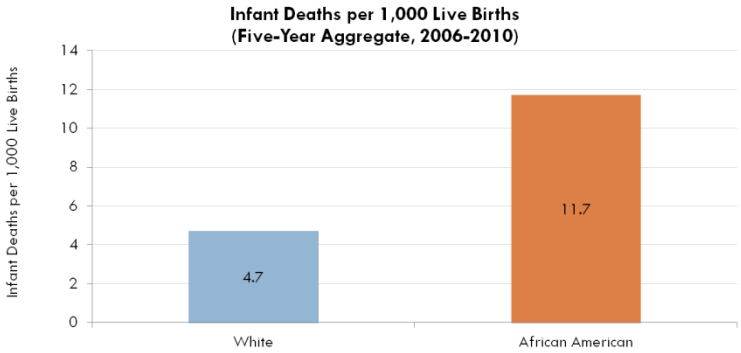
1. Improve Women's Preconception Health

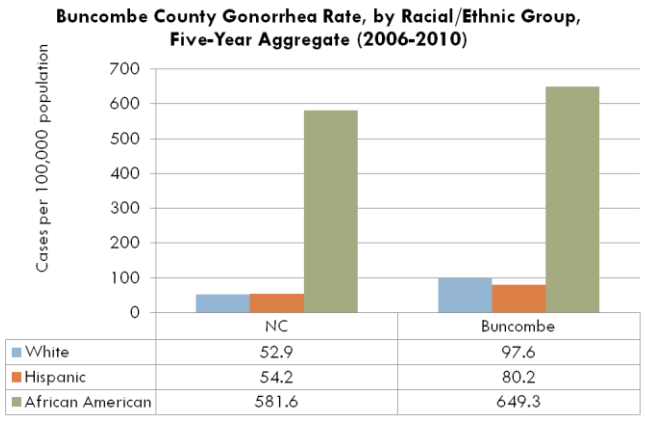
Preconception health refers to a woman's health before she becomes pregnant. Over half of infant deaths in NC can be attributed to medical issues of the mother, many of which existed before the pregnancy (NC Preconception Health Strategic Plan). African American and Hispanic women in Buncombe County have significantly higher pregnancy rates, suggesting potential target populations for preconception health efforts. The racial and ethnic gap is even greater when looking at teen pregnancies, despite the decreasing rates of teen pregnancy for the Buncombe County on average.





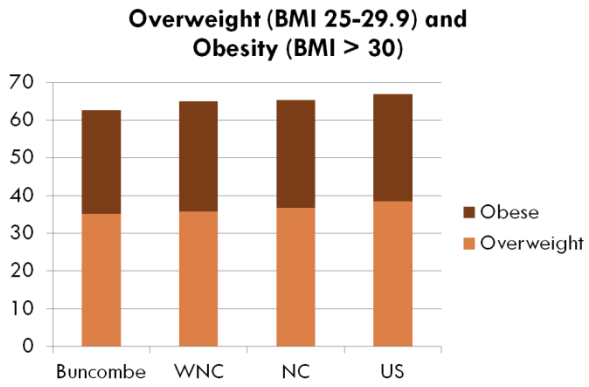
At least since 2006, Buncombe County has seen steady and significant improvements in decreasing rates of infant death and Gonorrhea. However, there is still a racial and ethnic disparity of great concern for each:



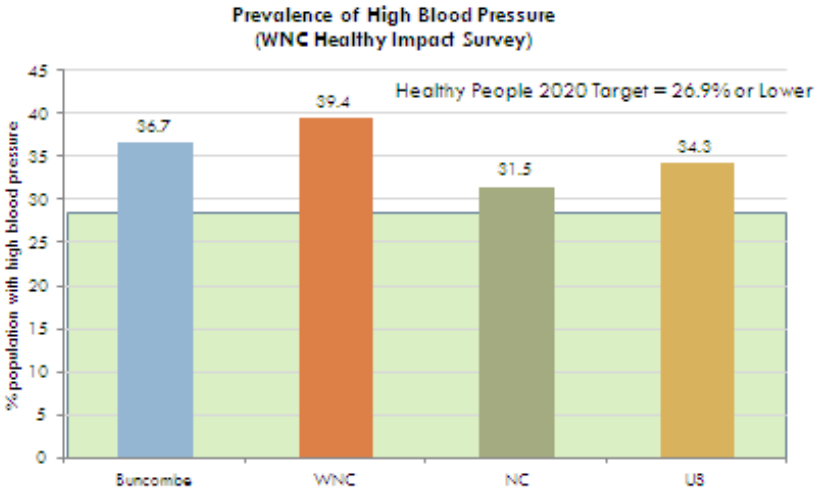


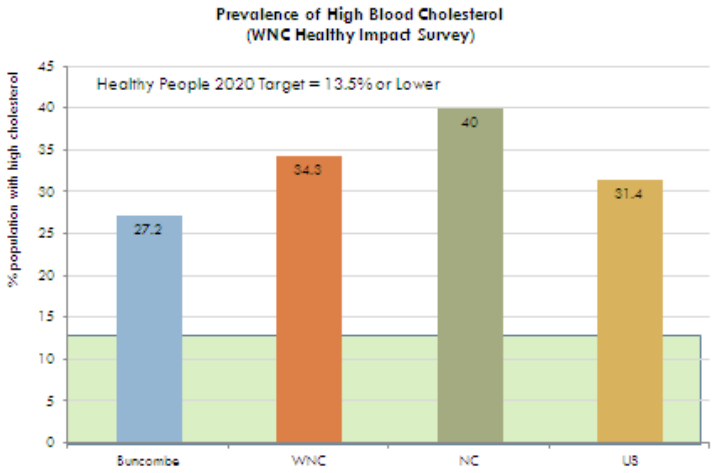
2. Promote Healthy Weights and Healthy Living

Overweight is defined as having a Body Mass Index (BMI) of 25 or more and is associated with coronary heart disease, type 2 diabetes, cancer, hypertension, stroke, liver disease, sleep apnea, respiratory problems, osteoarthritis, gynecological problems, and poor health status. While Buncombe County is less overweight than the region and the state, the majority (62.6%) of our adult population still has a BMI of greater than 25. Of those adults who are overweight, almost half have a BMI of greater than 30, pushing them into the obese category.

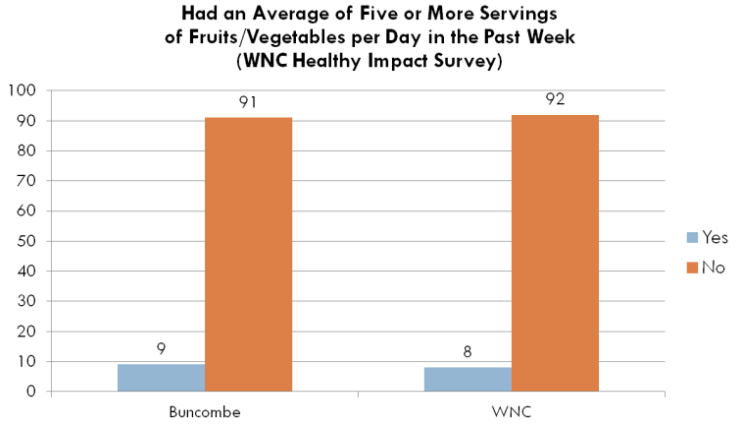


Although this does meet the Healthy People 2020 goal of less than 30.6% of adults being obese, we are still far from meeting the Healthy People 2020 goals for both elevated cholesterol and high blood pressure.





And not even 1 in 10 Buncombe County residents are eating the recommended minimum fruit and vegetable servings per day



The good news is that Buncombe County residents want to see their County become a healthier place to live. More than 9 out of 10 residents in our survey said they thought it was important that our communities make the following changes:

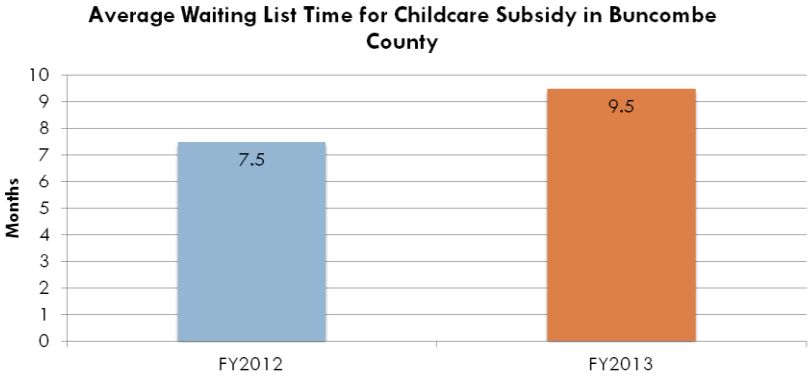
- Make it easier for people to access farmer's markets, including mobile farmer's markets and tailgate markets
- Increase the public's access to physical activity spaces at local organizations during off-times
- Improve access to trails, parks, and greenways

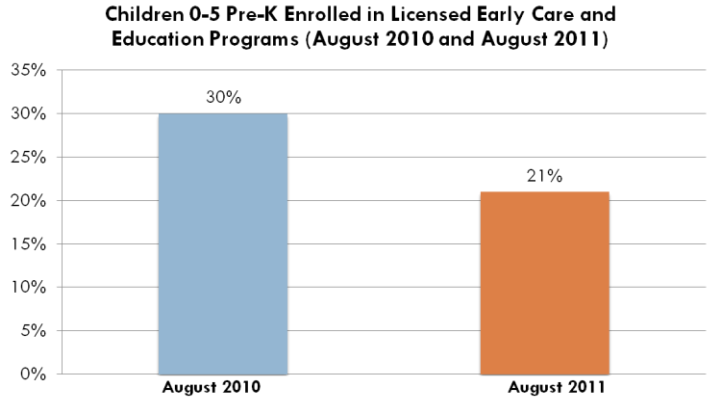
3. Improve Children's Health and Early Child Development

Difficult economic times have resulted in unfavorable circumstances for Buncombe County families striving for their children's health and school readiness.

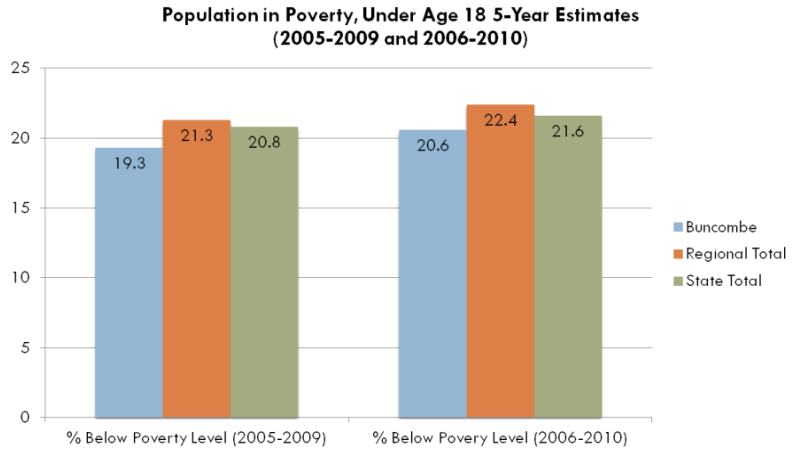
The average wait time for families seeking childcare subsidy in Buncombe County has increased by two months in the past year. As of September 2012, Buncombe County had 1,285 children on the waiting list for Child Care Subsidy and served 1,969 children that month.

This has contributed to a decrease in Buncombe County children being able to enroll in licensed early care and education programs, which dropped 30% in the past year. That decrease represents 1,268 fewer children in licensed early care and education programs.





At the same time, child poverty rates have risen. While negative health effects resulting from poverty are present at all ages, children in poverty face greater risks. Children face greater morbidity and mortality due to greater risk of accidental injury, lack of health care access, and poor educational achievement. Early (or prenatal) poverty may result in development damage. Children's age-five IQ correlates more with family income than with maternal education, ethnicity, and single female-headed household (County Health Rankings and Roadmaps, 2012).

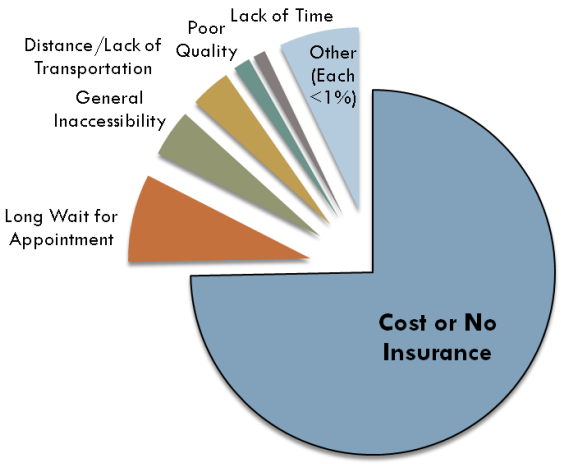


4. Increase Access to Primary and Mental Health Care

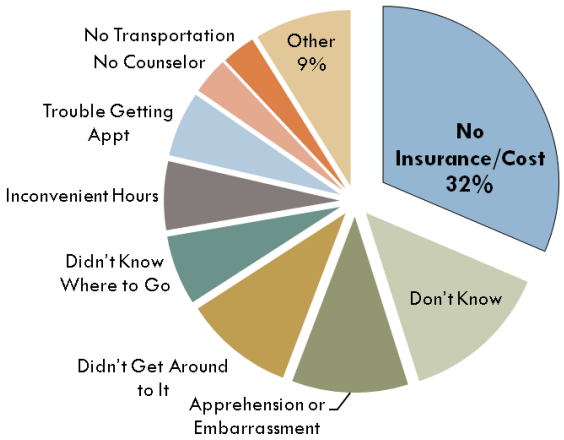
The WNC Healthy Impact survey showed mixed results for access to care in Buncombe County.

Buncombe County residents were more likely than WNC residents on average to agree that "considering cost, quality, number of options and availability, there is good health care in my county" when asked on the WNC Healthy Impact survey (72% in Buncombe County 67% across WNC).

Primary Reason for Inability to Get Medical Care (WNC Healthy Impact)



Primary Reason for Inability to Access Mental Health Services (WNC Healthy Impact Survey)



However, Buncombe County residents on average were also slightly more likely to report that there was a time in the past year that they were unable to get needed medical care (12% in Buncombe County and 11% across WNC).

Three quarters of respondents who were unable to get needed medical care cited cost or lack of insurance as the primary reason. Cost or lack of insurance was also the most common reason cited for those unable to get mental health services.

Additionally, 15% of Buncombe County residents reported that they were unable to get a desired prescription at some point in the past year.

Next Steps

Data collection and prioritization are just the beginning steps in understanding and addressing priority health needs in a community. National public health organizations such as NACCHO and the CDC are confirming our belief that a Community Health Assessment should be part of a broader community health improvement planning process. A community health improvement planning process uses CHA data to develop and implement strategies for action and establishes accountability to ensure measurable health improvement.

Buncombe County, along with our partners in WNC Healthy Impact, will move forward with information in this Community Health Assessment to collaborative action planning and determining how we can most effectively impact health in our community. We will collaborate with our hospital and community partners on collaborative action planning which results in a Community Health Improvement Plan (CHIP) that we plan to post on our local and WNC Healthy Impact websites. This planning process will begin in early in 2013.

A CHIP is used in collaboration with community partners to coordinate action and target resources. The plan looks beyond the performance of an individual organization serving a specific segment of a community to the way in which the activities of many organizations contribute to community health improvement (NACCHO, 2012).

The Buncombe County CHIP will likely contain the following components, based on guidance from the National Public Health Accreditation Board, and supported by our involvement in WNC Healthy Impact:

- Goals, objectives, strategies, and related performance measures for determined priorities in the short-term and intermediate term.
- Realistic timelines for achieving goals and objectives.
- Designation of lead roles in CHIP implementation for partners, including Buncombe County Department of Health's role.
- Formal presentation of the role of relevant partners in implementing the plan and a demonstration of the organization's commitment to these roles.
- An emphasis on evidence-based strategies.
- A general plan for sustaining action (NACCHO, 2012)

Once we have worked with a wide range of community partners to develop the Community Health Improvement Plan, it will help inform the state-required Action Plans that will be submitted by the Buncombe County Department of Public Health to the NC Division of Public Health in June 2013, and local non-profit hospital facility-specific implementation strategies. The CHIP will also be widely disseminated electronically to partner organizations and used as a community roadmap to monitor and evaluate our collective efforts.

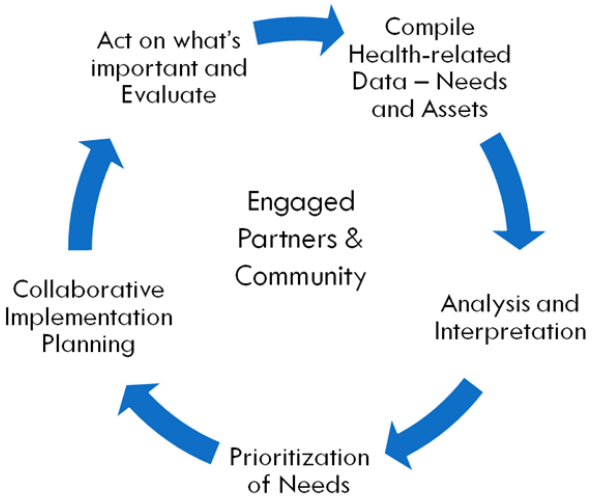
Dissemination of this CHA report and the CHIP will also include creating a simplified, plain-language summary of CHA findings and making all reports publicly available on the Buncombe County Department of Health website, the WNC Healthy Impact website and local libraries. A presentation will be made to the Buncombe County Health and Human Services Integrated Board and they will receive copies.

Moving forward, the CHIP report will be updated to provide the framework for the annual State of the County's Health (SOTCH) report. This SOTCH report will be submitted as required by the state and made publicly available in December, 2013.

CHAPTER 1 – INTRODUCTION

Purpose of Community Health Assessment (CHA)

Community health assessment (CHA) is the foundation for improving and promoting the health of county residents. **Community-health assessment is a key step in the continuous community health improvement process**. The role of CHA is to identify factors that affect the health of a population and determine the availability of resources within the county to adequately address these factors.



A community health assessment (CHA), which refers both to a process and a document, investigates and describes the current health status of the community, what has changed since a recent past assessment, and what still needs to change to improve the health of the community. The *process* involves the collection and analysis of a large range of secondary data, including demographic, socioeconomic and health statistics, environmental data, as well as primary data such as personal self-reports and public opinion collected by survey, listening sessions, or other methods. The *document* is a summary of all the available evidence and serves as a resource until the next assessment. Together they provide a basis for prioritizing the community's health needs, and for planning to meet those needs.

Because it is good evidence-based public health practice, local health departments (LHDs) across North Carolina (NC) are required to conduct a comprehensive community health assessment at least every four years. It is required of public health departments in the consolidated agreement between the NC Division of Public Health and local public health departments. Furthermore, it is required for local public health department accreditation through the NC Local Health Department Accreditation Board (G.S. § 130A-34.1). As part of the Affordable Care Act, non-profit hospitals are also now required to conduct a community health (needs) assessment at least every three years.

The local health department usually conducts the CHA as part (and usually the leader) of a team composed of representatives from a broad range of health and human service and other organizations within the community. Community partners and residents are part this process as well.

Definition of Community

Community is defined as "county" for the purposes of the North Carolina Community Health Assessment Process. In western North Carolina, hospitals define their community as one or more counties for this process. *[Insert]* county is included in *[insert hospital(s) name's]* community for the purposes of community health improvement and investment, and as such *[insert hospital name's]* was a key partner in this local level assessment process.

WNC Healthy Impact

WNC Healthy Impact is a partnership between hospitals and health departments in North Carolina to improve community health. As part of a larger, and continuous, community health improvement process, these partners are collaborating to conduct community health (needs) assessments across western North Carolina. See www.WNCHealthyImpact.com for more details about the purpose and participants of this region-wide effort. The regional work of WNC Healthy Impact is supported by a steering committee, workgroups, local agency representatives, and a public health/data consulting team. In addition, for this data collection phase of our regional efforts, a survey vendor (PRC – Professional Research Consultants, Inc.) was hired to administer a region-wide telephone survey. Various partners, coalitions, and community members are also engaged at the local level. The template for this CHA report, a core set of secondary and survey (primary) data, and analysis support, were made available through this collaborative regional effort.

Data Collection Process

Core Dataset Collection

As part of WNC Healthy Impact, a regional data workgroup of public health and hospital representatives and regional partners, with support from the consulting team, made recommendations to the steering committee on the data approach and content used to help inform regional data collection. The core regional dataset was informed by stakeholder data needs, guidelines, and requirements. From data collected as part of this core dataset, the consulting team compiled secondary (existing) data and new survey findings for each county in the 16-county region. This assessment includes data integrated from the secondary data efforts as well as the community health survey for our county. See Appendix A for details on the data collection methodology.

Criteria for selecting "highlights"

The body of assessment data supporting this document is wide-ranging and complex. In order to develop a summary of major findings, the consultant team applied three key criteria to nominate data for inclusion in this report. The data described in this report was selected because:

- County statistics deviate in significant ways from WNC regional data or NC statistics;
- County trend data show significant change—positive or negative—over time; or
- County data demonstrate noteworthy age, gender, or racial disparities.

Supplementary to this report is the *WNC Healthy Impact Secondary Data Workbook* (*Data Workbook*) that contains complete county-level data as well as the state and regional averages and totals described here. Data contained in the *Data Workbook* is thoroughly referenced as to source. Readers should consult the *Data Workbook* to review all of the secondary data comprising the regional summaries.

Unless specifically noted otherwise, all tables, graphs and figures presented in this report were derived directly from spreadsheets in the *Data Workbook* or survey data reported by the survey vendor (PRC).

Additional Local Data

- Listening Sessions and Surveys: In 2011, Buncombe County Health & Human Services hired two outside consulting groups (Sparrow Research Group and Searchlight Consulting) to engage community residents in a Community Listening Project. The collaborative team hired seven Community Partners to serve as community liaisons, using their expertise about their local communities to help shape and facilitate the primary data collection process. Three primary data collection methods were used: 1) six 90-minute community listening sessions, with 45 participants total, conducted throughout Buncombe County, 2) 297 brief community resident surveys collected by CPs, and 3) four telephone interviews with service providers, conducted by Mars Hill students. The purpose of the data collection was to identify: community strengths, existing services and support systems, information sources, community needs and gaps in services, and suggestions for strengthening the county-wide system of help and support. Key insights and recommendations by topic area are outlined in Chapter 7 and Appendix D.

- Health Resource Data: Information for our Health Resource Inventory and 2-1-1 caller statistics was provided by 2-1-1 of Western North Carolina and lists health providers in each county, pulled from the 2-1-1 database as of June, 2012, as well as data on most common requests and unmet needs of callers to 2-1-1. See Chapter 7 and Appendix C for more details.

Definitions & Data Interpretation Guidance

Reports of this type customarily employ a range of technical terms, some of which may be unfamiliar to many readers. This report defines technical terms within the section where each term is first encountered.

Health data, which composes a large proportion of the information included in this report, employs a series of very specific terms which are important to interpreting the significance of the data. While these technical health data terms are defined in the report at the appropriate

time, there are some data caveats that should be applied from the onset. See Appendix A for additional details and definitions.

Community Engagement

In the random-sample survey that was administered in our county as part of this community health assessment, 300 community members completed a questionnaire regarding their health status, health behaviors, interactions with clinical care services, support for certain health-related policies, and factors that impact their quality of life. In addition, in our county, community members and partners were involved in the "Tell Us What You Think!" community listening project, detailed in Chapter 7 and Appendix D.

Priority Setting

Details on our county's priority setting process and outcomes are included in Chapter 9 of this document.

CHAPTER 2 – DEMOGRAPHIC AND SOCIOECONOMIC PARAMETERS

Location and Geography

Today, Buncombe County consists of 646 square miles lying on the western slopes of the eastern continental divide. It is bounded on the north by Madison and Yancey counties, on the east by McDowell and Rutherford, on the west by Madison again and Haywood, and finally on the south by Henderson county. It is roughly bisected by the French Broad River, which has the distinction of being the third oldest river in the world as well as one of the few rivers to flow from south to north. At the county's center lies Asheville.

Source: http://www.buncombecounty.org/About-BC/AboutBC/SynopsisII.aspx

History

Buncombe County has changed in form since its inception, but it was always within the folds of the Appalachian Mountains, judged to be the oldest in the world. Named after a Revolutionary War figure, Colonel Edward Buncombe, the county was formed from parts of Burke and Rutherford counties in 1791.

Buncombe County was initially much larger than it is today. It once incorporated all of Rutherford County west of the mountains and most of the western part of Burke County while, to the south, it reached to the South Carolina border and then ran westward all the way to the Tennessee line. It has gone through at least ten distinct permutations from its creation until present day. Originally Asheville was named Morristown and known in Thomas Wolfe's novel Look Homeward Angel as Altamont.

Geologically, the area is rich in a variety of minerals and other natural resources as a result in its early era of considerable volcanic activity.

(Courtesy of the Mountain Area Information Network: www.main.nc.us)

Source: http://www.buncombecounty.org/About-BC/AboutBC/SynopsisII.aspx

Population

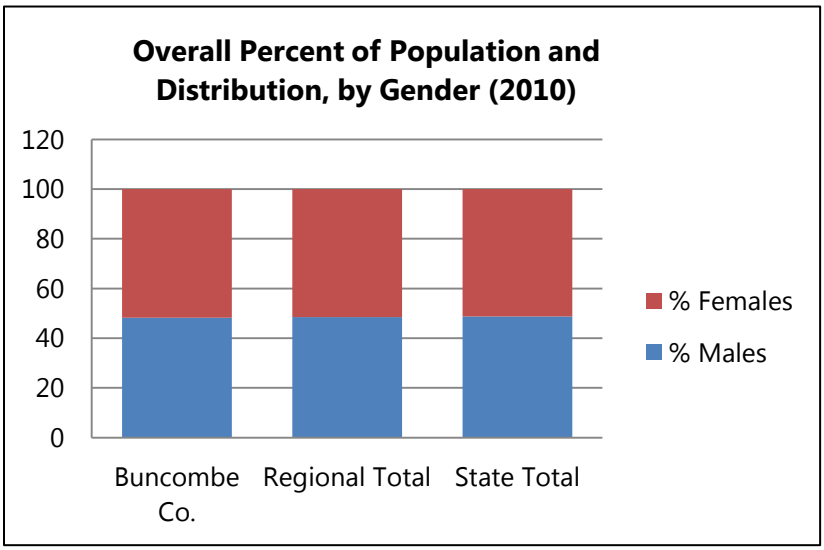
Understanding the growth patterns and age, gender and racial/ethnic distribution of the population in Buncombe County will be keys in planning the allocation of health care resources for the county in both the near and long term.

Current Population (Stratified by Gender, Age, and Race/Ethnicity)

According to data from the 2010 US Census, the total population of Buncombe County is 238,318. In Buncombe County, as region-wide and statewide, there is a slightly higher proportion of females than males (51.8% vs. 48.2%).

Table 1. Overall Population and Distribution, by Gender (2010)

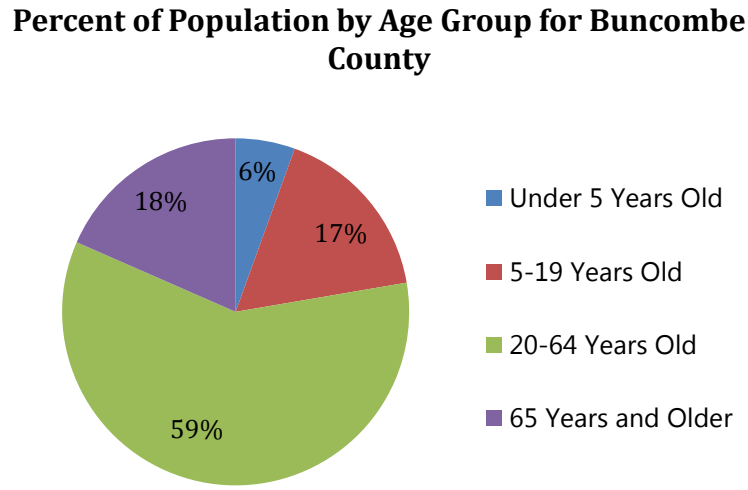
Geography	Total Population (2010)	# Males	% Males	# Females	% Females
Buncombe County	238,318	114,770	48.2	123,548	51.8
Regional Total	759,727	368,826	48.5	390,901	51.5
State Total	9,535,483	4,645,492	48.7	4,889,991	51.3



In Buncombe County 16.0% of the population is in the 65-and-older age group, compared to 19.0% region-wide and 12.9% statewide (Table 2). The median age in Buncombe County is 40.6, which is younger than the regional median age of 44.7 years, but older than the state median age of 37.4 years.

Table 2. Median Age and Population Distribution, by Age Group (2010)

Geography	Median Age	# Under 5 Years Old	% Under 5 Years Old	# 5-19 Years Old	% 5-19 Years Old	# 20 - 64 Years Old	% 20 - 64 Years Old	# 65 Years and Older	% 65 Years and Older
Buncombe County	40.6	13,475	5.7	41,153	17.3	145,594	61.1	38,096	16.0
Regional Total	44.7	40,927	5.4	132,291	17.4	441,901	58.2	144,608	19.0
State Total	37.4	632,040	6.6	1,926,640	20.2	5,742,724	60.2	1,234,079	12.9

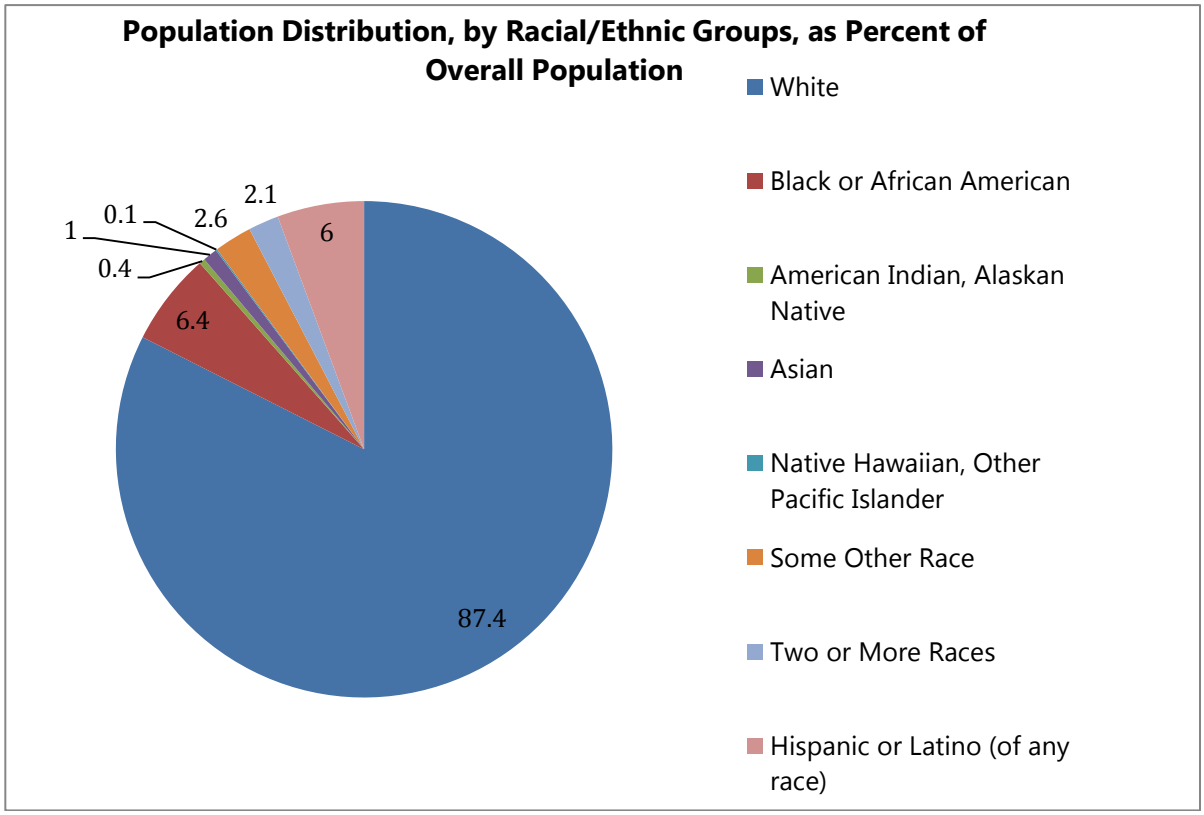


In terms of racial and ethnic diversity, Buncombe County is more diverse than WNC but less diverse than NC as a whole. In Buncombe County the population is 87.4% white/Caucasian and 12.6% non-white. Region-wide, the population is 89.3% white/Caucasian and 11.7% non-white. Statewide, the comparable figures are 68.5% white and 31.5% non-white (Table 3). The proportion of the population that self-identifies as Hispanic or Latino of any race is 6.0% in Buncombe County, 5.4% region-wide, and 8.4% statewide (Table 3). The predominant minority in Buncombe County is African American (6.4%).

The racial and ethnic diversity within the 16 counties that compose the region is quite varied, and readers should consult the *Data Workbook* to understand those differences.

Table 3. Population Distribution, by Racial/Ethnic Groups, as Percent of Overall Population (2010)

Geography	White	Black or African American	American Indian, Alaskan Native	Asian	Native Hawaiian, Other Pacific Islander	Some Other Race	Two or More Races	Hispanic or Latino (of any race)
Buncombe County	87.4	6.4	0.4	1.0	0.1	2.6	2.1	6.0
Regional Total	89.3	4.2	1.5	0.7	0.1	2.5	1.8	5.4
State Total	68.5	21.5	1.3	2.2	0.1	4.3	2.2	8.4

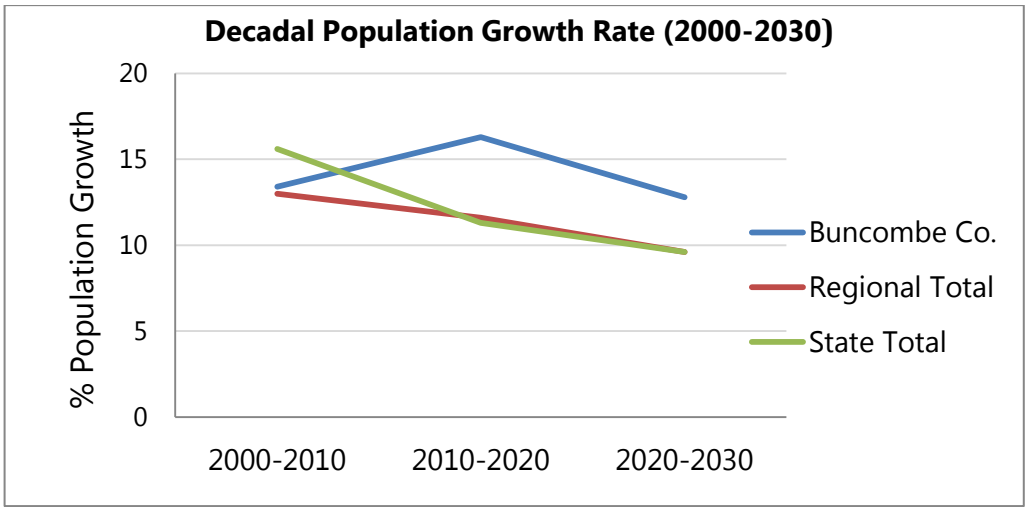


Population Growth Trend

Between the 2000 and 2010 US Censuses the population of Buncombe County grew by 13.4% and the population of WNC grew by 13.0% (Table 4). The rate of growth in the county is projected to increase over the next 10 years, to 16.3% before slowing to 12.8% in the decade following that. These future county decadal growth rates are much larger than the figures projected for WNC and for NC as a whole over the same period.

Table 4. Decadal Population Growth Rate (2000 to 2030)

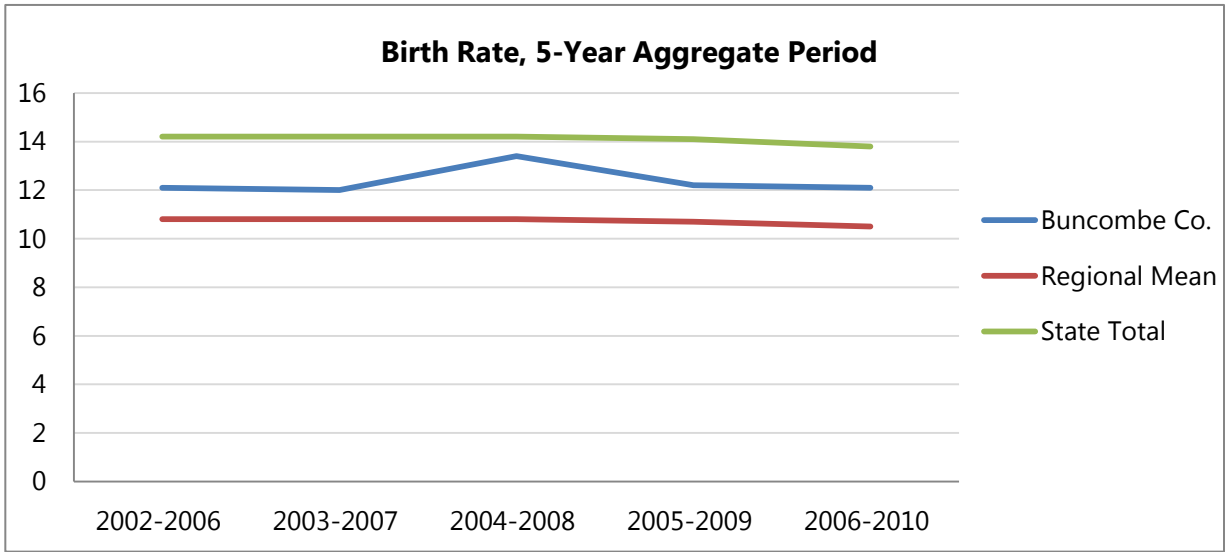
Geography	% Total Population Growth			
	2000 to 2010	2010 to 2020	2020 to 2030	2000 to 2030
Buncombe County	13.4	16.3	12.8	51.6
Regional Total	13.0	11.6	9.6	38.2
State Total	15.6	11.3	9.6	44.5



The growth rate of a population is a function of emigration and death rates on the negative side, and immigration and birth rates on the positive side. As illustrated by the data in Table 5, the birth rate in Buncombe County, higher than the comparable mean WNC rate but lower than the and NC rate to begin with, remained steady at around 12% every period between 2002-2006 and 2006-2010, except 2004-2008 (Table 5). Region-wide the birth rate was stable at around 10.8 for several years before falling recently to 10.5. Statewide, the birth rate, stable for several years around 145.2, fell recently to 13.8.

Table 5. Birth Rate, Five 5-Year Aggregate Period (2002-2006 through 2006-2010)

Geography	2002-2006	2003-2007	2004-2008	2005-2009	2006-2010
Buncombe County	12.1	12.0	13.4	12.2	12.1
Regional Arithmetic Mean	10.8	10.8	10.8	10.7	10.5
State Total	14.2	14.2	14.2	14.1	13.8

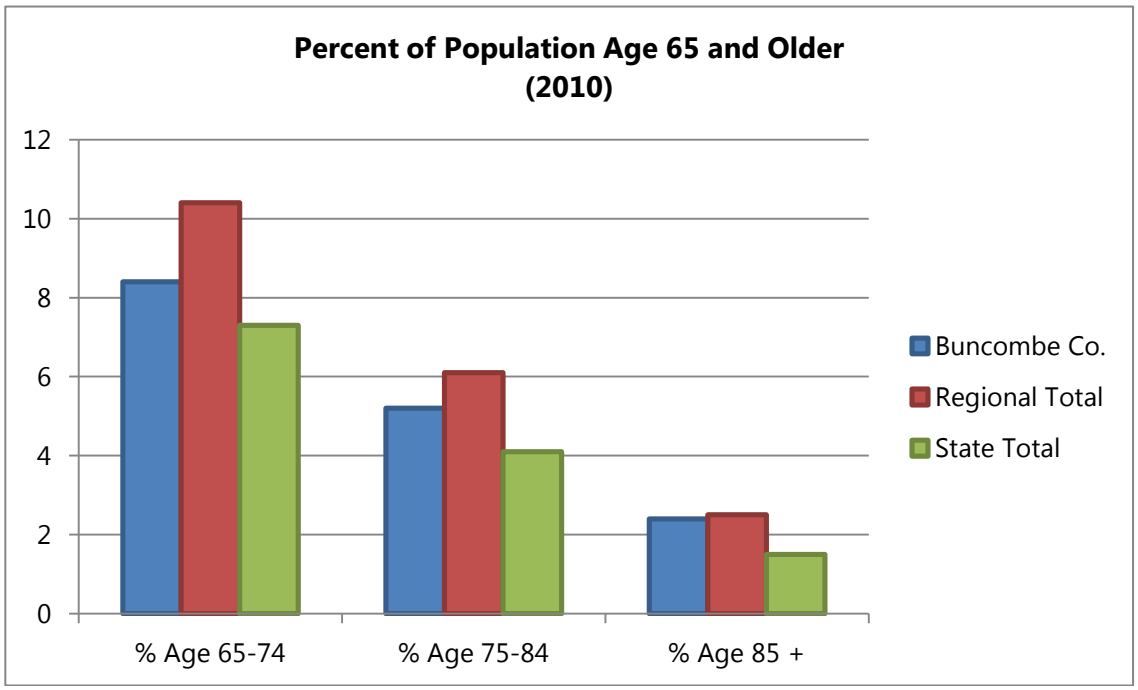


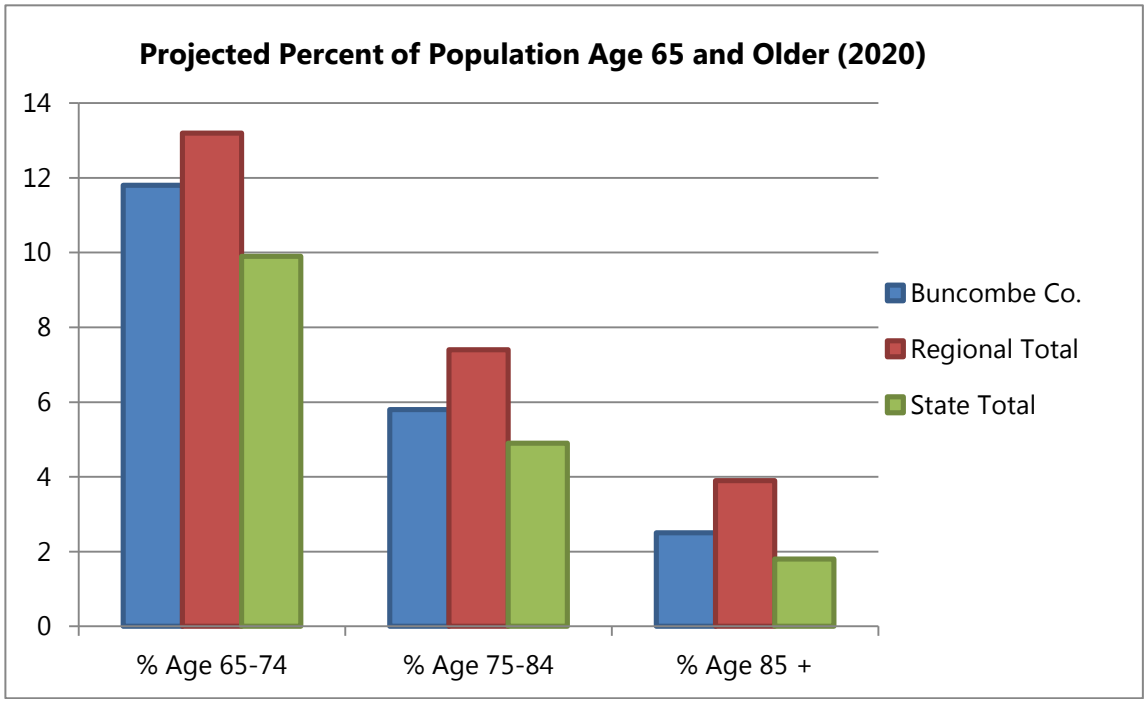
Older Adult Population Growth Trend

As noted previously, the age 65-and-older segment of the population in Buncombe County represents a smaller proportion of the overall population than in WNC, but a larger proportion than in the state as a whole. In terms of future health resource planning, it will be important to understand how this segment of the population, a group that utilizes health care services at a higher rate than other age groups, is going to change in the coming years. Table 6 presents the decadal growth trend for the age 65-and-older population, further stratified into smaller age groups, for the decades from 2010 through 2030. These data illustrate how the population age 65-and-older in the county is going to increase over the coming two decades. Calculated from the figures in Table 6, the percent increase anticipated for each age group in Buncombe County between 2010 and 2030 is 39.3% for the 65-74 age group, 80.6% for the 75-84 age group, and 12.5% for the 85+ age group. In WNC as a whole, the 65-74 age group is projected to grow by 24.0%, the 75-84 age group by 52.5%, and the 85+ age group by 40.0% over the same period of time.

Table 6. Population Age 65 and Older (2010 through 2030)

Geography	2010 Census Data				2020 (Projected)				2030 (Projected)			
	Total % Age 65 and Older	*% Age 65-74**	*% Age 75-84*	*% Age 85+*	% Age 65 and Older	% Age 65-74	% Age 75-84	% Age 85+	% Age 65 and Older	% Age 65-74	% Age 75-84	% Age 85+ *
Buncombe County	16.0	8.4	5.2	2.4	20.1	11.8	5.8	2.5	22.4	11.7	8.0	2.7
Regional Total	19.0	10.4	6.1	2.5	23.5	13.2	7.4	2.9	25.7	12.9	9.3	3.5
State Total	12.9	7.3	4.1	1.5	16.6	9.9	4.9	1.8	19.3	10.6	61.8	2.2





Composition of Families with Children

Data in Table 7 illustrates that the percentage of households with children headed by a married couple is slightly larger in Buncombe County than in WNC (17.6% vs. 17.2%) but smaller than the comparable figure for NC as a whole (17.6% vs. 20.1%).

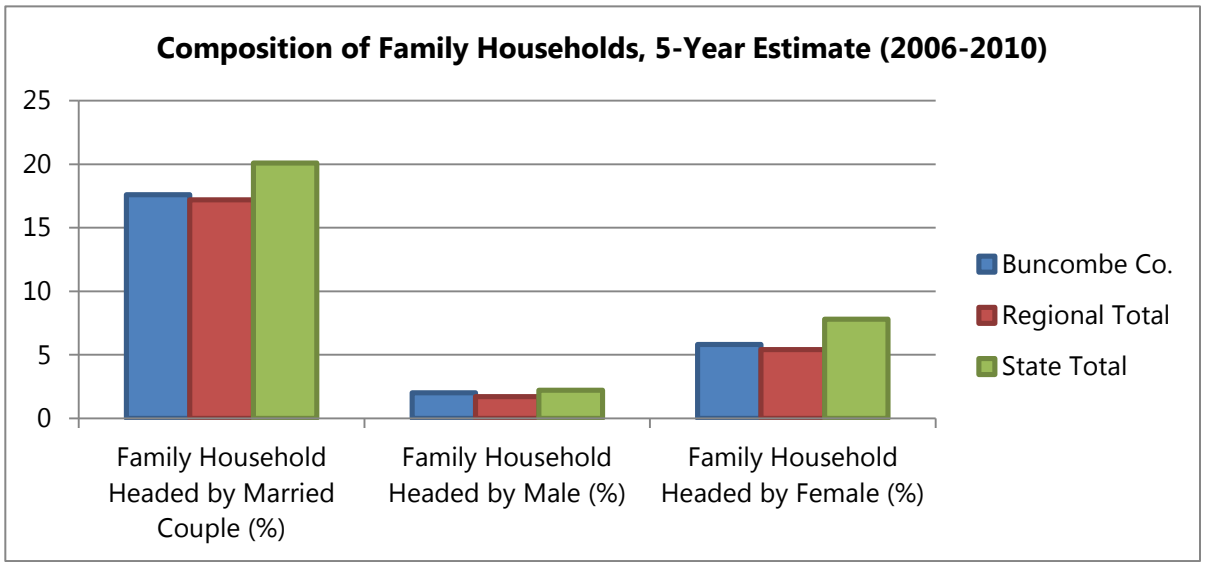
Table 7. Composition of Family Households, 5-Year Estimate (2006-2010)

Geography	Family Composition						
	# Total Households*	Family Household** Headed by Married Couple (with children under 18 years)		Family Household Headed by Male (with children under 18 years)		Family Household Headed by Female (with children under 18 years)	
		Est. #	%	Est. #	%	Est. #	%
Buncombe County	99,309	17,429	17.6	1,959	2.0	5,762	5.8
Regional Total	318,280	54,822	17.2	5,322	1.7	17,134	5.4
State Total	3,626,179	729,708	20.1	78,051	2.2	282,131	7.8

* A household includes all the people who occupy a housing unit. The occupants may be a single family, one person living alone, two or more families living together, or any other group of related or unrelated people who share living arrangements.

** A family consists of a householder and one or more other people living in the same household who are related to the householder by birth, marriage, or adoption. All people in a household who are related to the householder are regarded as members of his or her family. A family household may contain people not related to the householder, but those people are not included as part of the householder's family in tabulations.

*** Family composition percentages are based on total number of households. Numerator is number of family households (headed by male, female or married couple) with children under 18 years; denominator is total number of households.

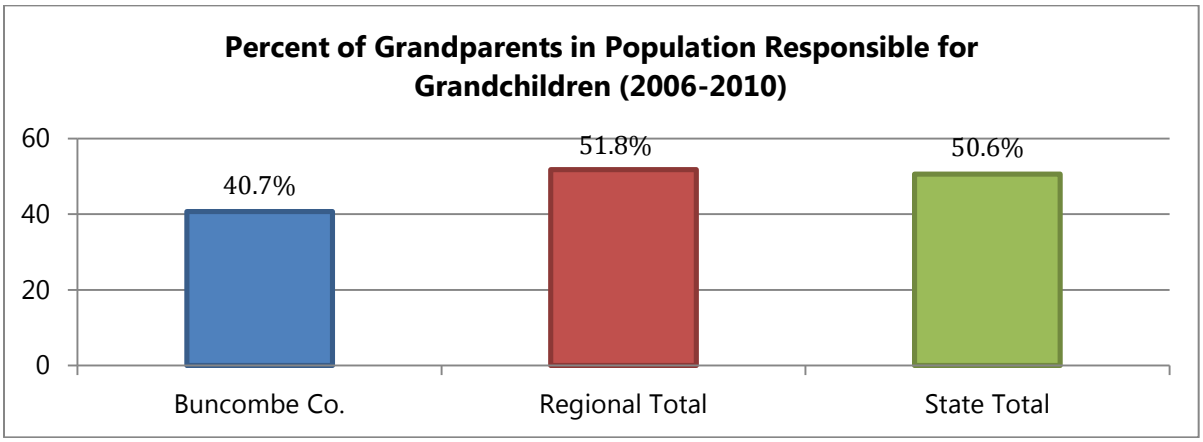


In Buncombe County, 40.7% of grandparents living with their minor grandchildren also are the party responsible for their grandchildren's care. In WNC as in NC as a whole, the comparable figure is about 51% (Table 8).

Table 8. Grandparents Responsible for Grandchildren, 5-Year Estimate (2006-2010)

Geography	Family Composition		
	# Grandparents Living with Own Grandchildren (<18 Years)*	Grandparent Responsible for Grandchildren (under 18 years)	
		Est. #	%
Buncombe County	3,998	1,627	40.7
Regional Total	13,470	6,971	51.8
State Total	187,626	95,027	50.6

* Grandparents responsible for grandchildren - data on grandparents as caregivers were derived from American Community Survey questions. Data were collected on whether a grandchild lives with a grandparent in the household, whether the grandparent has responsibility for the basic needs of the grandchild, and the duration of that responsibility. Responsibility of basic needs determines if the grandparent is financially responsible for food, shelter, clothing, day care, etc., for any or all grandchildren living in the household. Percent is derived with the number of grandparents responsible for grandchildren (under 18 years) as the numerator and number of grandparents living with own grandchildren (under 18 years) as the denominator.

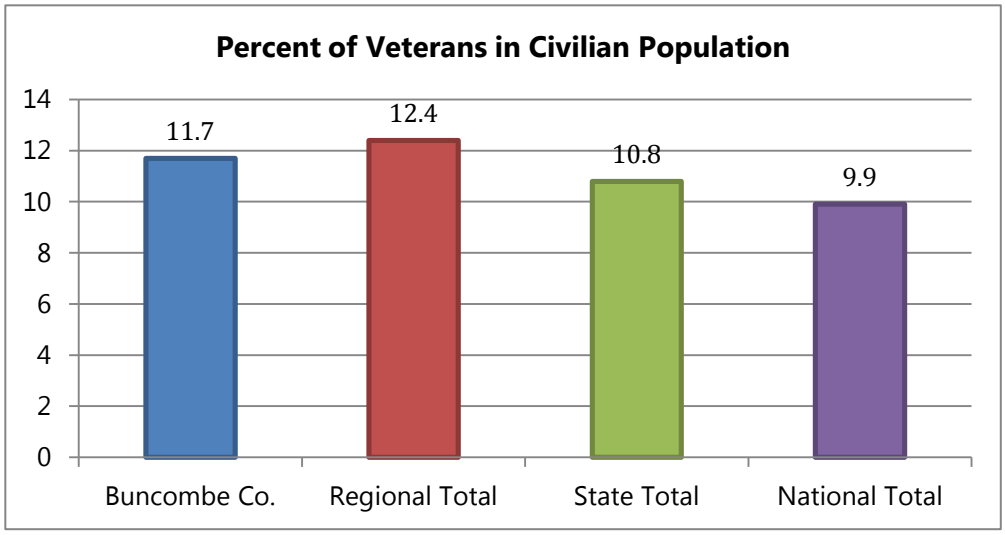


Military Veteran Population

Military veterans compose a higher proportion of the total civilian population in WNC than in either Buncombe County, NC or the US as a whole. Calculating from figures in Table 9, veterans make up 11.7% of the civilian population in Buncombe County, compared to a mean 12.4% in the WNC region, 10.8% statewide, and 9.9% nationally. In Buncombe County, approximately 42% of the veteran population is 65 years of age or older; the comparable proportions are 49% for the WNC mean, 36% for NC statewide, and 40% nationwide.

Table 9. Population of Military Veterans, 5-Year Estimate (2006-2010)

Geography	Civilian Population 18 years and over			% Veterans by Age				
	Total	Veterans	Nonveterans	18 to 34 years	35 to 54 years	55 to 64 years	65 to 74 years	75 years and over
Buncombe County	21,928	2,951	18,977	4.4	13.9	34.9	23.5	23.4
Regional Total	593,603	73,783	519,820	n/a	n/a	n/a	n/a	n/a
Regional Arithmetic Mean	n/a	n/a	n/a	3.6	19.3	28.1	24.1	24.9
State Total	6,947,547	747,052	6,200,495	8.7	30.0	25.7	17.9	17.8
National Total	228,808,831	22,652,496	206,156,335	7.8	26.3	25.4	19.0	21.4



Education

It is helpful to understand the level of education of the general population, and with what frequency current students stay in school and eventually graduate.

Why is this Important?

A positive relationship exists between higher levels of education and better health. Higher educational levels often result in more opportunities for higher-paid employment and for jobs that offer health insurance. When economic times get tough, it is the workers with the lowest levels of education who generally have the most difficulty securing and keeping employment. The financial security that often comes with higher education can expand the resources needed to make healthy choices. (County Health Rankings and Roadmaps)

Educational Attainment

Table 10 provides data on the proportion of the population age 25 and older with one of three levels of educational attainment: high school or equivalent, some college, and a bachelor's degree or higher. In these terms, in 2006-2010, Buncombe County had a 17% lower proportion than WNC as a whole of residents age 25 or older possessing a high school diploma or its equivalent (26.7% vs. 32.2%), and an approximately 5% lower proportion than NC as a whole (26.7% vs. 28.2%). On the other hand, the overall proportion of the Buncombe County population with *more* than a high school diploma or equivalency is larger than for WNC or NC as a whole. The county has approximately the same proportion of persons age 25 and older with some college as the region and the state. At the bachelor's and greater level, however, the proportional attainment in the county (31.2%) is 54% larger than the comparable mean regional figure (20.2%) and 20% larger than the statewide figure (26.1%).

Table 10. Educational Attainment of Population Age 25 and Older, Two 5-Year Estimates (2005-2009 and 2006-2010)

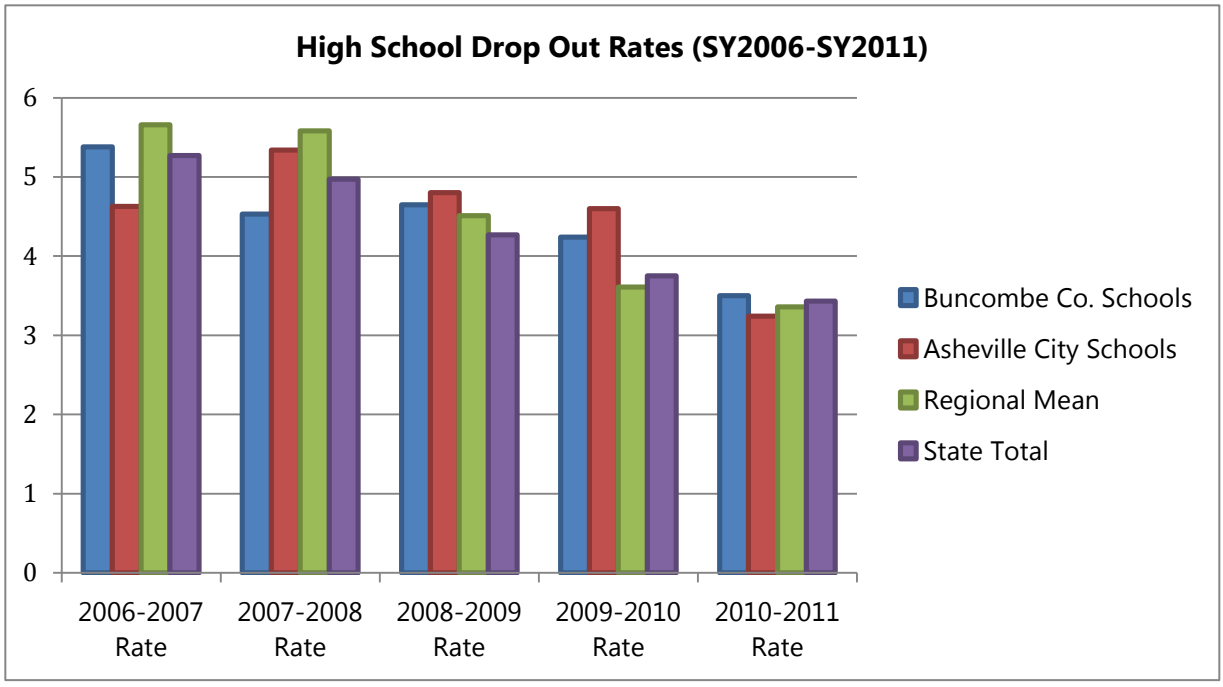
Geography	2005-2009				2006-2010			
	Total Population Age 25 Years and Older	% High School Graduation Rate (Includes equivalency)	% Some College	% Bachelor's Degree or Higher	Total Population Age 25 Years and Older	% High School Graduation Rate (Includes equivalency)	% Some College	% Bachelor's Degree or Higher
Buncombe County	159,523	26.6	21.0	30.6	164,764	26.7	20.9	31.2
Regional Total	511,076	n/a	n/a	n/a	532,838	n/a	n/a	n/a
Regional Arithmetic Mean	31,942	32.2	19.6	19.9	33,302	32.2	20.5	20.2
State Total	5,940,248	28.6	20.4	25.8	6,121,611	28.2	20.9	26.1

Drop-Out Rate Trend

There are two school districts in Buncombe County: Buncombe County Schools and Asheville City Schools. There are 17 school districts in the WNC region, the two in Buncombe County and 15 others. Table 11 displays the high school drop-out rates for the two systems in Buncombe County as well as a mean drop-out rate for the WNC region and an average rate for NC. The drop-out rate fell each school year from 2008-2009 through 2010-2011 in all the jurisdictions shown in the table.

Table 11. High School Drop-Out Numbers and Rates (SY2006-2007 through SY2010-2011)

Geography	SY2006-2007		SY2007-2008		SY2008-2009		SY2009-2010		SY2010-2011	
	#	Rate	#	Rate	#	Rate	#	Rate	#	Rate
Buncombe County Schools	448	5.38	380	4.53	391	4.65	355	4.24	292	3.50
Asheville City Schools	60	4.63	66	5.34	58	4.80	56	4.60	39	3.24
Regional Total	1,756	n/a	1,651	n/a	1,385	n/a	1,129	n/a	1,019	n/a
Regional Arithmetic Mean	n/a	5.66	n/a	5.58	n/a	4.51	n/a	3.61	n/a	3.36
State Total	23,550	5.27	22,434	4.97	19,184	4.27	16,804	3.75	15,342	3.43

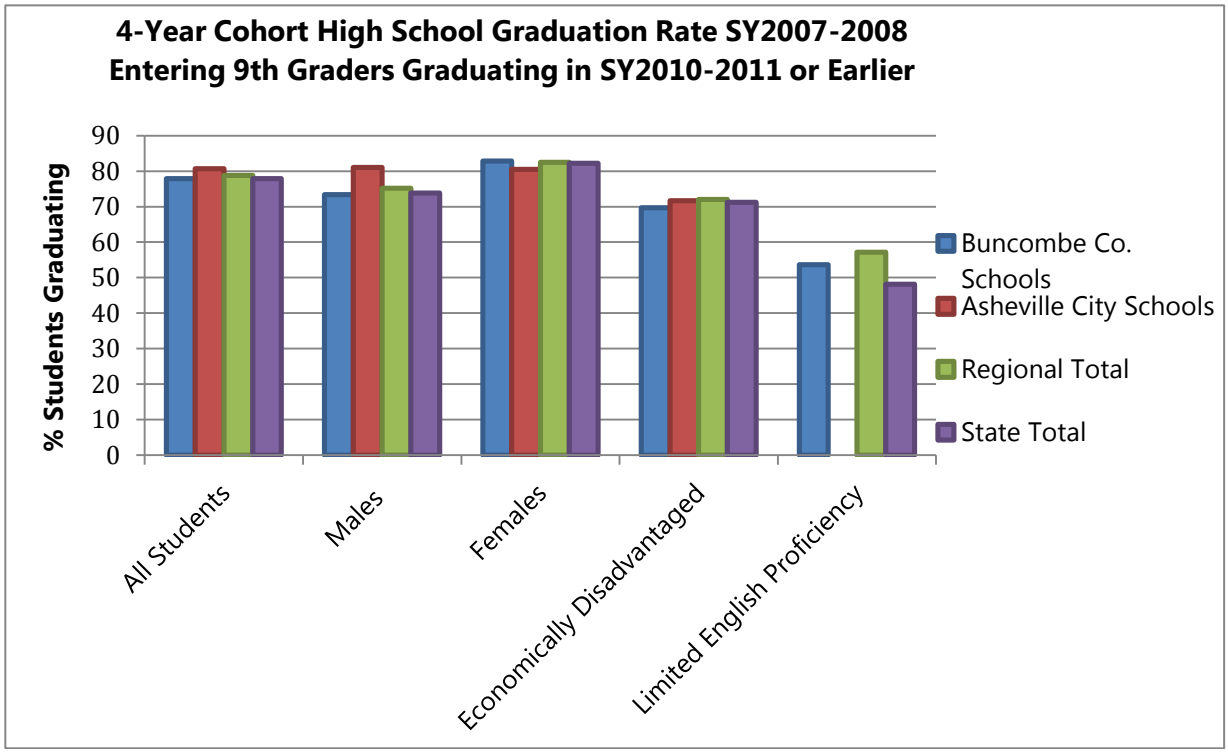


Current High School Graduation Rate

The four-year cohort graduation rates for subpopulations of 9th graders entering high school in SY2007-2008 and graduating in SY2010-2011 are presented in Table 12. Region-wide, the mean graduation rates for all subpopulations exceeded the comparable rates for NC as a whole. Data for Buncombe County Schools and Asheville City Schools were more variable. The overall graduation rate in Buncombe County Schools was the same as the state rate, but lower than the comparable rates for Asheville City Schools or WNC. The graduation rate for the population of economically disadvantaged students in Buncombe County Schools was lower than the corresponding overall system graduation rate, and lower than the comparable rate for disadvantaged students in Asheville City Schools, WNC and NC.

Table 12. 4-Year Cohort High School Graduation Rate
SY2007-2008 Entering 9th Graders Graduating in SY2010-2011 or Earlier

Geography	Total Number of Students	% Students Graduating				
		All Students	Males	Females	Economically Disadvantaged	Limited English Proficiency
Buncombe County Schools	2,069	77.9	73.4	82.8	69.7	53.6
Asheville City Schools	296	80.7	81.0	80.5	71.7	n/a
Regional Total	7,545	78.8	75.2	82.5	72.0	57.2
State Total	110,377	77.9	73.8	82.2	71.2	48.1



Income

There are several income measures that can be used to compare the economic well-being of communities, among them median household income, and median family income.

Median Household and Family Income

As calculated from the most recent estimate (2006-2010) displayed in Table 13, the median *household* income in Buncombe County was $44,190, compared to a mean WNC median household income of $37,815, a difference of $6,375 *more* in Buncombe County. The median household income in Buncombe County in was $1,300 *lower* than the comparable state average in both periods shown in Table 13, and the gap widened by $61 from 2005-2009 to 2006-2010.

Why is this Important?

Those communities with lower inequalities in income distribution tend to have healthier residents. In communities where income inequality is rising, the gap between the wealth of the rich and the poor is getting bigger. Income and financial resources have long been understood as important to health, so that individuals can obtain health insurance, pay for medical care, and afford healthy food, safe housing, and access to other basic goods (County Health Rankings and Roadmaps).

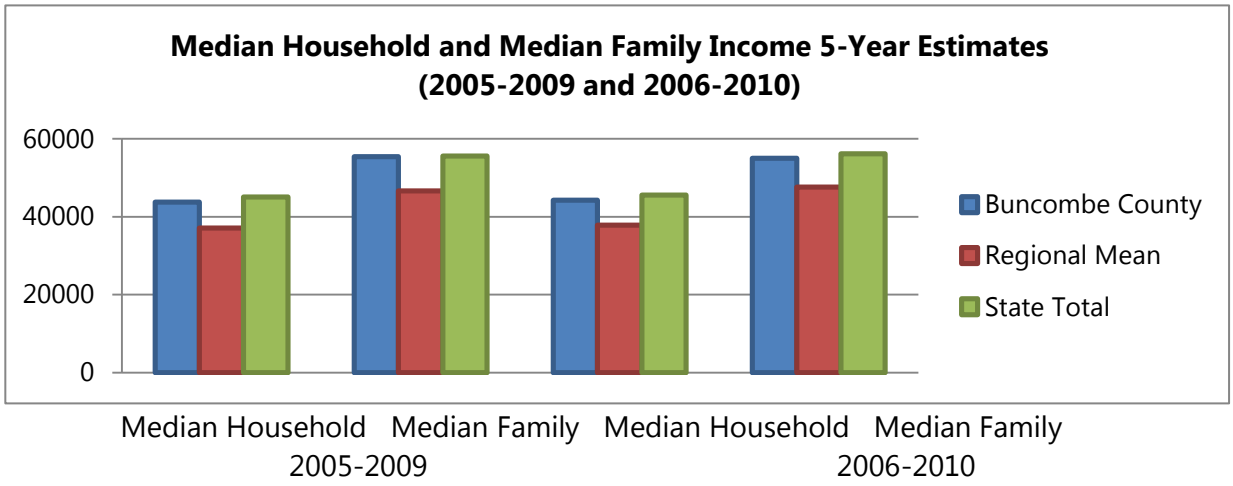
As calculated from the most recent estimate (2006-2010), the median *family* income in Buncombe County was $54,981, compared to a mean WNC median family income of $47,608, a difference of $7,373 *more* in Buncombe County. The median family income in Buncombe County was *lower* than the comparable state average for both periods cited in Table 13, by $135 in 2005-2009 and by $1,172 in 2005-2009, as the shortfall grew by $1,037

Table 13. Median Household and Median Family Income
5-Year Estimates (2005-2009 and 200-2010)

Geography	2005-2009				2006-2010			
	Median Household Income*		Median Family Income**		Median Household Income		Median Family Income	
	$	$ Difference from State	$	$ Difference from State	$	$ Difference from State	$	$ Difference from State
Buncombe County	43,750	-1,319	55,394	-135	44,190	-1,380	54,981	-1,172
Regional Arithmetic Mean	37,107	-7,962	46,578	-8,951	37,815	-7,756	47,608	-8,545
State Total	45,069	n/a	55,529	n/a	45,570	n/a	56,153	n/a

* Median household income is the incomes of all the people 15 years of age or older living in the same household (i.e., occupying the same housing unit) regardless of relationship. For example, two roommates sharing an apartment would be a household, but not a family.

** Median family income is the income of all the people 15 years of age or older living in the same household who are related through either marriage or bloodline. For example, in the case of a married couple who rent out a room in their house to a non-relative, the household would include all three people, but the family would be just the couple.



Population in Poverty

The *poverty rate* is the percent of the population (both individuals and families) whose money income (which includes job earnings, unemployment compensation, social security income, public assistance, pension/retirement, royalties, child support, etc.) is below a federally established threshold. (This is the "100%-level" figure.)

Why is this Important?

The poverty level is a reflection of a community's ability to meet the basic needs necessary to maintain health. If poverty were considered a cause of death in the U.S. it could be ranked among the top 10 causes of death. While negative health effects resulting from poverty are present at all ages, children in poverty face greater risks. Children face greater morbidity and mortality due to greater risk of accidental injury, lack of health care access, and poor educational achievement. Early (or prenatal) poverty may result in development damage. Children's age-five IQ correlates more with family income than with maternal education, ethnicity, and single female-headed household (County Health Rankings and Roadmaps).

Table 14 shows the estimated annual poverty rate for two five year periods: 2005-2009 and 2006-2010. The table also presents an estimate for the number of persons living below 200% of the Federal poverty rate, since this figure is often used as a threshold for determining eligibility for government services. The data in this table describe an overall rate, representing the entire population in each geographic entity. As subsequent data will show, poverty may have a strong age component that is not detectable in these numbers.

The 100%-level poverty rate in Buncombe County was 13.8% in the 2005-2009 period, and rose to 14.7% in the 2006-2010 period; this change represents an increase of 6.5% in the percent of persons living in poverty. In both periods cited, the poverty rate in Buncombe County was lower than the comparable rates in both WNC and NC. As calculated from figures in Table 14, the 200%-level poverty rate in Buncombe County was 34.6% in the 2005-2009 period and rose to 35.4% in the 2006-2010 period, an increase of 2.3%. In WNC the 200% poverty rate was 36.6% in the 2005-2009 period and rose to 37.3% in the 2006-2010 period, an increase of 1.9%. Statewide, the 100%-level poverty rate rose from 15.1% to 15.5% (an increase of 2.6%) and the 200%-level poverty rate rose from 35.0% to 35.6% (an increase of 1.7%) over the same time frame.

Table 14. Population in Poverty, All Ages
5-Year Estimates (2005-2009 and 2006-2010)

Geography	2005-2009				2006-2010			
	Population Estimate	# Below Poverty Level	% Below Poverty Level	# Below 200% Federal Poverty Level	Population Estimate	# Below Poverty Level	% Below Poverty Level	# Below 200% Federal Poverty Level
Buncombe County	219,288	30,236	13.8	75,962	227,047	33,356	14.7	80,422
Regional Total	697,685	103,966	14.9	255,556	726,827	113,990	15.7	271,215
State Total	8,768,580	1,320,816	15.1	3,066,957	9,013,443	1,399,945	15.5	3,208,471

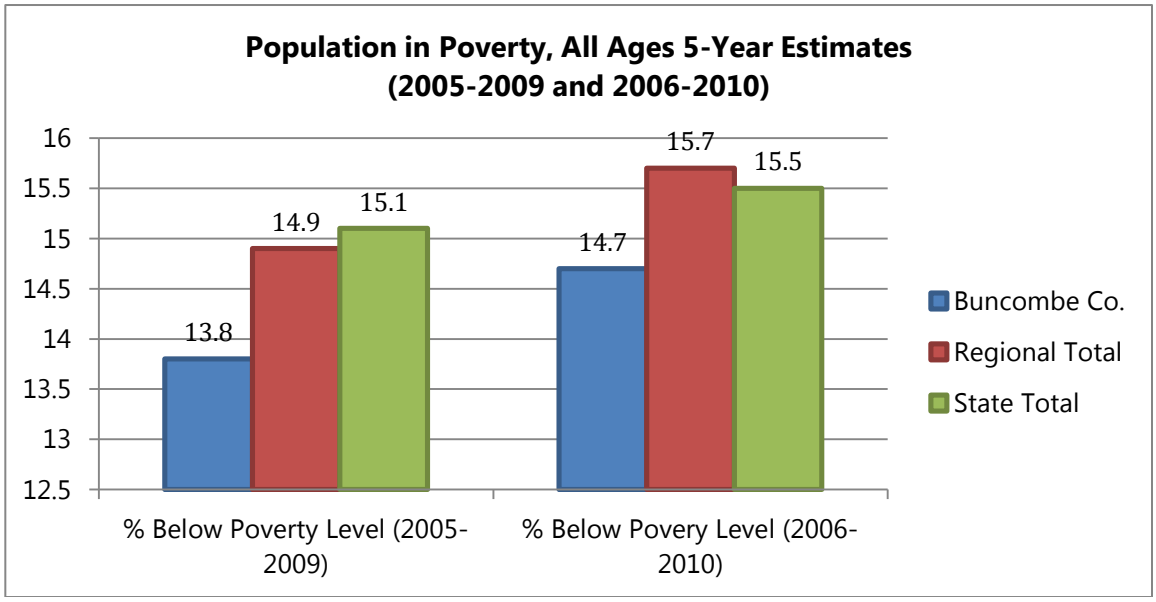
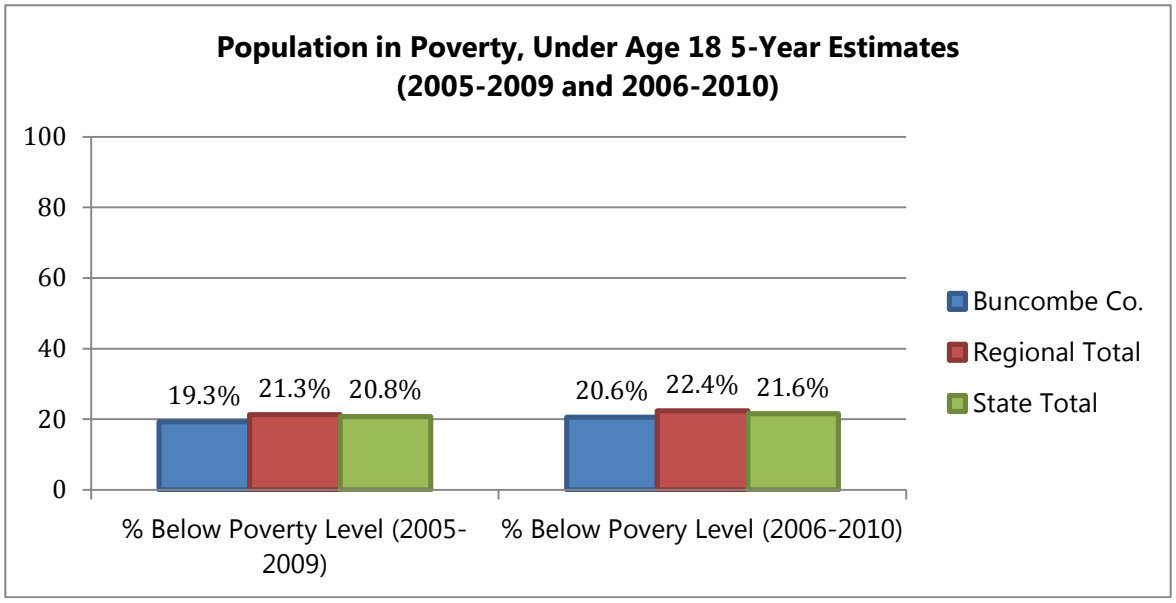


Table 15 presents similar data focusing this time exclusively on children under the age of 18. From these data it is apparent that children suffer disproportionately from poverty. In Buncombe County the 2005-2009 poverty rate for young persons (19.3%) was 39.9% higher than the overall rate (13.8%), and the 2006-2010 poverty rate for young people (20.6%) was 40.1% higher than the overall rate (14.7%). Childhood poverty increased in both WNC and NC between the 2005-2009 and 2006-2010 periods, rising by 5.2% in WNC and 3.8% statewide. During this same interval, childhood poverty in Buncombe County increased 6.7%.

Table 15. Population in Poverty, Under Age 18
5-Year Estimates (2005-2009 and 2006-2010)

Geography	2005-2009			2006-2010		
	Population Estimate	# Below Poverty Level	% Below Poverty Level	Population Estimate	# Below Poverty Level	% Below Poverty Level
Buncombe County	46,688	8,991	19.3	47,603	9,823	20.6
Regional Total	146,592	31,196	21.3	149,649	33,486	22.4
State Total	2,173,508	452,280	20.8	2,205,704	476,790	21.6



Housing Costs

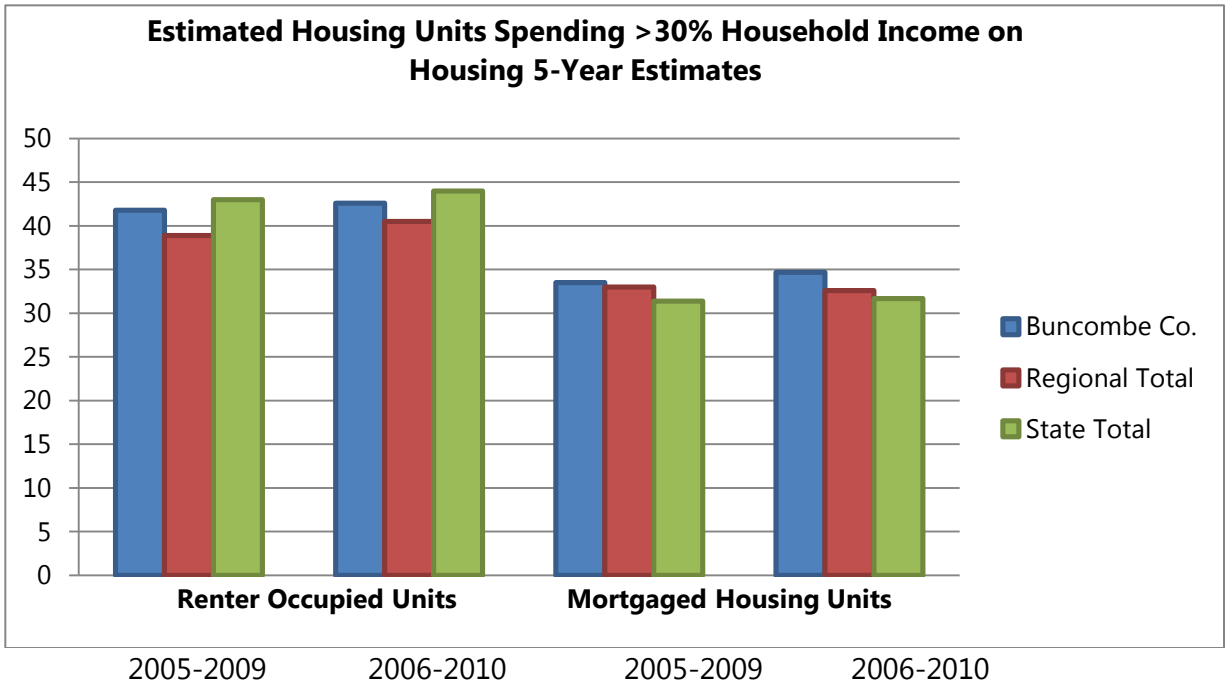
Because the cost of housing is a major component of the overall cost of living for individuals and families it merits close examination. Table 16 presents housing costs as a percent of total household income, specifically the percent of housing units—both rented and mortgaged—for which the cost exceeds 30% of household income.

In Buncombe County, the percentage of *rental* housing units costing more than 30% of household income was 41.8% in the 2005-2009 period and 42.6% in the 2006-2010 period, an increase of 1.9%. In WNC, the comparable percentage was 38.9% in the 2005-2009 period and 40.5% in the 2006-2010 period, an increase of 4%. These percentages correspond to state figures of 43.0% and 44.0%, respectively, with a state-level increase of only 2%. The percent of *mortgaged* housing units in Buncombe County costing more than 30% of household income was 33.5% in 2005-2009 and 34.7% in 2006-2010, an increase of 3.6%. Comparable figures for mortgaged housing units in WNC stood at 33.0% in 2005-2009 and 32.6% in 2006-2010, a decrease of 1%. These percentages compare to state figures of 31.4% and 31.7% in the same periods, and a state-level increase of not quite 1%. From these data it appears that in Buncombe County, WNC and NC as a whole a higher proportion of renters than mortgage holders spend 30% or more of household income on housing costs.

Table 16. Estimated Housing Units Spending >30% Household Income on Housing 5-Year Estimates (2005-2009 and 2006-2010)

Geography	Renter Occupied Units				Mortgaged Housing Units			
	2005-2009		2006-2010		2005-2009		2006-2010	
	Total Units	% Units Spending >30%	Total Units	% Units Spending >30%	Total Units	% Units Spending >30%	Total Units	% Units Spending >30%
Buncombe County	30,929	41.8	32,183	42.6	40,651	33.5	41,565	34.7
Regional Total	82,441	38.9	86,022	40.5	122,383	33.0	132,668	32.6
State Total	1,131,480	43.0	1,157,690	44.0	1,634,410	31.4	1,688,790	31.7

Note: The percent of renter-occupied units spending greater than 30% of household income on rental housing was derived by dividing the number of renter-occupied units spending >30% on gross rent by the total renter-occupied units. Gross rent is defined as the amount of the contract rent plus the estimated average monthly cost of utilities (electricity, gas, and water and sewer) and fuels (oil, coal, kerosene, wood, etc.) if these are paid for by the renter (or paid for the renter by someone else). Gross rent is intended to eliminate differentials which result from varying practices with respect to the inclusion of utilities and fuels as part of the rental payment.



Employment and Unemployment

The following definitions will be useful in understanding the data in this section.

- *Labor force* – includes all persons over the age of 16 who, during the week, are employed, unemployed or in the armed services.
- *Civilian labor force* – excludes the Armed Forces from the labor force equation.
- *Unemployed* – civilians not currently employed but are available for work and have actively looked for a job within the four weeks prior to the date of analysis; also, laid-off civilians waiting to be called back to their jobs, as well as those who will be starting new jobs in the next 30 days.
- *Unemployment rate* – calculated by dividing the number of unemployed persons by the number of people in the civilian labor force.

Why is this Important?

Employment measures aim to show the percentage of the population that is unemployed and seeking work. Unemployment figures shed light on a community's overall economic situation and provide information about the percentage of the population that may be at risk for various health concerns associated with unemployment (County Health Rankings and Roadmaps).

Employment

Table 17 summarizes employment by sector. In Buncombe County the five sectors employing the greatest proportions of the workforce are, in descending order: (1) Health Care and Social Assistance (20.12%), (2) Retail Trade (13.35%), (3) Accommodation and Food Services (12.53%), (4) Manufacturing (9.53%), and (5) Educational Services (7.44%). In WNC, the five leading employment sectors are: (1) Health Care and Social Assistance (18.52%), (2) Retail Trade (13.86%), (3) Accommodation and Food Services (11.43%), (4) Manufacturing (11.28%) and (5) Educational Services (9.19%). Statewide the comparably ordered list is composed of: (1) Health Care and Social Assistance (14.45%), (2) Retail Trade (11.66%), (3) Manufacturing (11.33%), (4) Educational Services (9.58%) and (5) Accommodation and Food Services (8.95%). The county, WNC and NC lists are quite similar, with variations in WNC stemming from its relative lack of manufacturing jobs and the regionally greater significance of the tourism industry, represented by the Accommodations and Food Service sector.

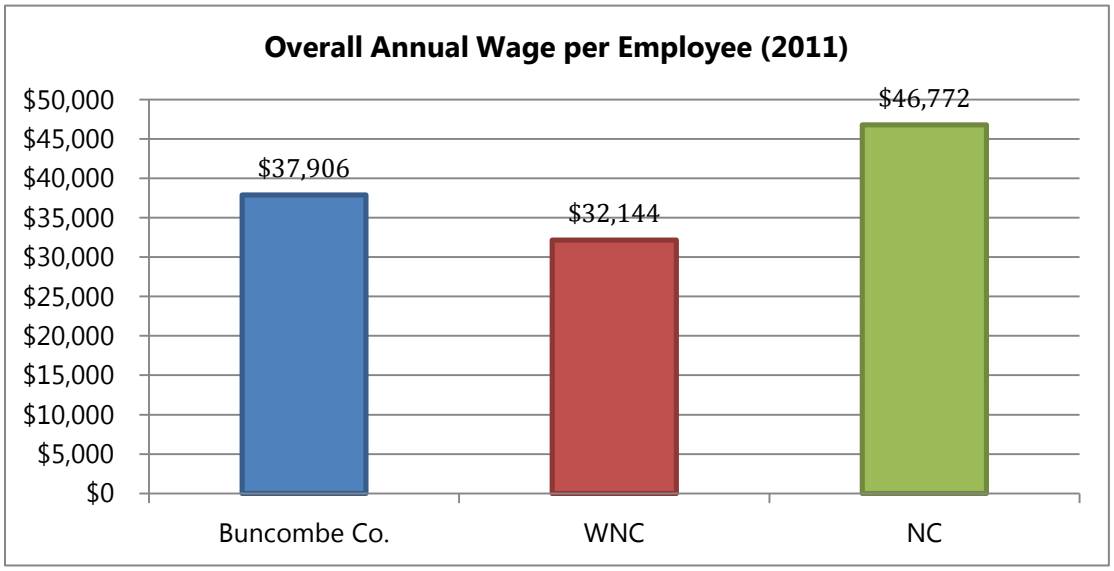
Table 17. Insured Employment by Sector, Annual Summary (2011)

Sector	Buncombe County		WNC	NC
	Avg. No. Employed	% Total Employment in Sector**	% Total Employment in Sector**	% Total Employment in Sector**
Agriculture, Forestry, Fishing & Hunting	280	0.25	0.58	0.74
Mining	114	0.10	0.24	0.08
Utilities	482	0.43	0.36	0.35
Construction	4,582	4.12	4.75	4.53
Manufacturing	10,581	9.53	11.28	11.33
Wholesale Trade	3,250	2.93	2.35	4.38
Retail Trade	14,827	13.35	13.86	11.66
Transportation & Warehousing	3,811	3.43	2.53	3.27
Information	1,507	1.36	1.35	1.82
Finance & Insurance	2,608	2.35	2.25	3.88
Real Estate & Rental & Leasing	1,197	1.08	0.93	1.23
Professional, Scientific & Technical Services	4,412	3.97	3.32	4.96
Management of Companies & Enterprises	761	0.69	0.49	2.01
Administrative & Waste Services	6,597	5.94	4.90	6.53
Educational Services	8,270	7.44	9.19	9.58
Health Care & Social Assistance	22,355	20.12	18.52	14.45
Arts, Entertainment & Recreation	2,010	1.81	1.73	1.58
Accommodation & Food Services	13,921	12.53	11.43	8.95
Public Administration	6,109	5.50	7.18	6.18
Other Services	3,408	3.07	2.76	2.49
Unclassified	1	0.00	0.00	n/a
TOTAL ALL SECTORS	111,083	100.00	100.00	100.00

Table 18 summarizes the annual average wage paid to employees in the various sectors. Data in Table 18 reveal that overall the annual wage per employee in Buncombe County ($37,906) is $5,762 higher than the comparable figure for employees region-wide ($32,144) but $8,866 lower than the average annual wage statewide ($46,772).

Table 18. Insured Wages by Sector, Annual Summary (2011)

Sector	Average Annual Wage per Employee		
	Buncombe County	WNC	NC
Agriculture, Forestry, Fishing & Hunting	$22,026	$23,145	$28,752
Mining	42,591	41,662	45,828
Utilities	69,278	72,196	76,552
Construction	37,101	31,190	41,316
Manufacturing	46,930	38,443	52,613
Wholesale Trade	46,338	36,182	61,194
Retail Trade	23,617	22,109	24,650
Transportation & Warehousing	39,654	39,117	43,400
Information	49,093	38,682	63,833
Finance & Insurance	56,250	42,881	75,088
Real Estate & Rental & Leasing	32,476	24,051	38,476
Professional, Scientific & Technical Services	48,505	36,584	66,951
Management of Companies & Enterprises	49,956	43,518	88,763
Administrative & Waste Services	26,937	25,753	30,258
Educational Services	35,043	32,604	39,787
Health Care & Social Assistance	47,728	32,843	42,811
Arts, Entertainment & Recreation	25,422	20,936	28,474
Accommodation & Food Services	16,269	14,424	14,877
Public Administration	43,263	33,818	43,641
Other Services	25,499	24,660	28,182
Unclassified	12,056	12,056	n/a
TOTAL ALL SECTORS	$37,906	$32,144	$46,772

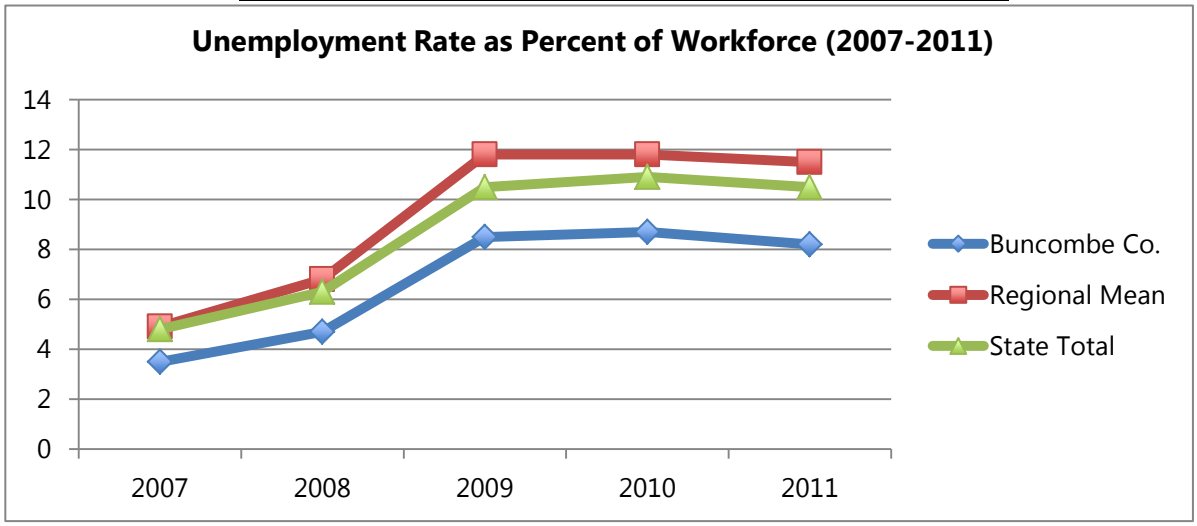


Unemployment

Table 19 summarizes the annual unemployment rate for 2007 through 2011. From these data it appears that the unemployment rate in Buncombe County was lower than comparable figures for both WNC and NC as a whole throughout the period from 2007-2011.

Table 19. Unemployment Rate as Percent of Workforce, (2007 through 2011)

Geography	Annual Average				
	2007	2008	2009	2010	2011
Buncombe County	3.5	4.7	8.5	8.7	8.2
Regional Arithmetic Mean	4.9	6.8	11.8	11.8	11.5
State Total	4.8	6.3	10.5	10.9	10.5



Crime

Tables 20-22 present annual crime rates for Buncombe County, WNC and the state of NC for the 10 years from 2001 through 2010. Table 20 summarizes the "index crime rate", which is the sum of the violent crime rate (murder, forcible rape, robbery, and aggravated assault) *plus* the property crime rate (burglary, larceny, arson, and motor vehicle theft). Table 21 summarizes violent crime, and Table 22 summarizes property crime.

Why is this Important?

The health impacts of community safety are far-reaching, from the obvious impact of violence on the victim to the symptoms of post-traumatic stress disorder (PTSD) and psychological distress felt by those who are routinely exposed to unsafe communities. Community safety impacts various other health factors and outcomes as well, including birth weight, diet and exercise, and family and social support. (County Health Rankings and Roadmaps)

Data in Table 20 indicate that the index crime rate in Buncombe County was higher than the mean WNC index crime rate but lower than the state rate in all years cited in the table. The mean index crime rate in WNC was far lower than the comparable state rate for every year during the decade covered in the table. There is not enough information available from the data source to interpret annual variations in these rates.

Table 20. Index Crime Rate (2001-2010)

Geography	Index Crimes per 100,000 Population									
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Buncombe County	3,938.3	3,905.5	4,069.1	4,238.4	4,149.6	3,715.0	3,619.5	3,532.6	3,056.4	2,926.2
Regional Arithmetic Mean	2,163.4	2,294.3	2,413.8	2,656.0	2,648.1	2,536.4	2,688.3	2,703.4	2,502.2	2,426.4
State Total	5,005.2	4,792.6	4,711.8	4,641.7	4,622.9	4,654.4	4,658.6	4,581.0	4,191.2	3,955.7

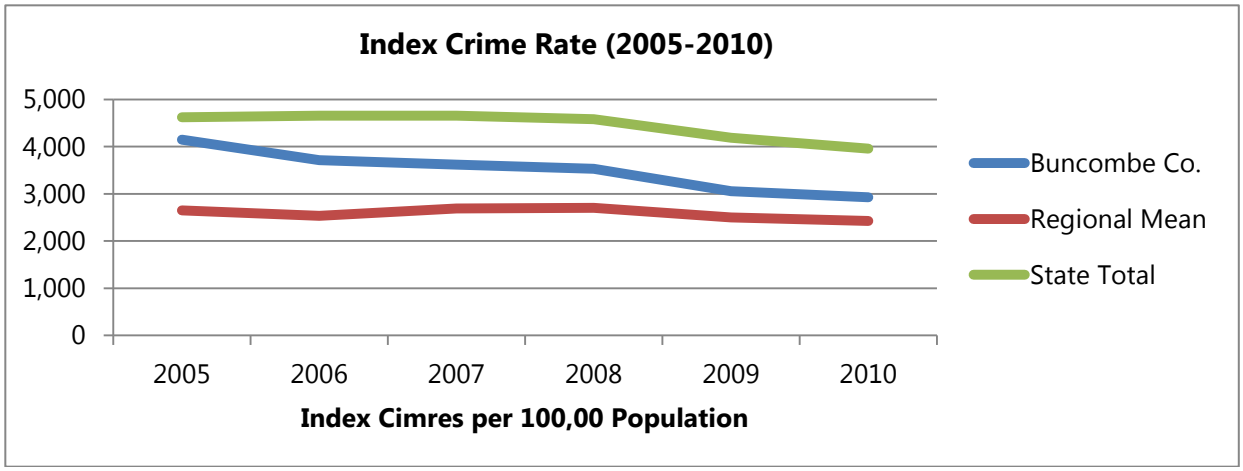


Table 21 separates the violent crime rate from the overall index crime rate for the same period cited above. As with overall index crime, violent crime rate in Buncombe County was higher than the comparable mean WNC rate but lower than the state rate for the period from 2001 through 2010. The mean violent crime rate in WNC was significantly lower than the rate for NC as a whole throughout the period cited in the table. According to data from the NC SCHS, there were a total of 148 homicides in the 16 WNC counties during the five-year period from 2006 through 2010, 44 of them in Buncombe County (*Data Workbook*).

Table 21. Violent Crime Rate (2001-2010)

Geography	Violent Crimes per 100,000 Population									
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Buncombe County	353.3	370.3	321.6	312.9	287.7	341.6	351.7	366.0	271.6	259.9
Regional Arithmetic Mean	181.5	194.4	200.4	198.5	232.9	221.9	274.4	190.7	224.4	258.6
State Total	503.8	475.3	454.7	460.9	478.6	483.5	480.5	477.0	417.1	374.4

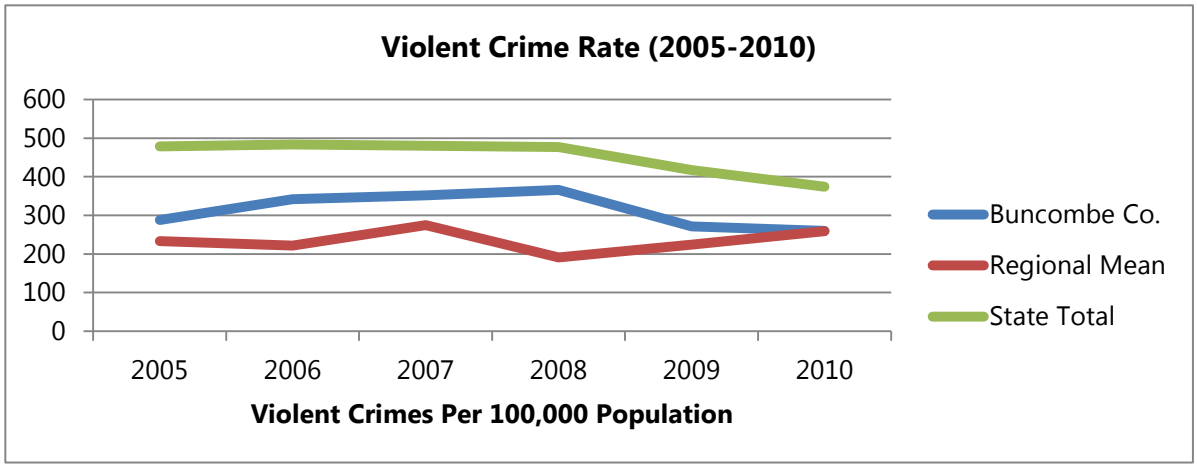
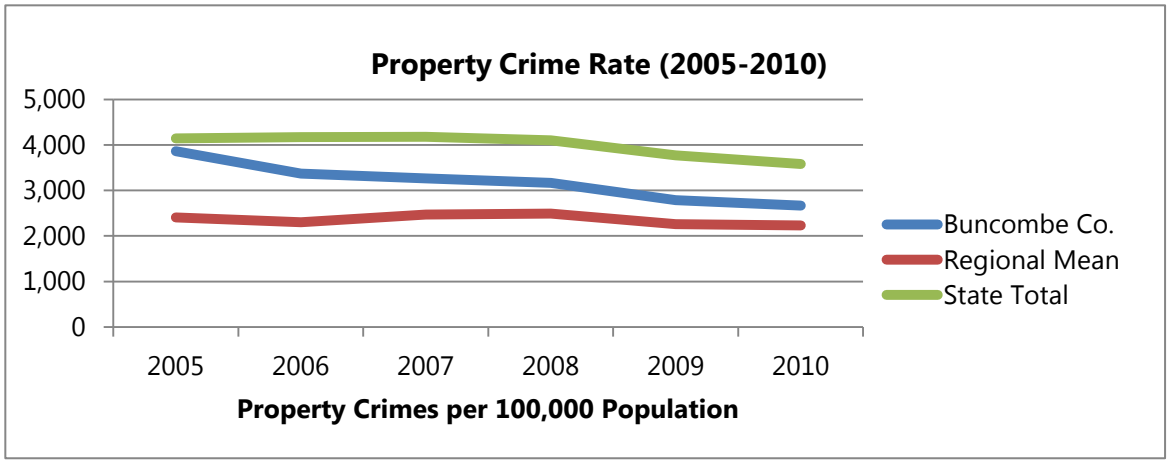


Table 22 separates the property crime rate from the overall index crime rate for the same period cited above. Comparing these figures to the index crime rate, it is clear that the majority of all index crime committed is property crime. In keeping with the pattern noted for index crime, the property crime rates for Buncombe County were higher than the comparable mean WNC and NC rates for the period from 2001-2005 and again in 2008. The mean property crime rate for WNC was
significantly lower than the comparable rate for NC as a whole from 2001 to 2010.

Table 22. Property Crime Rate (2001-2010)

Geography	Property Crimes per 100,000 Population									
	2001	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Buncombe County	3,585.0	3,535.2	3,747.5	3,925.5	3,861.9	3,373.4	3,267.8	3,166.6	2,784.8	2,666.3
Regional Arithmetic Mean	1,981.9	2,093.9	2,215.2	2,423.1	2,410.3	2,298.7	2,468.3	2,494.0	2,262.1	2,228.4
State Total	4,501.4	4,317.3	4,257.1	4,180.7	4,144.3	4,170.9	4,178.1	4,103.9	3,774.1	3,581.4



CHAPTER 3 – HEALTH STATUS AND HEALTH OUTCOME PARAMETERS

Health Rankings

America's Health Rankings

Each year for 20 years, America's Health Rankings™, a project of United Health Foundation, has tracked the health of the nation and provided a comprehensive perspective on how the nation—and each state—measures up. America's Health Rankings is the longest running state-by-state analysis of health in the US (United Health Foundation, 2011).

America's Health Rankings are based on several kinds of measures, including *determinates* (socioeconomic and behavioral factors and standards of care that underlay health and well-being) and *outcomes* (measures of morbidity, mortality, and other health conditions). Together, the determinates and outcomes help calculate an overall rank. Table 23 shows where NC stood in the 2011 rankings relative to the "best" and "worst" states (where 1="best"). *When comparing county or regional health data with data for the state as a whole it is necessary to keep in mind that NC ranks 32nd overall, just outside the bottom third of the 50 US states.*

Table 23. State Rank of North Carolina in America's Health Rankings (2011)

Geography	National Rank (Out of 50)		
	Overall	Determinates	Outcomes
Vermont	1	1	5
North Carolina	32	31	38
Mississippi	50	48	50

Source: United Health Foundation, 2011. *America's Health Rankings.* Available at: http://www.americashealthrankings.org/mediacenter/mediacenter2.aspx

County Health Rankings

Building on the work of America's Health Rankings, the Robert Wood Johnson Foundation, collaborating with the University of Wisconsin Population Health Institute, supports a project to develop health rankings for the counties in all 50 states.

Each state's counties are ranked according to health outcomes and the multiple health factors that determine a county's health. Each county receives a summary rank for its health outcomes and health factors, and also for four different specific types of health factors: health behaviors, clinical care, social and economic factors, and the physical environment.

Below is a list of the parameters considered in each of the health outcome and health factor categories:

Health Outcomes – Mortality	**Social and Economic Factors**
Premature death	High school graduation
Morbidity	Some college
Poor or fair health	Unemployment
Poor physical health days	Children in poverty
Poor mental health days	Inadequate social support
Low birthweight	Children in single-parent households
Health Factors	Violent crime rate
Health Behaviors	**Physical Environment**
Adult smoking	Air pollution – particulate matter days
Adult obesity	Air pollution – ozone days
Physical inactivity	Access to recreational facilities
Excessive drinking	Limited access to healthy foods
Motor vehicle death rate	Fast food restaurants
Sexually transmitted infections	
Teen birth rate	
Clinical Care	
Uninsured	
Primary care physicians	
Preventable hospital stays	
Diabetic screening	
Mammography screening	

Table 24 presents the health outcome and health factor rankings for Buncombe County.

Table 24. County Health Rankings via MATCH (2012)

Geography	County Rank (Out of 100)[1]						
	Health Outcomes		Health Factors				Overall Rank
	Mortality	Morbidity	Health Behaviors	Clinical Care	Social & Economic Factors	Physical Environment	
Buncombe County	14	32	7	3	11	59	14

Source: *County Health Rankings and Roadmaps, 2012*. Available at http://www.countyhealthrankings.org/app/north-carolina/2012/rankings/outcomes/overall

Pregnancy and Birth Data

Pregnancy Rate

The following definitions and statistical conventions will be helpful in understanding the data on pregnancy:

- Reproductive age = 15-44
- Total pregnancies = live births + induced abortions + fetal death at >20 weeks gestation
- Pregnancy rate = number of pregnancies per 1,000 women of reproductive age
- Fertility rate = number of live births per 1,000 women of reproductive age
- Abortion rate = number of induced abortions per 1,000 women of reproductive age

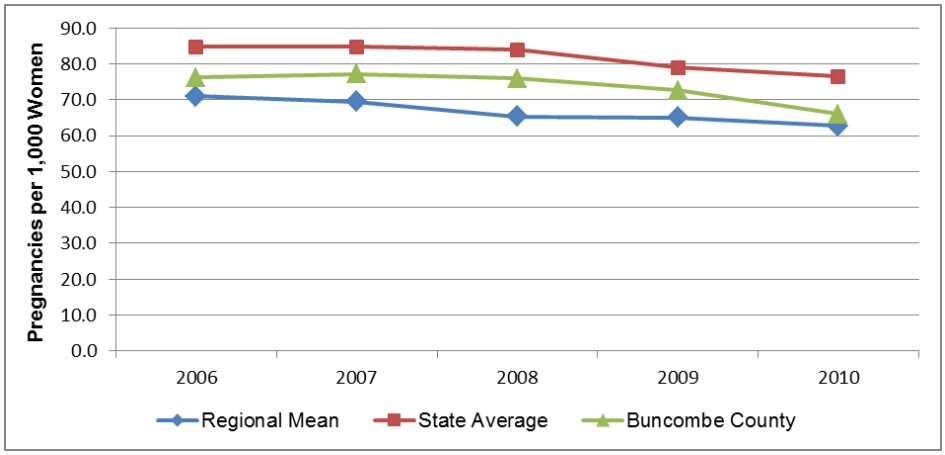
Why is this Important?

Unintended pregnancy among teens and adults is at the root of a number of important public health and social challenges. Unplanned pregnancies are frequently resolved by abortion. Women experiencing an unplanned pregnancy are less likely to obtain prenatal care. Their babies are at increased risk of both low birth rate and of being born prematurely (County Health Rankings and Roadmaps).

The NC SCHS stratifies much of the pregnancy-related data it maintains into two age groups: ages 15-44 (all women of reproductive age) and ages 15-19 ("teens"). Tables 25 and 26 present pregnancy rate data for ages 15-44 and 15-19, respectively. Note that regional rates are presented as *arithmetic means* (sums of individual county rates divided by the number of county rates). These means are approximations of true regional rates, which NC SCHS does not compute.

Data in Figure 1 illustrate that the pregnancy rate for women ages 15-44 in Buncombe County has been lower than the comparable state rate but higher than the mean WNC rate throughout the period cited. The pregnancy rates in all three jurisdictions decreased between 2006 and 2010, by 13.4% in Buncombe County, by 11.6% in WNC, and by 9.9% in NC. The 2010 pregnancy rate was 66.0 in Buncombe County, 62.7 in WNC, and 76.4 in NC.

Figure 1 – Pregnancy Rate Ages 15-44, Pregnancies per 1,000 Women (Single Years, 2006-2010)

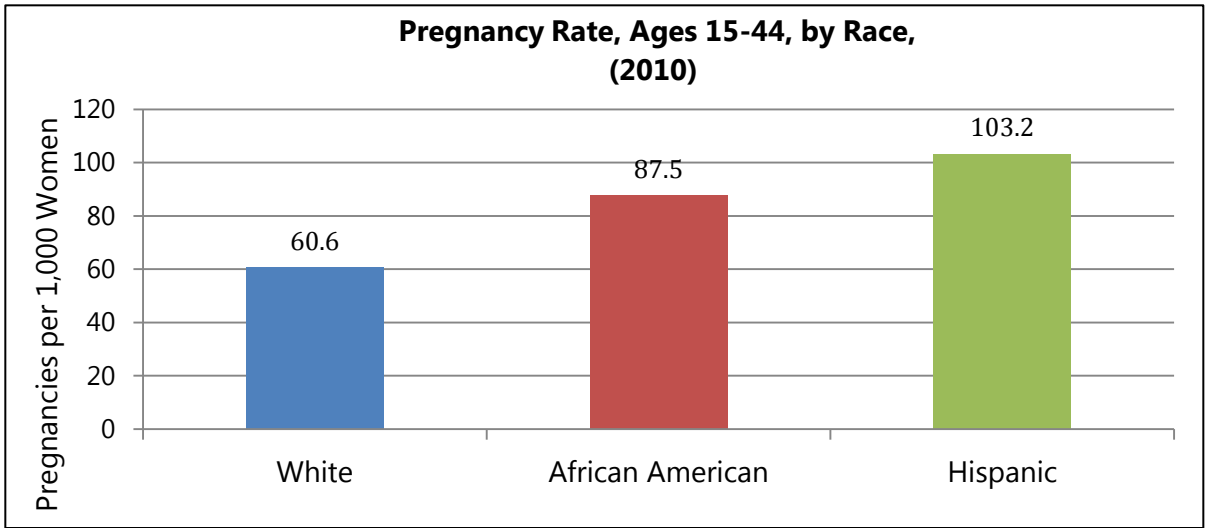


The minority population in Buncombe County is large enough to permit calculation of pregnancy rates stratified by race and ethnicity. Table 25 presents pregnancy rates for the 14-55 year age group for 2010. In Buncombe County in 2010 the highest pregnancy rate was among Hispanic women (103.2), followed by African-American non-Hispanic women (87.5) and Other non-Hispanic women (81.8). In WNC, the mean pregnancy rate was highest among Hispanic women (111.8), followed by Other non-Hispanic women (89.4), and white non-Hispanic women (58.9).

Table 25. Pregnancy Rate, Ages 15-44, by Race, Pregnancies per 1,000 Women (2010)

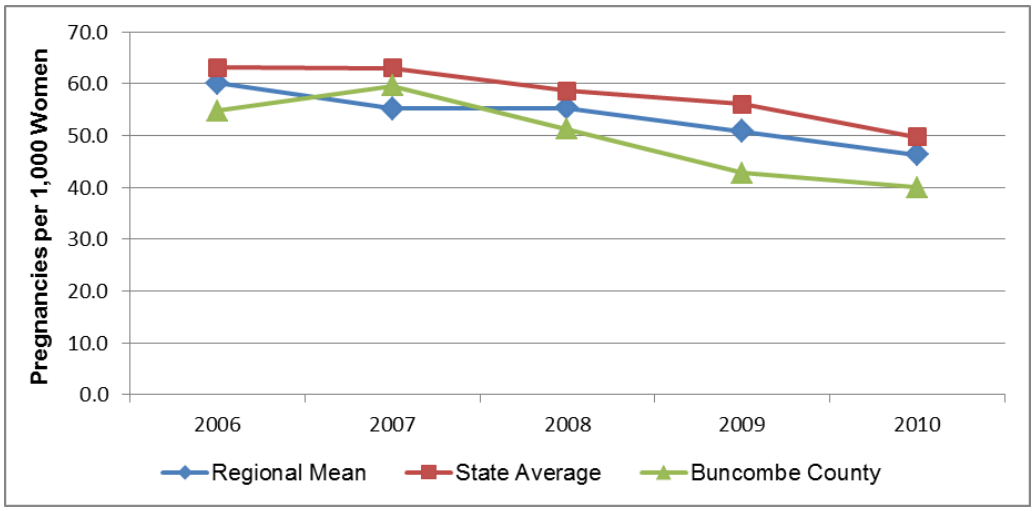
County	Total		White Non-Hispanic		African American Non-Hispanic		Other Non-Hispanic		Hispanic	
	#	Rate	#	Rate	#	Rate	#	Rate	#	Rate
Buncombe County	3,057	66.0	2,359	60.6	280	87.5	74	81.8	342	103.2
Regional Total	8,630	n/a	6,835	n/a	490	n/a	336	n/a	962	n/a
Regional Arithmetic Mean	539	62.7	427	58.9	31	*47.3*	21	*89.4*	60	*111.8*
State Total	148,922	76.4	78,671	65.6	40,836	86.1	7,288	84.5	21,573	114.0

Note: There is some instability in the regional mean rates noted in italics because each includes one or more unstable county rate.



Data in Figure 2 illustrates that the pregnancy rate for teens (ages 15-19) in Buncombe County was lower than the comparable mean WNC and NC rates over most of the period cited. Note that the teen pregnancy rate in all three jurisdictions decreased between 2006 and 2009, by 27.0% in Buncombe County, by 22.9% in WNC, and by 21.2% in NC. The 2010 teen pregnancy rate was 40.0 in Buncombe County, 46.3 in WNC, and 49.7 in NC.

Figure 2 – Pregnancy Rate Ages 15-19, Pregnancies per 1,000 Women (Single Years, 2006-2010)



Note: There is some instability in the regional mean rates because each includes one or more unstable county rate.

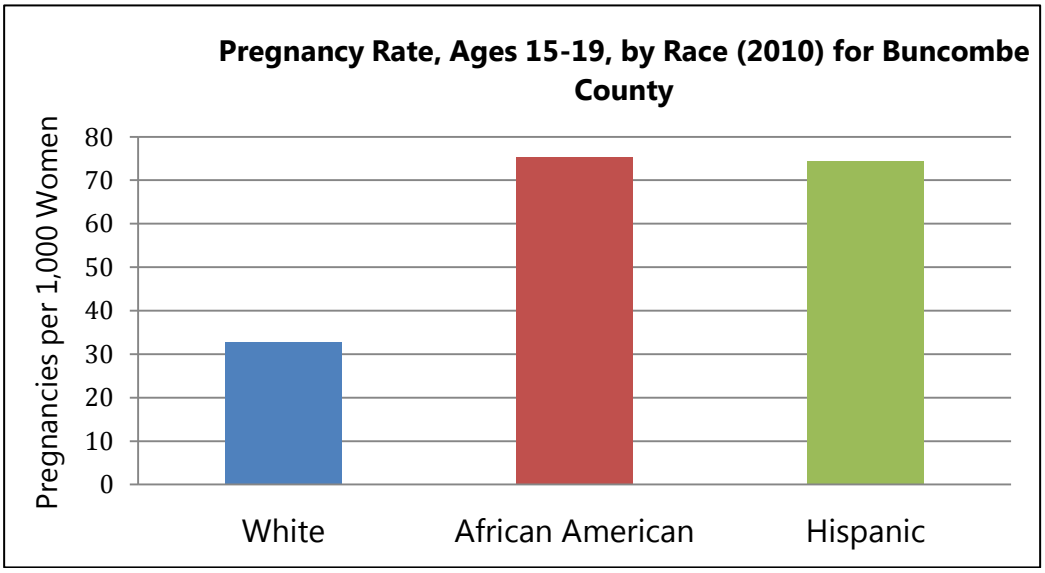
The minority population in Buncombe County is large enough to permit calculation of teen pregnancy rates stratified by race and ethnicity. Table 26 presents pregnancy rates for the 14-19 year age group for 2010. In Buncombe County in 2010 the

highest teen pregnancy rate was among African American non-Hispanic teens (75.3), followed by Hispanic teens (74.5) and other non-Hispanic teens (57.1). In WNC, the mean teen pregnancy rate was highest among Hispanic teens (73.0), followed by African-American non-Hispanic teens (72.2), and other non-Hispanic teens (50.3)

Table 26. Pregnancy Rate, Ages 15-19, by Race, Pregnancies per 1,000 Women (2010)

County	Total		White Non-Hispanic		African American Non-Hispanic		Other Non-Hispanic		Hispanic	
	#	Rate	#	Rate	#	Rate	#	Rate	#	Rate
Buncombe County	275	40.0	184	32.7	47	75.3	8	***57.1***[a]	36	74.5
Regional Total	990	n/a	740	n/a	86	n/a	51	n/a	113	n/a
Regional Arithmetic Mean	62	46.3	46	*42.2*	5	*72.2*	3	*50.3*	7	*73.0*
State Total	15,957	49.7	6,525	34.4	6,292	70.2	609	48.9	2,456	82.7

a– A figure in ***bold italics*** indicates an unstable county rate based on a small number of events
Note: There is some instability in the regional mean rates indicated by italics because each includes one or more unstable county rate.



Pregnancy Risk Factors

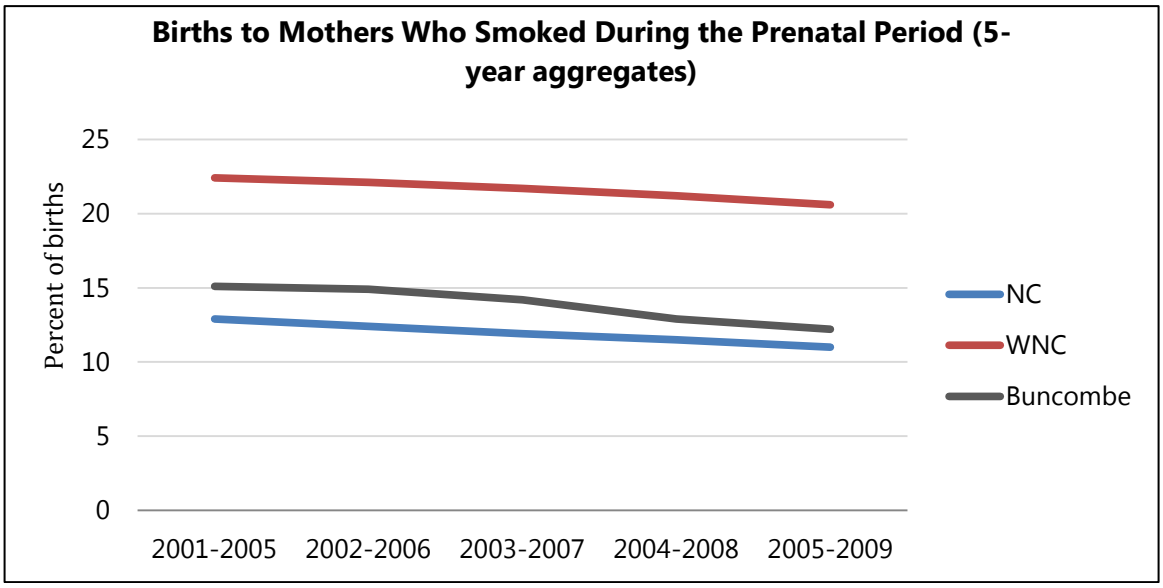
Smoking During Pregnancy

Smoking during pregnancy is an unhealthy behavior that may have negative effects on both the mother and the fetus. Smoking can lead to fetal and newborn death, and contribute to low birth weight and pre-term delivery. In pregnant women, smoking can increase the rate of placental problems, and contribute to premature rupture of membranes and heavy bleeding during delivery (March of Dimes, 2012).

Table 27 presents data on the number and percent of births resulting from pregnancies in which the mother smoked during the prenatal period. The percentage frequency of smoking during pregnancy in Buncombe County was lower than the comparable mean percentage for WNC, but higher than the percentage statewide in all of the time periods cited in the table. Note that the WNC means were significantly higher than the comparable percentages statewide in all of the time periods cited in the table. The frequency of smoking during pregnancy in Buncombe County, WNC and NC all improved over the period cited, by 19.2% in Buncombe County, by 8.0% in WNC, and by 14.78% in NC.

Table 27. Births to Mothers Who Smoked During the Prenatal Period (Five-Year Aggregates, 2001-2005 through 2005-2009)

Geography	2001-2005		2002-2006		2003-2007		2004-2008		2005-2009	
	#	%	#	%	#	%	#	%	#	%
Buncombe County	1,932	15.1	1,943	14.9	1,887	14.2	1,743	12.9	1,660	12.2
Regional Total	7,496	22.4	7,442	22.1	7,361	21.7	7,106	21.2	6,919	20.6
State Total	76,712	12.9	74,901	12.4	73,887	11.9	72,513	11.5	70,529	11.0



Late or No Prenatal Care

Good pre-conception health and early prenatal care can help assure women the healthiest pregnancies and best birth outcomes possible. Access to prenatal care is particularly important during the first three months of pregnancy (March of Dimes, 2012).

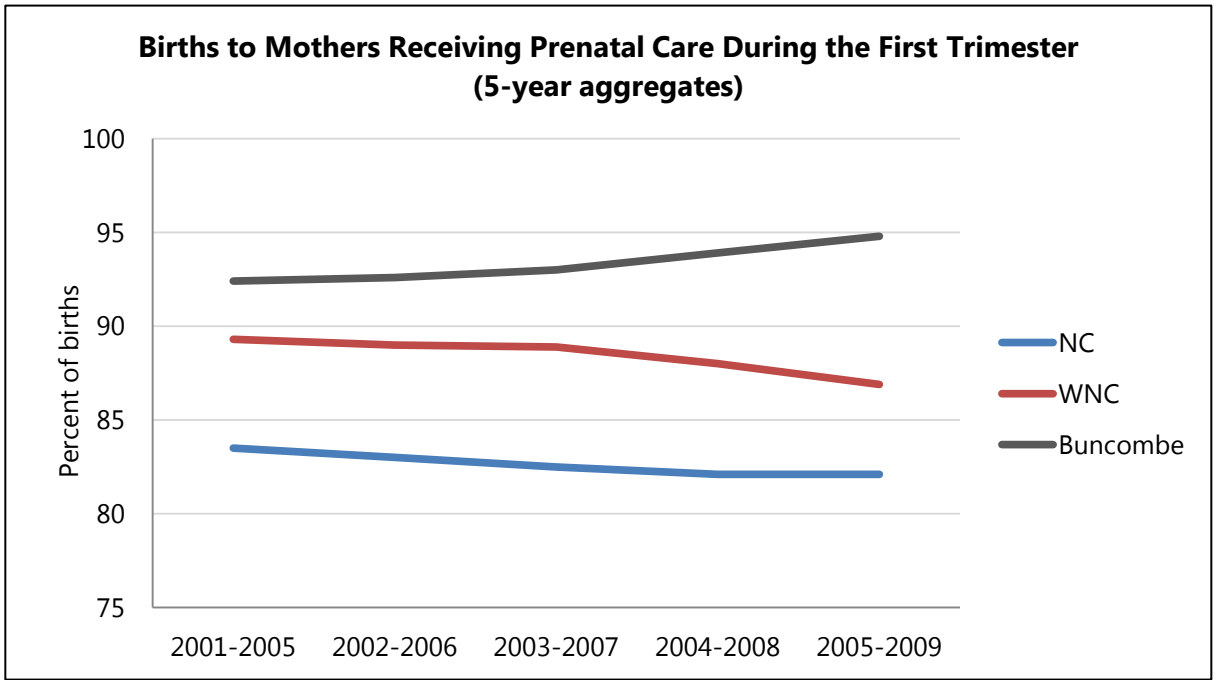
Table 28 shows data summarizing utilization of prenatal care during the first three months of pregnancy. The percent of births in Buncombe County that included early prenatal care was higher than both the mean figure for WNC as well as the total for NC as a whole for the entire

period cited. The prenatal care frequency in Buncombe County has risen gradually over time, even as the frequencies in the other two jurisdictions have fallen. a point well below both the WNC and NC percentages. Overall, the Buncombe County percentage rose from 92.4% in 2001-2005 to 94.8% in 2005-2009, an increase of 2.3%. Among Buncombe County minority groups, African-Americans utilize early prenatal care at a frequency of 91.6%, and Native Americans at a frequency of 83.8% (*Data Workbook*).

The frequency of early prenatal care utilization was higher in WNC than in the state as a whole for every period noted in the figure, but the percentages for both the region and the state decreased over the period cited, by 2.7% in WNC and by 1.7% in NC. Among minority groups statewide, Native Americans utilize early prenatal care at a frequency of 77.1%, and African Americans at a frequency of 75.2% (*Data Workbook*).

Table 28. Births to Mothers Receiving Prenatal Care During the First Trimester (Five-Year Aggregates, 2001-2005 through 2005-2009)

Geography	2001-2005		2002-2006		2003-2007		2004-2008		2005-2009	
	#	%	#	%	#	%	#	%	#	%
Buncombe County	11,787	92.4	12,059	92.6	12,394	93.0	12,725	93.9	12,939	94.8
Regional Total	35,375	89.3	35,799	89.0	36,433	88.9	36,806	88.0	37,049	86.9
State Total	497,895	83.5	503,331	83.0	510,954	82.5	519,098	82.1	524,902	82.1



Birth Outcomes

Low Birth Weight

Low birth weight can result in serious health problems in newborns (e.g., respiratory distress, bleeding in the brain, and heart, intestinal and eye problems), and cause lasting disabilities (mental retardation, cerebral palsy, and vision and hearing loss) or even death (March of Dimes, 2012).

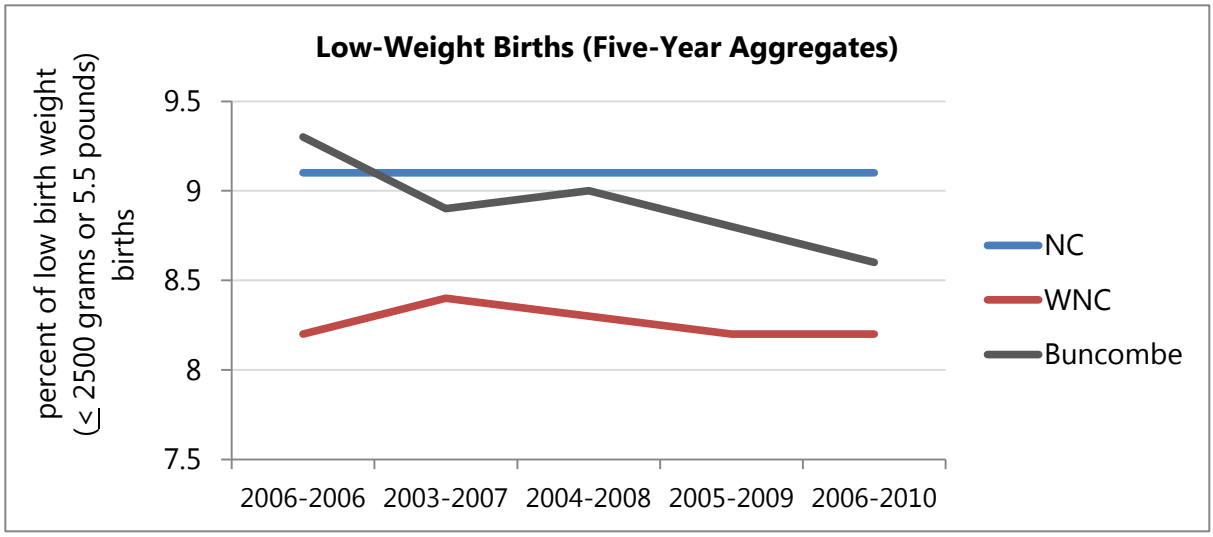
Table 29 summarizes data on the number and percent of low birth weight (≤ 2500 grams or 5.5 pounds) births. (Note that NC SCHS also maintains data on *very* low birth weight [≤1500 grams or 3.3 pounds] births. There are so few very low birth weight births in WNC that county rates are too unstable to calculate a stable regional mean.) In WNC, the percentage of low-birth weight births was lower than the comparable percentage for NC as a whole in each of the aggregate periods cited in the table. Further, the percentages were relatively static in both jurisdictions during the entire period.

In Buncombe County over the time span 2002-2006 through 2006-2010, the percentage of low birth weight births declined steadily from 9.3 to 8.6 (a total of 7.5%), but county percentages were consistently higher than comparable figures for the region. The highest percentage of low birth weight births in Buncombe County occurred among black women (14.1%), followed by white women (8.3) and non-Hispanic women of other races (7.1). The frequency of low birth weight births among Hispanic women in Buncombe County was 6.6% (*Data Workbook*).

The frequency of *very* low birth weight births also declined in Buncombe County, from 1.9% in 2002-2006 to 1.4% in 2006-2010 (*Data Workbook*).

Table 29. Low-Weight Births (Five-Year Aggregates, 2002-2006 through 2006-2010)

Geography	2002-2006		2003-2007		2004-2008		2005-2009		2006-2010	
	#	%	#	%	#	%	#	%	#	%
Buncombe County	1,210	9.3	1,186	8.9	1,215	9.0	1,199	8.8	1,167	8.6
Regional Total	3,447	8.2	3,473	8.4	3,467	8.3	3,434	8,2	3,373	8.2
State Total	54,991	9.1	56,541	9.1	57,823	9.1	58,461	9.1	58,260	9.1

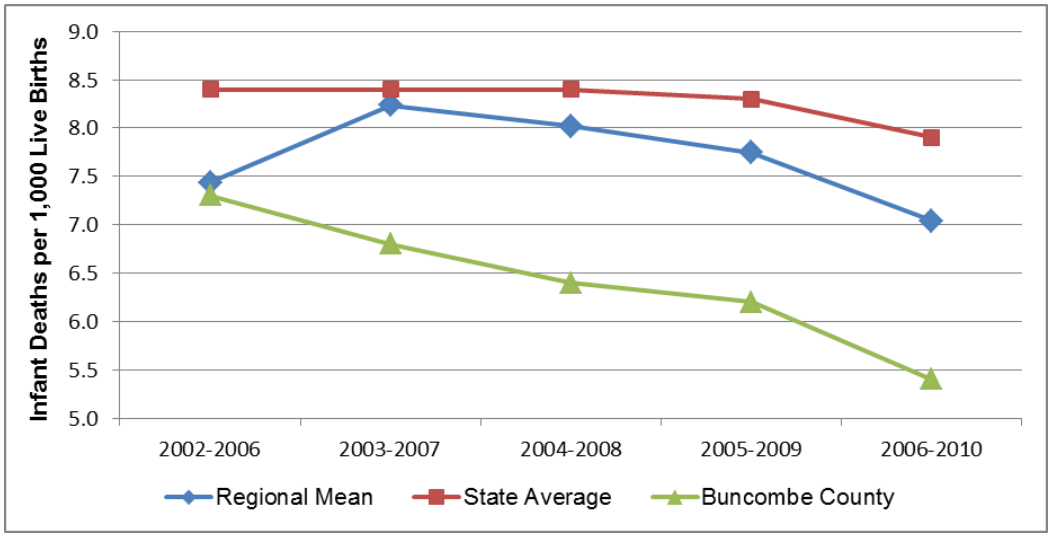


Infant Mortality

Infant mortality is the number of deaths of infants under one year of age per 1,000 live births. Figure 3 presents infant mortality data for WNC and the state. When interpreting this data it is important to remember that the infant mortality rate for NC as a whole is among the highest (i.e., worst) in the US, ranking 46th out of 50 according to the 2011 *America's Health Rankings*, cited previously.

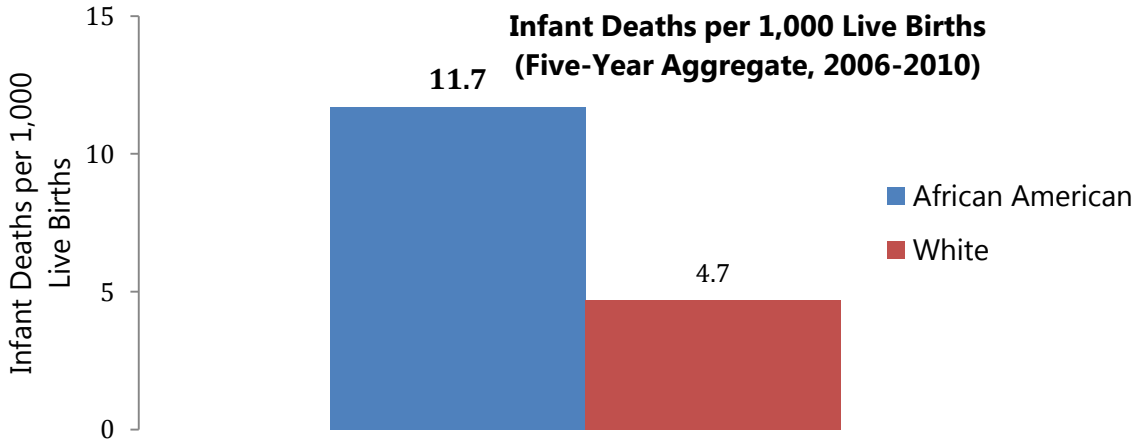
The state's infant mortality rate recently has begun to decrease; after hovering near 8.5 for several years, it was 7.9 in the most recent aggregate period (2006-2010). The mean infant mortality rate for WNC has been lower than the state rate, and appears to be trending in the right direction; the mean WNC infant mortality rate was 7.0 in the 2006-2010 aggregate period. The infant mortality rate for Buncombe County was lower than the comparable mean WNC and NC rates throughout the period cited, and improved significantly over the past several years, falling from 7.3 in the 2002-2006 period to 5.4 in the 2006-2010 period, a decrease of 26%

Figure 3. Infant Mortality Rate, Infant Deaths per 1,000 Live Births (Five-Year Aggregates, 2002-2006 through 2006-2010)



Note: There is some instability in the regional mean rates because each includes one or more unstable county rates.

There is a strong racial component to infant mortality in NC. Statewide in 2006-2010, the infant mortality rate among non-Hispanic African Americans (14.7) was *two and one-half times* the comparable rate among non-Hispanic whites (5.9). In Buncombe County during the same interval, the infant mortality rate among non-Hispanic African Americans (11.7) also was two and one-half times the comparable rate among non-Hispanic whites (4.7). Infant deaths in other minority groups in Buncombe County were below the threshold for calculating stable rates. Statewide in 2006-2010 the infant mortality rate among non-Hispanic other races was 6.3, and the rate among Hispanics was 5.8 (*Data Workbook*).

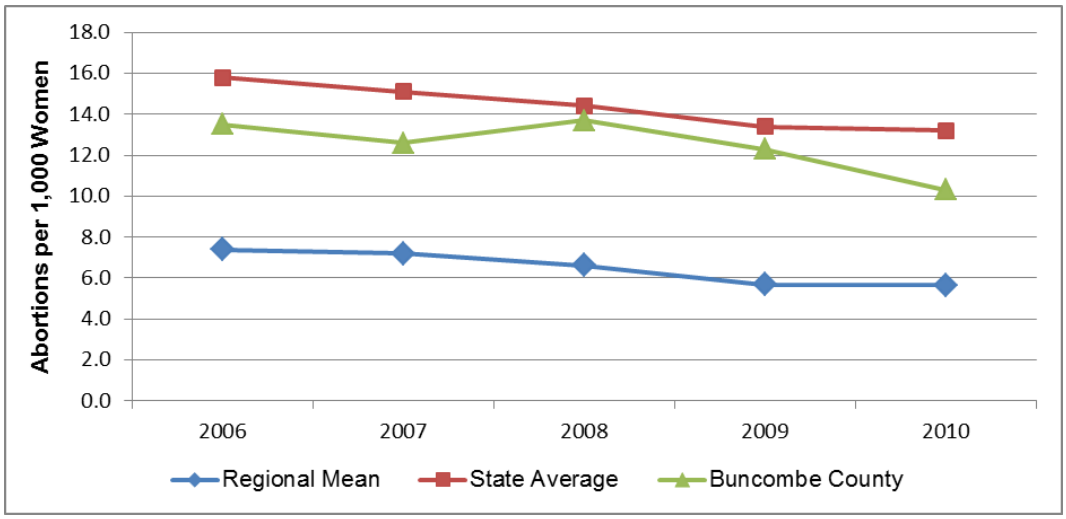


Abortion

Figures 4 and 5 depict abortion rates for Buncombe County, the region, and the state. Data in Figure 4 show that the mean abortion rate in WNC for women ages 15-44 was less than half the abortion rate for the state as a whole, and that the rate in both jurisdictions fell over the time period cited in the figure, by 24.3% in WNC and by 16.5% in NC. In 2010 the abortion rate was 5.6 in WNC and 13.2 in NC.

The abortion rate in Buncombe County was between the mean WNC and NC rates throughout the period cited. From 2006 through 2010 the abortion rate for this age group in Buncombe County decreased 23.7%, from 13.5 to 10.3.

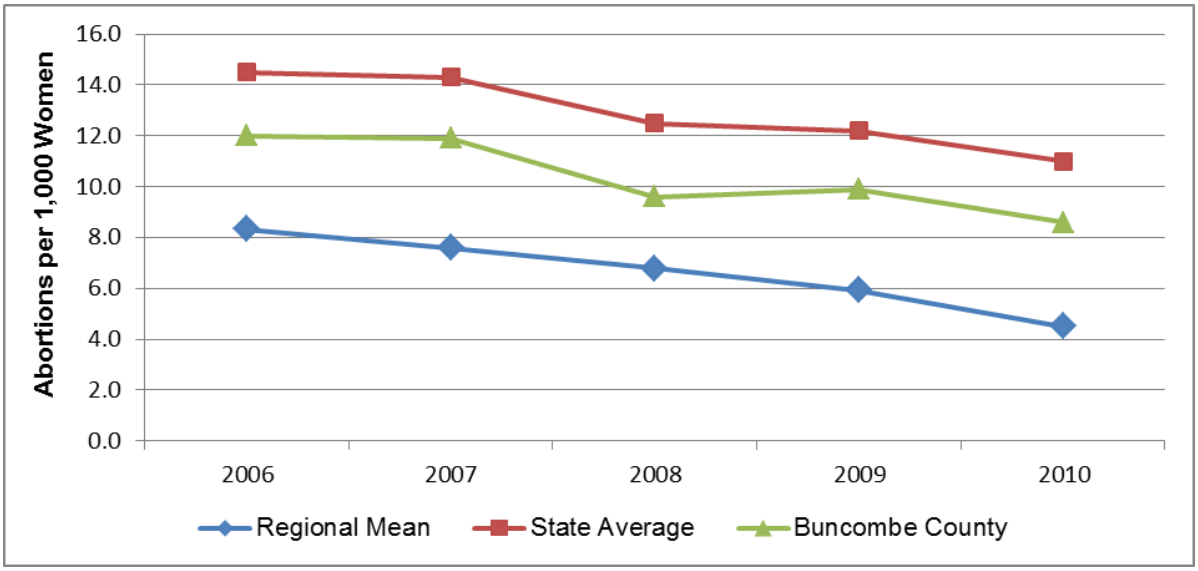
Figure 4. Pregnancies Ending in Abortion, Ages 15-44, per 1,000 Population (Single Years, 2006-2010)



Note: There is some instability in the regional mean rates because each includes one or more unstable county rates.

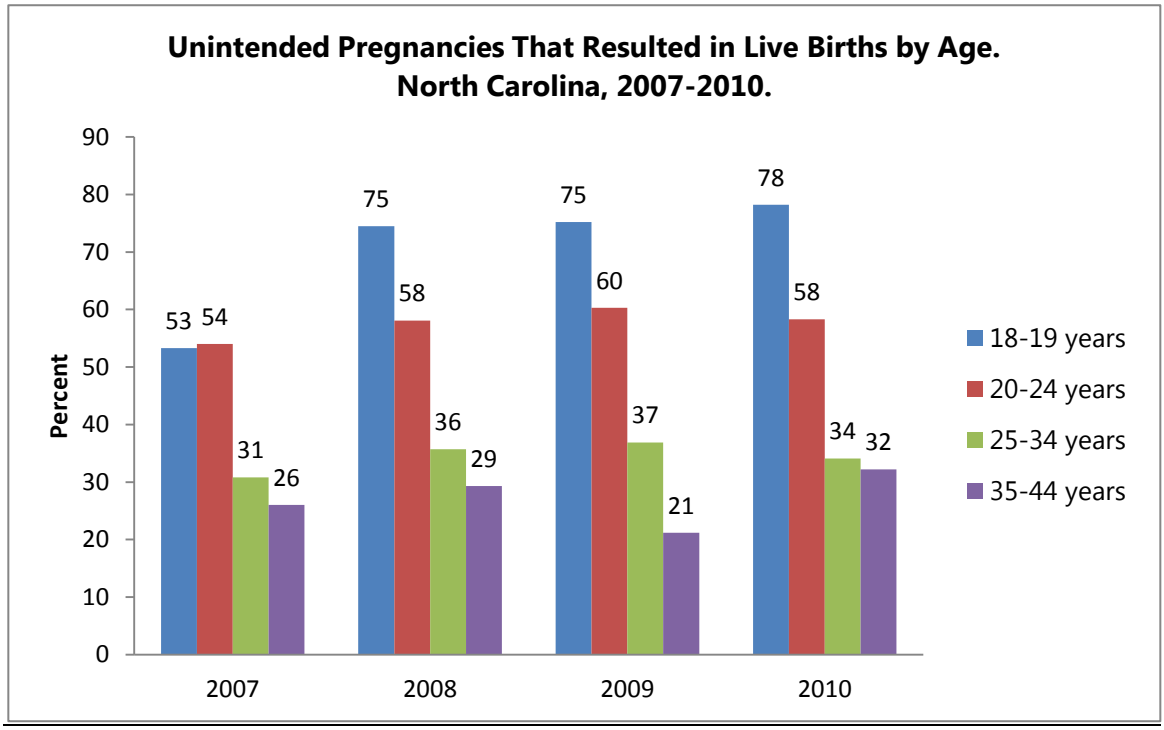
Data in Figure 5 show that the mean abortion rate in WNC for teens ages 15-19 was slightly more than half the teen abortion rate for the state as a whole for the first three years cited in the figure and less than half the state rate in the most recent two years. The rate in both jurisdictions fell over the time period cited in the figure, by 45.8% in WNC and by 24.1% in NC. The teen abortion rate in Buncombe County was higher than the regional rate but lower than the state rate throughout the period cited. Between 2006 and 2010 the teen abortion rate in Buncombe County fell from 12.0 to 8.6, a decrease of 28.3%.

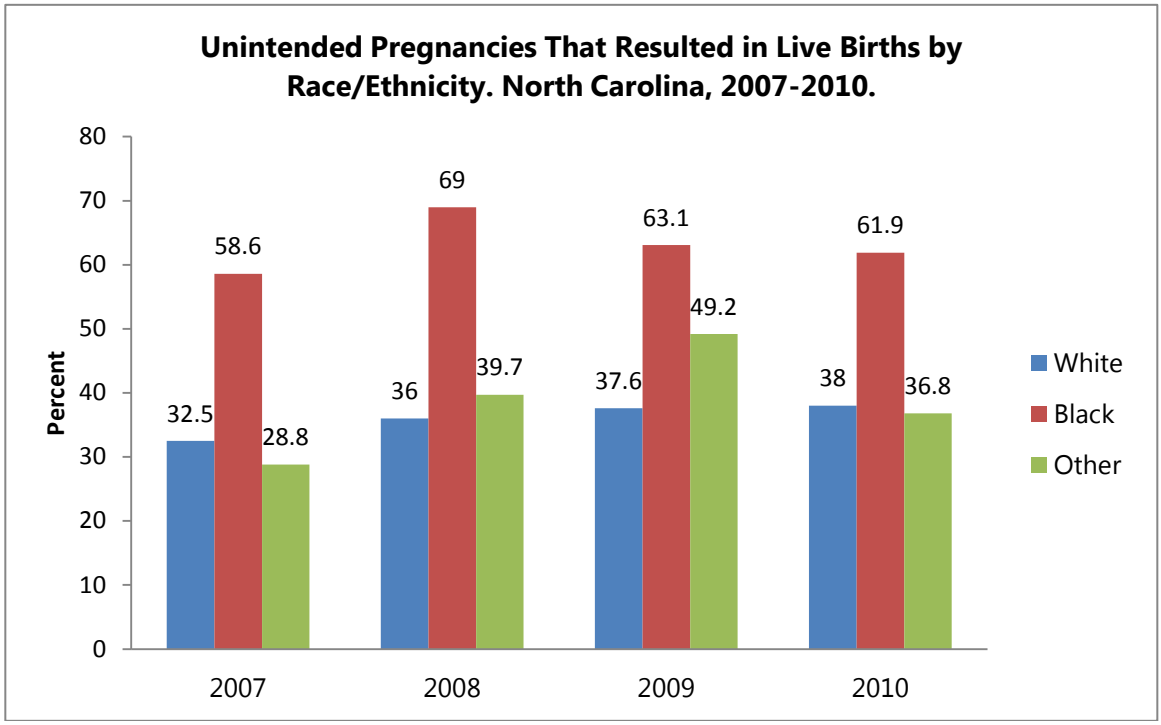
Figure 5. Pregnancies Ending in Abortion, Age 15-19, per 1,000 Population (Single Years, 2006-2010)



Note: There is some instability in the regional mean rates because each includes one or more unstable county rate.

Unintended Pregnancies





Mortality Data

This section describes mortality for the 15 leading causes of death, as well as mortality due to four major site-specific cancers. The list of topics and the accompanying data is derived from the NC SCHS *County Health Databook*. Unless otherwise noted, the numerical data are age-adjusted and represent overlapping five-year aggregate periods.

Why is this Important?

Premature death is a key measure of people dying too early. By knowing and comparing premature deaths, it helps our county focus of the deaths that can be prevented. We can target resources to high-risk areas and further investigate causes of death. (County Health Rankings and Roadmaps)

Leading Causes of Death

Table 30 compares the mean rank order of the 15 leading causes of death in Buncombe County, WNC and NC for the five-year aggregate period 2006-2010. (The causes of death are listed in descending rank order for WNC.) From this data it appears that chronic lower respiratory disease, pneumonia and influenza, motor vehicle injury and suicide rank higher as causes of death in WNC than in the state as a whole. Conversely, cerebrovascular disease, kidney disease, and septicemia rank lower as causes of death regionally than statewide.

The leading causes of death in Buncombe County differ in rank order from the comparable lists for WNC or NC, most notably in a higher county placement for cancer, kidney disease and suicide, and a lower placement for diabetes. Few mortality rates in Buncombe County exceeded comparable rates for either WNC or NC. The Buncombe County mortality rate for CLRD (52.9) exceeded both the WNC rate (51.1) and NC rate (46.4), and the county rate for Alzheimer's disease (31.4) exceeded both the WNC rate (30.7) and the NC rate (28.5). Other differences in mortality statistics will be covered as each cause of death is discussed separately below.

Table 30. Rank of Cause-Specific Mortality Rates for the Fifteen Leading Causes of Death (Five-Year Aggregate, 2006-2010)

Leading Cause of Death	Buncombe County		WNC Mean		NC	
	Rank	Rate	Rank	Rate	Rank	Rate
Heart Disease	2	171.4	1	194.4	1	184.9
Total Cancer	1	176.3	2	180.3	2	183.1
Chronic Lower Respiratory Disease	3	52.9	3	51.1	4	46.4
Cerebrovascular Disease	4	44.9	4	44.0	3	47.8
All Other Unintentional Injuries	6	28.5	5	42.9	5	28.6
Alzheimer's Disease	5	31.4	6	30.7	6	28.5
Diabetes Mellitus	11	12.4	7	19.6	7	22.5
Pneumonia and Influenza	8	15.9	8	19.1	9	18.6
Unintentional Motor Vehicle Injuries	10	12.8	9	16.7	10	16.7
Suicide	9	14.7	10	16.7	12	12.1
Nephritis, Nephrotic Syndrome & Nephrosis	7	17.5	11	16.2	8	18.9
Septicemia	13	7.8	12	13.4	11`	13.7
Chronic Liver Disease & Cirrhosis	12	11.2	13	13.2	13	9.1
Homicide	14	3.9	14	n/a	14	6.6
Acquired Immune Deficiency Syndrome	15	2.3	15	n/a	15	5.4

It should be noted that the rank order of leading causes of death varies somewhat among the 16 counties in WNC. Further, NC SCHS has not calculated mortality rates for some causes of death in several counties because there are too few events to calculate stable death rates. The mean WNC ranking displayed in Table 30 includes only stable rates presented in the *Data Workbook*.

Each age group tends to have its own leading causes of death. Table 31 lists the three leading causes of death by age group for the five-year aggregate period from 2006-2010. (Note that for this purpose it is important to use *non*-age adjusted death rates.) The WNC rankings were developed by a qualitative examination of the individual ranking lists for each of the counties in the region.

Causes of death in all age groups in Buncombe County are similar to those noted for WNC and NC as a whole, although chronic lower respiratory disease ranks third in the 40-64 age group in Buncombe County but is not among the three leading causes of death for this age group in WNC or NC.

Table 31. Leading Causes of Death by Age Group
Unadjusted Death Rates per 100,000 Population
(Five-Year Aggregate, 2006-2010)

Age Group	Rank	Leading Cause of Death		
		Buncombe County	WNC	NC
00-19	**1**	Perinatal conditions	Perinatal conditions	Perinatal conditions
	2	Motor vehicle injuries	Motor vehicle injuries	Congenital abnormalities
	3	Congenital abnormalities	Congenital abnormalities	Motor vehicle injuries
			Other unintentional injuries	
20-39	**1**	Other unintentional injuries	Other unintentional injuries	Motor vehicle injuries
	2	Suicide	Motor vehicle injuries	Other unintentional injuries
	3	Motor vehicle injuries	Suicide	Suicide
40-64	**1**	Cancer – all sites	Cancer – all sites	Cancer – all sites
	2	Heart disease	Heart disease	Heart disease
	3	Chronic lower respiratory disease	Other unintentional injuries	Other unintentional injuries
65-84	**1**	Cancer – all sites	Cancer – all sites	Cancer – all sites
	2	Heart disease	Heart disease	Heart disease
	3	Chronic lower respiratory disease	Chronic lower respiratory disease	Chronic lower respiratory disease
85+	**1**	Heart disease	Heart disease	Heart disease
	2	Cancer – all sites	Cancer – all sites	Cancer – all sites
	3	Cerebrovascular disease	Alzheimer's disease	Cerebrovascular disease

The following section examines in greater detail each of the causes of death listed in Table 30, in the order of highest mean WNC rank to lowest, beginning with heart disease.

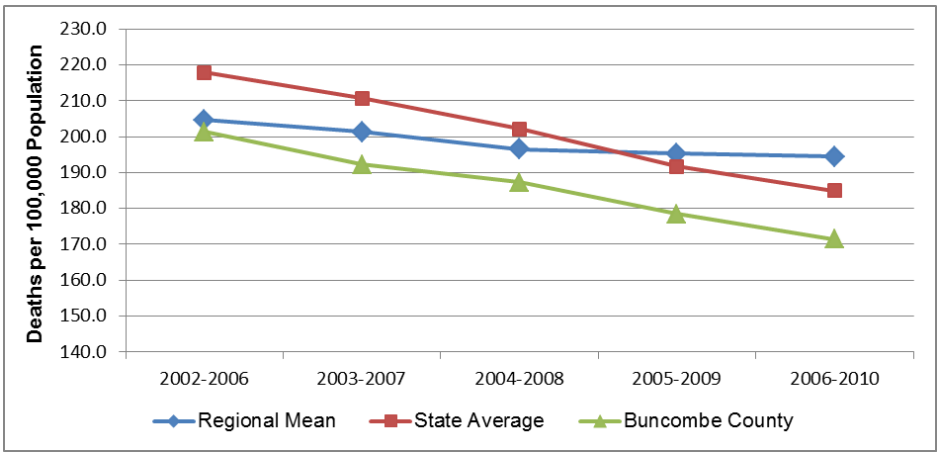
Heart Disease Mortality

Heart disease is an abnormal organic condition of the heart or of the heart and circulation. Heart disease is the number one killer in the U.S. It is also a major cause of disability. The most common cause of heart disease, coronary artery disease, is a narrowing or blockage of the coronary arteries, the blood vessels that supply blood to the heart itself. This is the major reason people have heart attacks. Other kinds of heart problems may happen to the valves in the heart, or the heart may not pump well and cause heart failure (US National Library of Medicine).

In the 2006-2010 aggregate period heart disease was the leading cause of death in WNC and NC, but the second leading cause of death in Buncombe County (Table 30, cited previously). Figure 6 presents heart disease mortality trend data. This graph illustrates that the heart disease mortality rate in Buncombe County was lower than the comparable rates for WNC and NC throughout the period cited. The graph also illustrates that the heart disease mortality rate in Buncombe County fell from 201.3 in the 2002-2006 aggregate period to 171.4 in the 2006-2010 aggregate period, a decrease of 14.9%. Over the same interval the NC heart disease mortality rate fell from 217.9 for the 2002-2006 aggregate period to 184.9 for the 2006-2010 aggregate

period, a decrease of 15.1%. The mean WNC rate, which for the first three periods cited was below the state rate, surpassed the state rate and leveled during the two most recent periods. For the 2002-2006 period the mean WNC heart disease mortality rate was 204.6; by the 2006-2010 period it had fallen to 194.4, a decrease of 4.9%.

Figure 6. Heart Disease Mortality Rate, Deaths per 100,000 Population Five-Year Aggregates (2002-2006 through 2006-2010)

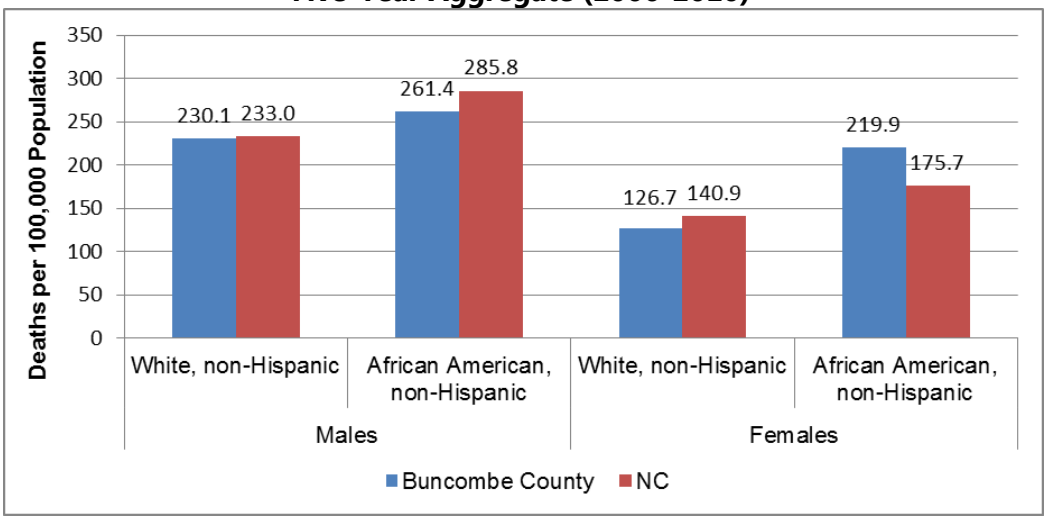


Further subdivision of heart disease mortality data reveals a striking gender disparity. Figure 7 plots heart disease mortality rates for Buncombe County, stratified by gender. From these data it is clear that Buncombe County males have had a higher heart disease mortality rate than females for the past decade, with the difference as high as 76%. This trend data also shows an apparent 12.1% decrease in the heart disease mortality rate among county males (from 260.9 to 229.3) and a corresponding 17.7% decrease in the rate among county females (from 158.0 to 130.0) from the beginning of the entire period cited to the end.

Figure 7. Gender Disparities in Heart Disease Mortality, Buncombe County (Five-Year Aggregates, 2002-2006 through 2006-2010)

Buncombe County has a large enough minority population to yield stable, gender-stratified heart disease mortality rates for some minority groups. Figure 8 shows these differences in 2006-2010 for Buncombe County in comparison with similar state data. At the state level, heart disease mortality demonstrates significant racial disparity, with the minority rate higher than the non-minority rate. For example, statewide the heart disease mortality rate among non-Hispanic African American males (285.8) was almost 23% higher than the comparable rate among non-Hispanic white males (233.0); in Buncombe County the comparable difference was 14%. In NC the rate among non-Hispanic African American females (175.7) was 25% higher than the rate among non-Hispanic white females (140.9); in Buncombe County, the comparable difference was 74%. Statewide in the same period, heart disease mortality rates among "other" non-Hispanics were 148.7 for males and 102.7 for females. Hispanics statewide had the lowest heart disease mortality rates, 55.7 for males and 36.9 for females (*Data Workbook*).

Figure 8. Gender and Racial Disparities in Heart Disease Mortality, Buncombe County and NC Five-Year Aggregate (2006-2010)



Total Cancer Mortality

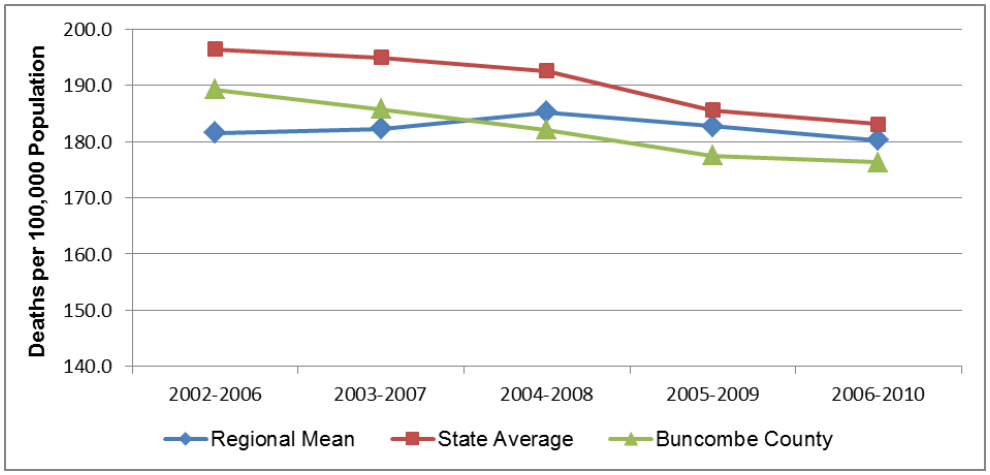
In 2006-2010, taken together, cancers of all types compose the second leading cause of death in WNC and NC but the first leading cause of death in Buncombe County (Table 30, cited previously).

Figure 9 presents mortality trend data for total cancer. This graph illustrates how over the period cited the total cancer death rate in Buncombe County has fallen, from 189.2 in the 2002-2006 aggregate period to 176.3 in the 2006-2010, a decrease of 6.8%. In the 2004-2008

aggregate period the total cancer mortality rate in the county fell to a rate below both the WNC and NC rates.

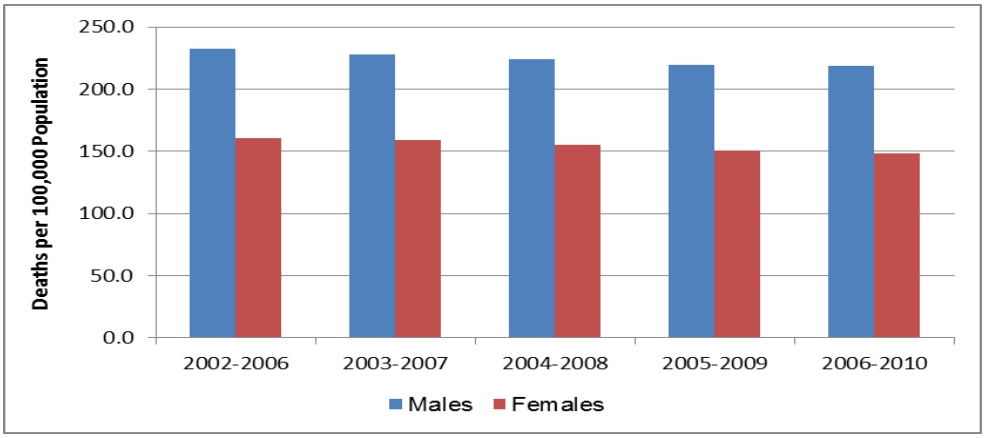
This graph also illustrates how over the period cited the total cancer death rate decreased at the state level, and the comparable mean regional rate fluctuated some but changed little in the net. Statewide, mortality attributable to all cancers decreased 6.8% over the period covered in the graph, from 196.4 in 2002-2006 to 183.1 in 2006-2010. In WNC the mean total cancer mortality rate decreased 0.6%, from 181.5 in 2002-2006 to 180.3 in 2006-2010. Nevertheless, the mean regional rate was lower than the comparable state rate in each of the periods cited in Figure 9, although the gap has narrowed.

Figure 9. Total Cancer Mortality Rate, Deaths per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)



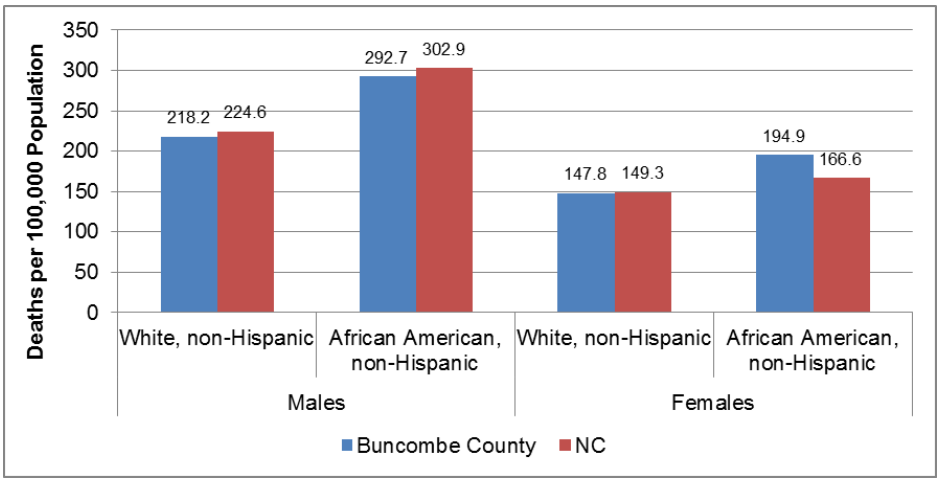
Like heart disease mortality, total cancer mortality demonstrates a gender disparity. Figure 10 plots total cancer mortality rates for Buncombe County, stratified by gender. From these data it is clear that males had and continue to have a higher total cancer mortality rate than females for the past decade. Total cancer mortality rates among both males and females in Buncombe County appear to be falling. In the most recent aggregate period (2006-2010) the total cancer mortality rate for Buncombe County males (218.4) is 46.9% higher than the comparable rate for females (148.6).

Figure 10. Gender Disparities in Total Cancer Mortality, Buncombe County (Five-Year Aggregates, 2002-2006 through 2006-2010)



Buncombe County has a large enough minority population to yield stable, gender-stratified total cancer mortality rates for some minority groups. Figure 11 shows these differences in 2006-2010 for Buncombe County in comparison with similar state data. At the state level, total cancer mortality demonstrates significant racial disparity, with the minority rate higher than the non-minority rate. For example, statewide the total cancer mortality rate among non-Hispanic African American males (302.9) was almost 35% higher than the rate among non-Hispanic white males (224.6); in Buncombe County the comparable difference was 34%. In NC the rate among non-Hispanic African American females (166.6) was 12% higher than the rate among non-Hispanic white females (149.3); in Buncombe County, the comparable difference was 32%. In the same period statewide, the total cancer mortality rates for other non-Hispanics were 145.7 for males and 103.2 for females. Hispanics had the lowest total cancer mortality rates, 66.0 for males and 61.2 for females (*Data Workbook*)

Figure 11. Gender and Racial Disparities in Total Cancer Mortality, Buncombe County and NC Five-Year Aggregate (2006-2010)

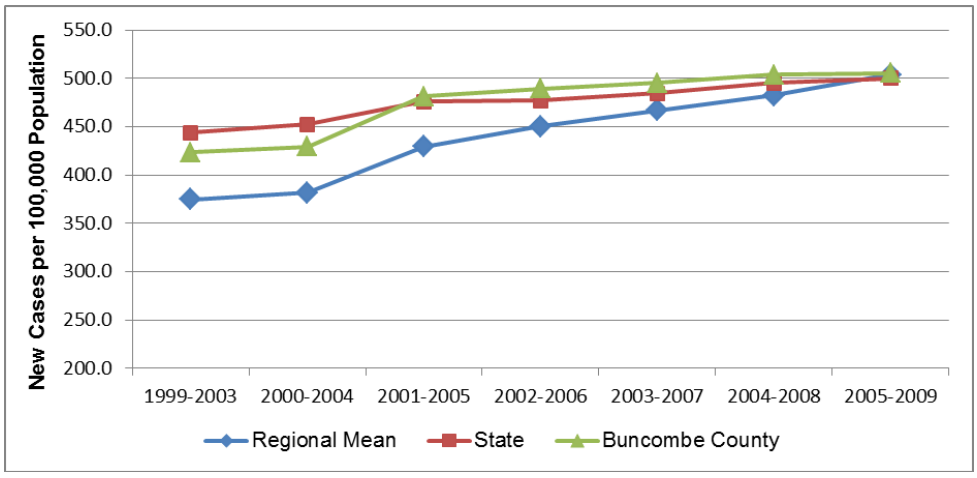


Since total cancer is a very significant cause of death, it is useful to examine patterns in the development of new cases of cancer in the county. The statistic important to understanding the growth of a health problem is *incidence*. Incidence is the population-based rate at which new cases of a disease occur and are diagnosed. It is calculated by dividing the number of newly diagnosed cases of a disease or condition during a given period by the population size during that period. Typically, the resulting value is multiplied by 100,000 and is expressed as cases per 100,000; sometimes the multiplier is a smaller number, such as 10,000 or 1,000. Cancer incidence rates were obtained from the NC Cancer Registry, which collects data on newly diagnosed cases from NC clinics and hospitals as well as on NC residents whose cancers were diagnosed at medical facilities in bordering states.

Figure 12 graphs the incidence rates for total cancer for seven five-year aggregate periods. From this data it appears that the incidence rate for total cancer increased in Buncombe County, WNC and NC between 1999-2003 and 2005-2009. In Buncombe County, the total cancer incidence rate rose from 423.3 at the beginning of the period cited to 505.5 at the end, an increase of 19.4%.

While both state and mean WNC total cancer incidence rates increased over the period cited in the graph, the slope of increase for WNC is greater than that for the state as a whole. The NC rate rose from 444.0 in 1999-2003 to 500.1 in 2005-2009, a 12.6% increase. The mean total cancer incidence rate in WNC rose from 374.5 in 1999-2003 to 503.8 in 2005-2009, an increase of 35%. Further, the regional incidence rate for total cancer, which for years had been below the comparable NC rate, surpassed the state rate for the first time in the 2005-2009 period.

Figure 12. Total Cancer Incidence Rate, New Cases per 100,000 Population (Five-Year Aggregates, 1999-2003 through 2005-2009)



To this point the discussion of cancer mortality and incidence has focused on figures for total cancer. In Buncombe County, as throughout both WNC and the state of NC, there are four site-specific cancers that cause most cancer deaths: breast cancer, colon cancer, lung cancer, and prostate cancer. Table 32 summarizes the age-adjusted mortality rates for the four site-specific cancers for the 2006-2010 aggregate period. In Buncombe County the mortality rate for breast cancer (24.5) was above both the mean WNC (24.3) and NC (23.4) rates. The county mortality rate for prostate cancer (24.8) was above the mean rate for WNC (22.9) but below the rate for NC (25.5). In Buncombe County lung cancer was the site-specific cancer with the highest mortality rate, followed by prostate cancer, breast cancer, and colon cancer. In WNC, lung cancer was the site-specific cancer with the highest mortality, followed by breast cancer, prostate cancer, and colon cancer.

Table 32. Age-Adjusted Mortality Rates for Major Site-Specific Cancers (2006-2010)

Geography	Deaths per 100,000 Population			
	Lung Cancer	Breast Cancer	Prostate Cancer	Colon Cancer
Buncombe County	52.5	24.5	24.8	13.8
Regional Mean	54.7	24.3	22.9	16.6
State	55.9	23.4	25,5	16,0

Multi-year mortality rate trends for these four site-specific cancers will be presented subsequently, as each cancer type is discussed separately.

Table 33 summarizes the age-adjusted incidence rates for these four site-specific cancers for the 2005-2009 aggregate period. From this data it appears that in Buncombe County, as in WNC, breast cancer was the site-specific cancer with the highest incidence, followed by prostate cancer, lung cancer, and colon cancer. The Buncombe County incidence rate for breast cancer was above both the mean WNC and NC rates; the county incidence rate for prostate cancer was above the comparable mean WNC rate, but below the NC rate. The county incidence rates for lung cancer and colon cancer were lower than in the other two jurisdictions. Multi-year incidence rate trends for these four site-specific cancers will be presented subsequently, as each cancer type is discussed separately.

Table 33. Age-Adjusted Incidence Rates for Major Site-Specific Cancers (2005-2009)

Geography	New Cases per 100,000 Population			
	Breast Cancer	Prostate Cancer	Lung Cancer	Colon Cancer
Buncombe County	164.1	154.7	74.8	42.6
Regional Mean	154.0	139.2	75.4	46.0
State	154.5	158.3	75.9	45.5

Lung Cancer Mortality

Lung cancer was the leading cause of cancer mortality in Buncombe County in the 2006-2010 aggregate period (Table 32, cited above). Figure 13 plots lung cancer mortality rates for several aggregate periods. This data reveals that the lung cancer mortality rate in Buncombe County was between WNC and NC rates for most of the period cited in the graph, and that the rates in all three jurisdictions fell from the beginning of the period to the end. The lung cancer mortality rate in Buncombe County fell from 59.1 for 2002-2006 to 52.5 for 2006-2010, a decrease of 11.2%. In the 2006-2010 aggregate period the county rate was lower than the WNC or NC rate. Statewide the lung cancer mortality rate fell from 59.8 for 2002-2006 to 55.9 for 2006-2010, a 6.5% decrease over the period. The comparable mean WNC rate fluctuated somewhat but was essentially the same at the end of the period as at the beginning (54.7 vs. 54.2, respectively).

Figure 13. Lung Cancer Mortality Rate, Deaths per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)

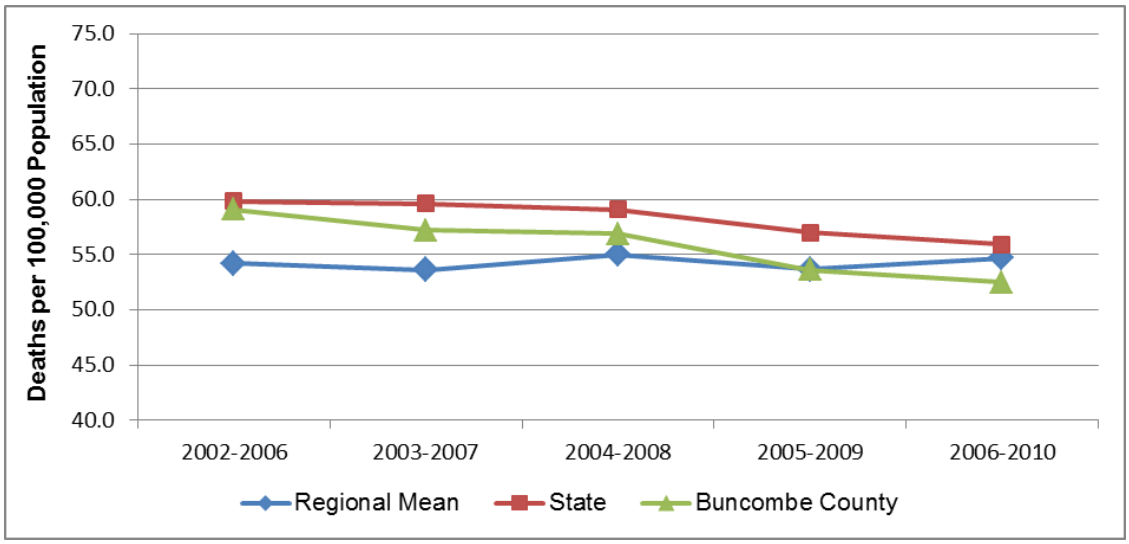
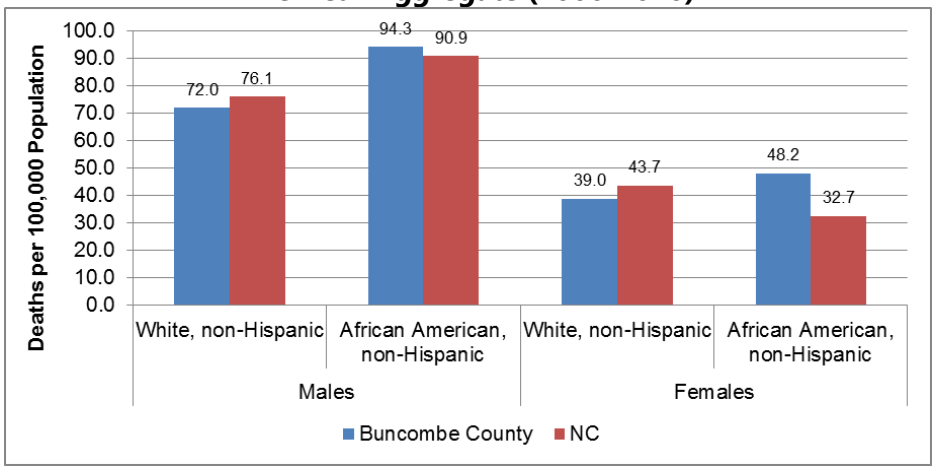


Figure 14 presents gender-stratified Buncombe County lung cancer mortality rates for several aggregate periods. From this data it is clear that males experience disproportionately higher lung cancer mortality than females, with the lung cancer mortality rate among men from 75%-85% higher than the rate among women over the period cited. Of further note is the apparent decrease in lung cancer mortality rates among both Buncombe County males and females.

Figure 14. Gender Disparities in Lung Cancer Mortality, Buncombe County (Five-Year Aggregates, 2002-2006 through 2006-2010)

Buncombe County has a large enough minority population to yield stable, gender-stratified lung cancer mortality rates for some minority groups. Figure 15 shows these differences in 2006-2010 for Buncombe County in comparison with similar state data. At the state level, lung cancer mortality demonstrates significant racial disparity. For example, statewide the lung cancer mortality rate among non-Hispanic African American males (90.9) was 19% higher than the rate among non-Hispanic white males (76.1); in Buncombe County the comparable difference was 30%. In NC the rate among non-Hispanic African American females (32.7) was 25% lower than the rate among non-Hispanic white females (43.7); in Buncombe County, the rate among non-Hispanic African American females (48.2) was 24% higher than the rate among non-Hispanic white females (39.0). In the same period statewide, the comparable rates among "Other" non-Hispanics were 47.2 for males and 24.6 for females. Hispanic males and females had the lowest lung cancer mortality rates, 12.7 and 8.6, respectively (*Data Workbook*).

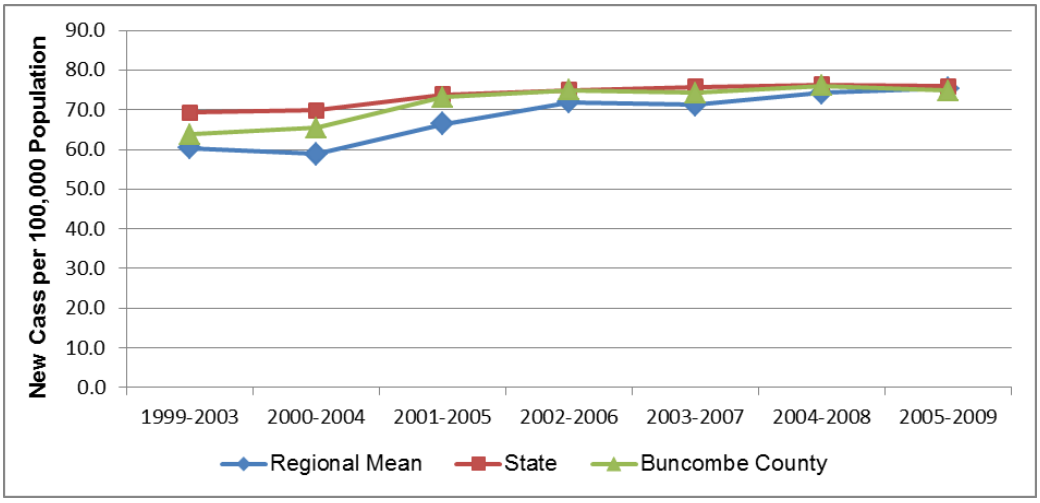
Figure 15. Gender and Racial Disparities in Lung Cancer Mortality, Buncombe County and NC Five-Year Aggregate (2006-2010)



Since lung cancer is a significant cause of mortality in Buncombe County, it is instructive to examine the trend of development of new lung cancer cases over time. Figure 16 depicts the seven-year trend of lung cancer incidence.

Lung cancer incidence in Buncombe County increased 17.2% (from 63.8 to 74.8) between 1999-2003 and 2005-2009. The mean lung cancer incidence rate in WNC increased 25.0% from the 1999-2003 aggregate period (60.3) to the 2005-2009 aggregate period (75.4), while the statewide lung cancer incidence rate increased by 9.5% (from 69.3 to 75.9) over the same time frame. Since lung cancer mortality is already on the rise in the region, the increase in the incidence rate may portend additional lung cancer mortality in the future.

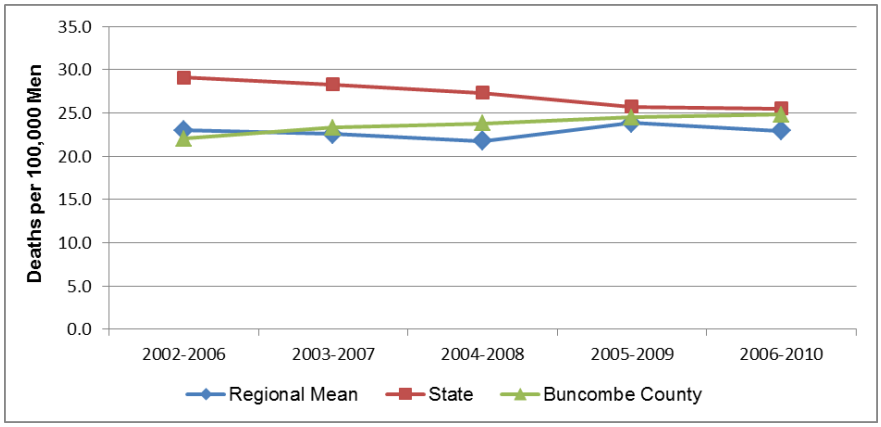
Figure 16. Lung Cancer Incidence, New Cases per 100,000 Population (Five-Year Aggregates, 1999-2003 through 2005-2009)



Prostate Cancer Mortality

In 2006-2010 prostate cancer was the second leading cause of cancer deaths in Buncombe County; region-wide, prostate cancer was the third leading cause of cancer deaths (Table 32, cited previously). Figure 17 plots the prostate cancer mortality trend for several aggregate periods. Statewide, prostate cancer mortality demonstrates a slight downward trend, with the 2006-2010 rate (25.5) approximately 12% lower than the comparable rate in 2002-2006 (29.1). In WNC, there has been fluctuation but little net decrease in the mean prostate cancer mortality rate over the period cited in the graph (23.0 the first aggregate period; 22.9 the last aggregate period). In Buncombe County, the prostate cancer mortality rate rose over the period cited, from 22.0 for 2002-2006 to 24.8 for 2006-2010, an increase of 12.7%.

Figure 17. Prostate Cancer Mortality Rate, Deaths per 100,000 Men (Five-Year Aggregates, 2002-2006 through 2006-2010)

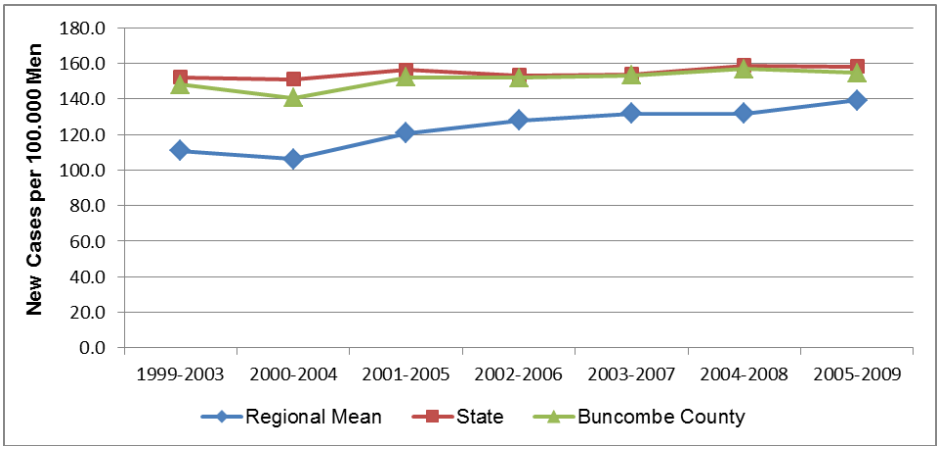


Note: There is some instability in the regional mean rates because each includes one or more unstable county rate.

In WNC, none of the 16 counties (including Buncombe County) had large enough minority populations to yield stable prostate cancer mortality rates for any minority group. Statewide, there is a significant racial disparity in prostate cancer mortality. For 2006-2010 in NC as a whole the prostate cancer mortality rate among non-Hispanic African American males (59.4) was *three times* the rate for either non-Hispanic white males (20.4) or "Other" non-Hispanic males (18.2). The prostate cancer mortality rate for Hispanic males (9.5) was the lowest of any minority group in NC (*Data Workbook*).

Prostate cancer incidence statewide has remained relatively stable in recent years, increasing by 4.1%, from 152.0 to 158.3, in the period from 1999-2003 through 2005-2009 (Figure 18). Over the same span of time, the mean prostate cancer incidence rate in WNC rose from 110.7 new cases per 100,000 men in the 1999-2003 period to 139.2 in 2005-2009 period, a total increase of 25.7%, or over six times the statewide percentage increase. In Buncombe County, the prostate cancer incidence rate approximated the NC rate throughout most of the period cited, rising from 148.0 to 154.7 over the same period, an overall increase of 4.5%

Figure 18. Prostate Cancer Incidence, New Cases per 100,000 Men (Five-Year Aggregates, 1999-2003 through 2005-2009)

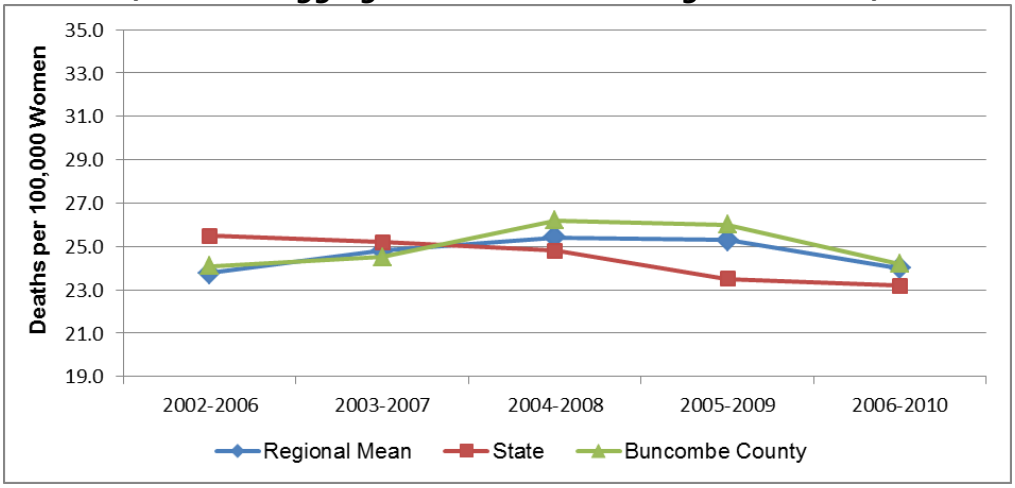


Note: There is some instability in the regional mean rates because each includes one or more unstable county rate.

Breast Cancer Mortality

Breast cancer was the third leading cause of cancer death in Buncombe County in 2006-2010 (Table 32, cited previously). Data in Figure 19 demonstrate that the breast cancer mortality rates in Buncombe County and WNC changed little from 2002-2006 through 2006-2010. In WNC, the mean breast cancer mortality rate displayed some volatility, but increased 0.8% overall, from 23.8 in 2002-2006 to 24.0 in 2006-2010. In Buncombe County, the breast cancer mortality rate also displayed volatility, but increased 0.4% overall, rising from 24.1 to 24.2 over the same period. At the state level, the breast cancer mortality rate fell over the period cited, from a high of 25.5 deaths per 100,000 women in 2002-2006 to a low of 23.2 in 2006-2010, a decrease of 9.0%. The breast cancer mortality rates in WNC and Buncombe County both exceeded the state rate in the three most recent aggregate periods.

Figure 19. Breast Cancer Mortality Rate, Deaths per 100,000 Women (Five-Year Aggregates, 2002-2006 through 2006-2010)

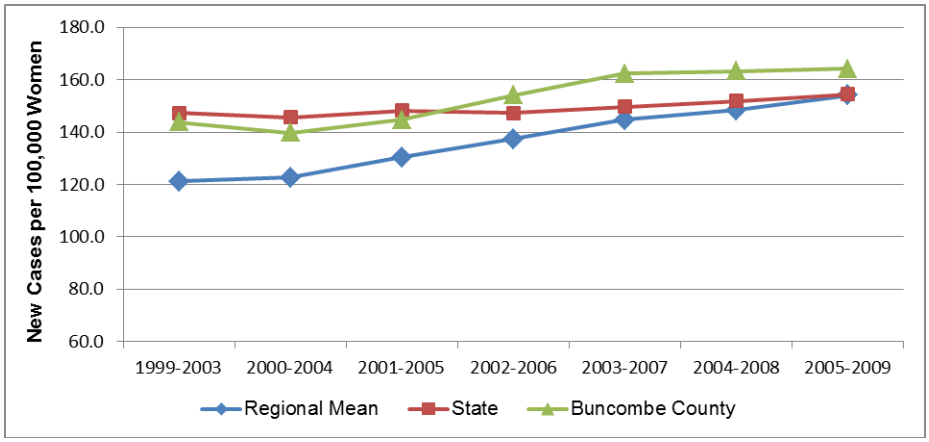


Note: There is some instability in the regional mean rates because each includes one or more unstable county rate.

In WNC, none of the 16 counties, including Buncombe, had large enough minority populations to yield stable breast cancer mortality rates for any minority group. At the state level, minority breast cancer mortality rates are higher than the non-minority rates. For example, statewide in 2006-2010 the breast cancer mortality rate among non-Hispanic African American women (30.7) was 40% higher than the comparable rate among non-Hispanic white women (21.9), and the rate among "Other" non-Hispanic women (11.7) was less than half the rate among non-Hispanic white women. The rate among Hispanic women (6.7) was far lower than the rate in any other population (*Data Workbook*).

Figure 20 demonstrates that the breast cancer incidence rate has been increasing in all three jurisdictions over the past several years. In Buncombe County, the breast cancer incidence rate rose from 143.7 new cases per 100,000 women in the 1999-2003 aggregate period to 164.1 in the 2005-2009 aggregate period, an increase of 14.2%. In WNC, the mean breast cancer incidence rate rose from 121.3 in the 1999-2003 aggregate period to 154.0 in the 2005-2009 aggregate period, an increase of 27.0%. At the state level, breast cancer incidence rate rose from 147.3 to 154.5 over the same period, an increase of approximately 5%.

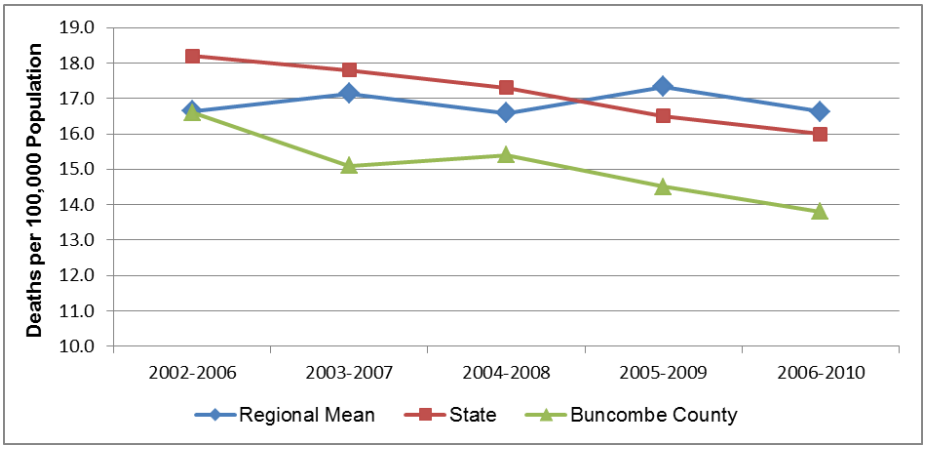
Figure 20. Breast Cancer Incidence, New Cases per 100,000 Women (Five-Year Aggregates, 1999-2003 through 2005-2009)



Colorectal Cancer Mortality

Cancer of the colon, rectum and anus (collectively "colorectal" cancer) caused the fourth largest mortality rate among the major site-specific cancers in Buncombe County, WNC and NC in the 2006-2010 period (Table 32, cited previously). Figure 21 plots the colorectal cancer mortality rate trend for several aggregate periods. The colorectal cancer mortality rate in Buncombe County fell from 16.6 in the 2002-2006 aggregate period to 13.8 in the 2006-2010 aggregate period, a decrease of 16.9%. As seen for a number of other cancers, the state colorectal cancer mortality rate has fallen steadily in recent years, from a high of 18.2 in the 2002-2006 period to a low of 16.0 in the 2006-2010 period, a rate decrease of 12.1%. In WNC, the mean colorectal cancer mortality rate fluctuated considerably, possibly due to a high proportion of unstable county rates, but was the same at the end of the period cited as at the beginning (16.6). In the most recent two aggregate periods, the mean regional colorectal cancer incidence rate surpassed the state rate, after being below the state rate for the prior three aggregate periods.

Figure 21. Colorectal Cancer Mortality Rate, Deaths per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)



Note: There is some instability in the regional mean rates because each includes one or more unstable county rate.

As shown in Figure 22, the colorectal cancer mortality rate differs between males and females in Buncombe County, with the rate for males higher than the rate for females. It is important to note that the colorectal cancer mortality rates among both males females appear to be decreasing. The rate among females was 15.7 in the 2002-2006 period and 12.7 in the 2006-2010 period, a decrease of 19.1%. Over this same period, the colorectal cancer mortality rate among males in Buncombe County fell from 18.0 to 15.0, a decrease of 16.7%

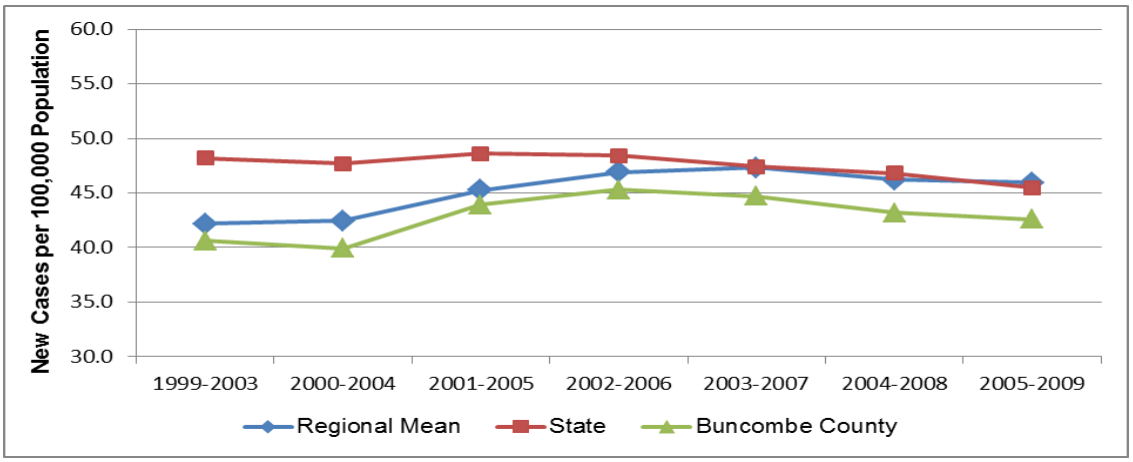
Figure 22. Gender Disparities in Colorectal Cancer Mortality, Buncombe County (Five-Year Aggregates, 2002-2006 through 2006-2010)

In WNC, none of the 16 counties (including Buncombe County) had large enough minority populations to yield stable colorectal cancer mortality rates for any minority group, so it is not possible to calculate stable mean region-wide colorectal cancer mortality rates for minorities. Statewide, colorectal cancer mortality rates demonstrate some racial disparities. In the 2006-2010 aggregate period, the colorectal cancer mortality rate among African American non-Hispanic males (29.0) was 58% higher than the comparable rate among white non-Hispanic males (18.4) and over three times the rate among Other non-Hispanic males (9.0). Statewide in the same period the colorectal cancer mortality rate was 18.5 for African American non-Hispanic females, 12.4 for white non-Hispanic females, and 9.9 for Other non-Hispanic females. Statewide, the colorectal cancer mortality rates were lowest for Hispanic males (7.4) and Hispanic females (5.4) (*Data Workbook*).

From data in Figure 23 it is apparent that the incidence rate for colorectal cancer in Buncombe County rose over the full period cited, from 40.6 in 1999-2003 to 42.6 in 2005-2009, an increase of 4.9%. The mean WNC colorectal cancer incidence rate has been, until recently, following a different trend than the comparable state rate. In the 1999-2003 aggregate period, the mean colorectal cancer incidence rate in WNC (42.2) was 12% lower than the comparable state rate

(48.2). By the 2005-2009 aggregate period, the state colorectal cancer rate had fallen to 45.5 (a decrease of over 5%), but the mean WNC rate had risen to 46.0 (an increase of 9%). The colorectal cancer incidence rate in Buncombe County was lower than the WNC and NC rates throughout the period cited.

Figure 23. Colorectal Cancer Incidence, New Cases per 100,000 Population (Five-Year Aggregates, 1999-2003 through 2005-2009)



Chronic Lower Respiratory Disease (CLRD) Mortality

Chronic lower respiratory disease (CLRD) is composed of three major diseases, chronic bronchitis, emphysema, and asthma, all of which are characterized by shortness of breath caused by airway obstruction and sometimes lung tissue destruction. The obstruction is irreversible in chronic bronchitis and emphysema, reversible in asthma. Before 1999, CLRD was called chronic obstructive pulmonary disease (COPD). Some in the field still use the designation COPD, but limit it to mean chronic bronchitis and emphysema only. In the United States, tobacco use is a key factor in the development and progression of CLRD/COPD, but exposure to air pollutants in the home and workplace, genetic factors, and respiratory infections also play a role (West Virginia Health Statistics Center, 2006).

CLRD/COPD was the third leading cause of death in WNC and in Buncombe County for the 2006-2010 aggregate period (Table 30, cited previously).

Figure 24 plots CLRD mortality rates for five aggregate periods. The CLRD mortality rate has been relatively stable in Buncombe County, WNC and NC for the overall period from 2002-2006 through 2006-2010. Buncombe County had the highest rates of the three jurisdictions over the entire period. The data also shows that CLRD mortality has been and remains higher in WNC

than in the state as a whole. The mean WNC CLRD mortality rate ranged from 5% to 10% higher than NC rate throughout the period cited in Figure 24. Neither the NC nor the mean WNC CLRD mortality rates improved significantly over the period. In 2006-2010, CLRD mortality rates were 52.9 in Buncombe County, 46.4 in NC, and 51.1 in WNC.

Figure 24. CLRD Mortality Rate, Deaths per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)

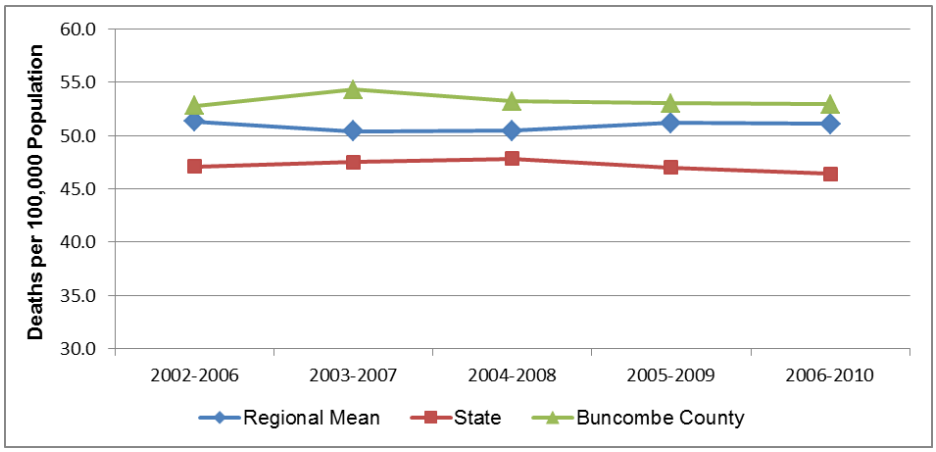


Figure 25 shows how in Buncombe County the CLRD mortality rate among males exceeded the comparable rate among females over the past decade. However, the gender gap appeared to be closing: the CLRD mortality difference between men and women in Buncombe County, which was 28% in the 2002-2006 period, was 12% in the 2006-2010 period, as the mortality rate among males decreased 7.2% (from 61.2 to 56.8) over the interval, and the rate among females increased 6.1% (from 47.8 to 50.7).

Figure 25. Gender Disparities in CLRD Mortality, Buncombe County (Five-Year Aggregates, 2002-2006 through 2006-2010)

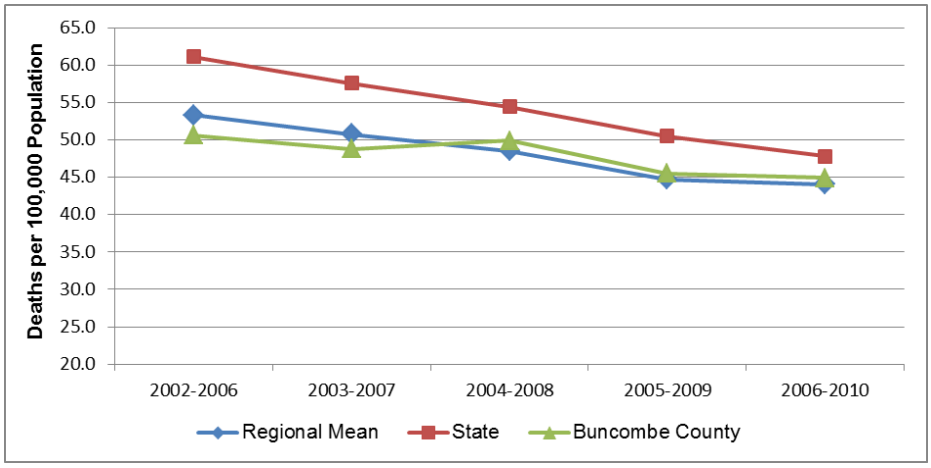
In WNC, none of the 16 counties, including Buncombe, had large enough minority populations to yield stable CLRD mortality rates for any minority group, so it is not possible to calculate a stable mean region-wide CLRD mortality rates for minorities. At the state level for the 2006-2010 aggregate period, the CLRD mortality rate was highest among non-Hispanic white males (58.7), followed by non-Hispanic white females (46.4), non-Hispanic African American males (45.1), Other non-Hispanic males (27.4), non-Hispanic females (21.1), and Other non-Hispanic females (15.6). CLRD mortality rates among Hispanic males and females are much lower (6.8 and 7.5, respectively) (*Data Workbook*).

Cerebrovascular Disease (Stroke) Mortality

Cerebrovascular disease describes the physiological conditions that lead to stroke. Strokes happen when blood flow to the brain stops and brain cells begin to die. There are two types of stroke. Ischemic stroke (the more common type) is caused by a blood clot that block or plugs a blood vessel in the brain. The other kind, called hemorrhagic stroke, is caused by a blood vessel that breaks and bleeds into the brain (US National Library of Medicine).

Cerebrovascular disease (stroke) was the fourth leading cause of death in both Buncombe County and WNC in the 2006-2010 aggregate period (Table 30, cited previously). Figure 26 plots stroke mortality rates for several aggregate periods. The stroke mortality rates for Buncombe County, WNC and NC all decreased over the period cited in the graph. The rate fell 11.7% in Buncombe County (from 50.6 to 44.9), 17.4% in WNC (from 53.3 to 44.9) and 21.8% in NC (from 61.1 to 47.8). In the most recent period (2006-2010) the county rate overtook the regional rate.

Figure 26. Cerebrovascular Disease Mortality Rate, Deaths per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)



Stroke is one cause of death for which there is little gender disparity in the WNC region (*Data Workbook)*. As the data in Figure 27 show, the same is the case in Buncombe County. In Buncombe County the stroke mortality rate among females varied from 2% to 7% higher than the comparable rate for males throughout the period cited. The stroke mortality rates for both men and women in the county appear to have decreased over the same period, for men by 16.7% and for women by 12.6%.

Figure 27. Gender Disparities in Cerebrovascular Disease Mortality, Buncombe County (Five-Year Aggregates, 2002-2006 through 2006-2010)

No county in WNC, including Buncombe, has large enough minority populations to yield stable cerebrovascular disease mortality rates for any minority group, so it is not possible to calculate stable mean region-wide cerebrovascular disease mortality rates for minorities. At the state level stroke mortality demonstrates a significant racial disparity. Statewide in the 2006-2010 aggregate period African American non-Hispanic males and females had the highest stroke mortality rates, 71.4 and 60.1, respectively. The comparable rate for non-Hispanic white males was 44.9, and the rate for non-Hispanic white females was 43.6, and the rate for Other non-Hispanic males was 39.6 and the rate for Other non-Hispanic females was 30.0. The Hispanic population had the lowest stroke mortality rates statewide over the same period, 13.1 among males and 15.2 among females (*Data Workbook*).

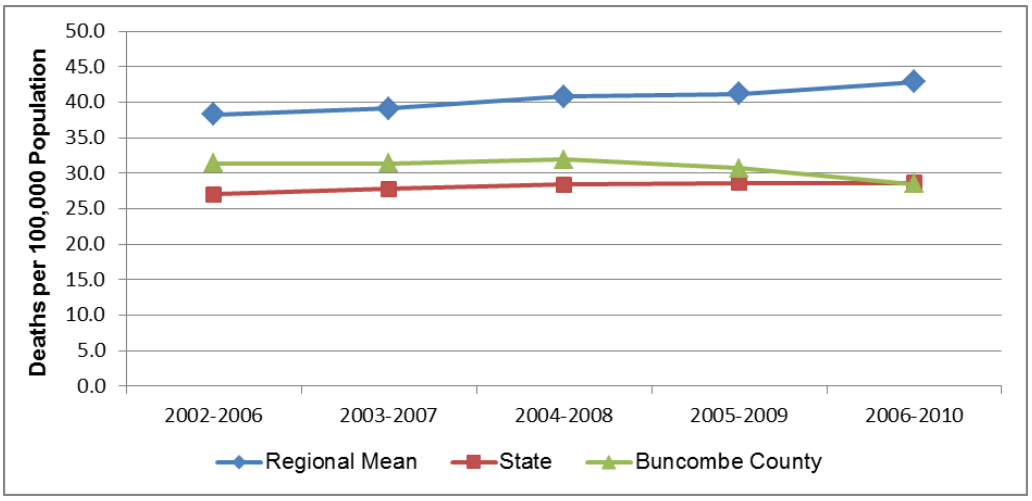
Non-Motor Vehicle Injury Mortality ("All Other Injuries Mortality")

Mortality due to injuries *not* involving motor vehicles was the fifth leading cause of death in WNC, but the sixth leading cause of death in Buncombe County in the 2006-2010 aggregate

period (Table 30, cited previously). This "all other injuries" category includes death without purposeful intent due to poisoning, falls, burns, choking, animal bites, drowning, and occupational or recreational injuries. (Death due to injury involving motor vehicles is a separate cause of death and will be covered subsequently.)

Figure 28 plots the trend in mortality due to all other injuries for five aggregate periods. Throughout most of the period cited, the non-motor vehicle injury mortality rate in Buncombe County exceeded the comparable state figure, but was lower than the mean WNC rate. While the state rate increased 5.9% (from 27.0 to 28.6) over the entire span cited, the mean WNC rate rose 12.3% from the first period (38.2) to the last (42.9). Over the same span, the comparable rate in Buncombe County fell 9.2%, from 31.4 to 28.5.

Figure 28. All Other Unintentional Injury Mortality Rate, Deaths per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)



Note: There is some instability in the regional mean rates because each includes one or more unstable county rate.

As in other leading causes of death, non-motor vehicle injury mortality in Buncombe County demonstrates a strong gender disparity (Figure 29). In each of the periods cited, the mortality rate for all other unintentional injuries among males was twice the comparable rate among females. The non-motor vehicle injury mortality rate among both men and women in Buncombe County decreased overall between the 2002-2006 and 2006-2010 aggregate periods; the decrease was 12.3% among males (from 43.8 to 38.4), and 6.6% among females (from 21.2 to 19.8).

Figure 29. Gender Disparities in All Other Unintentional Injury Mortality, Buncombe County (Five-Year Aggregates, 2002-2006 through 2006-2010)

In WNC, none of the 16 counties, including Buncombe, had large enough minority populations to yield stable all other injury mortality rates for any minority group, so it is not possible to calculate stable mean region-wide rates for minorities. At the state level for 2006-2010, mortality rates attributable to non-motor vehicle injury are higher among males of each race/ethnicity than females. All other injury mortality rates are highest among non-Hispanic white males (42.2), non-Hispanic African American males (31.7), Other non-Hispanic males (25.6) and Hispanic males (15.0). Comparable rates for females are 23.0 for non-Hispanic white females, 13.1 for non-Hispanic African American females, 12.5 for Other non-Hispanic females, and 6.2 for Hispanic females (*Data Workbook*).

Alzheimer's Disease Mortality

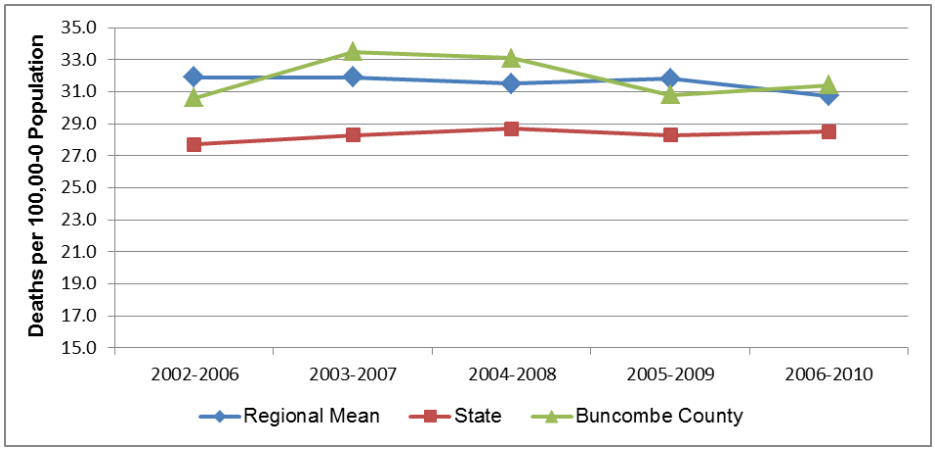
Alzheimer's disease is a progressive neurodegenerative disease affecting mental abilities including memory, cognition and language. Alzheimer's disease is characterized by memory loss and dementia. The risk of developing Alzheimer's disease increases with age (e.g., almost half of those 85 years and older suffer from Alzheimer's disease). Early-onset Alzheimer's has been shown to be genetic in origin, but a relationship between genetics and the late-onset form of the disease has not been demonstrated. No other definitive causes have been identified (National Institute on Aging, 2012).

Alzheimer's disease was the sixth leading cause of death in WNC but the fifth leading cause of death in Buncombe County for the aggregate period 2006-2010 (Table 30, cited previously).

Figure 30 plots Alzheimer's disease mortality rates over several aggregate periods. The Alzheimer's disease mortality rate in Buncombe County appears to be somewhat variable,

ranging both above and below the regional mean rate over the period cited in the figure. The mean Alzheimer's disease mortality rate in WNC was higher than the comparable state rate throughout the span of time cited in Figure 30, despite the fact that the data used are all age-adjusted. Note, however, that NC SCHS made the age-adjustment calculations on the basis of the 2000 US Census, and as we have seen, the "elderly" population in WNC has grown considerably since 2000. It should be noted that the difference between the WNC and NC rates may look different once the 2010 Census becomes the basis of the age adjustment. In the 2006-2010 aggregate period the Alzheimer's disease mortality rate was 31.4 in Buncombe County, 30.7 in WNC, and 28.5 in NC.

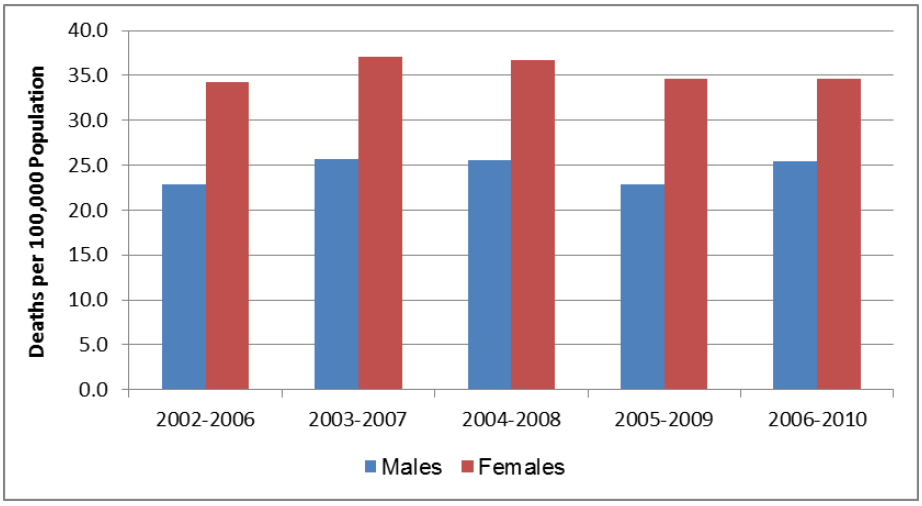
Figure 30. Alzheimer's Disease Mortality Rate, Deaths per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)



Note: There is some instability in the regional mean rates because each includes one or more unstable county rate.

Alzheimer's disease mortality has a strong gender component, with mortality rates traditionally much higher among women than among men. In WNC, for example, the mean Alzheimer's disease mortality among women was from 51% to 62% higher than the rate among men over the past decade (*Data Workbook*). Figure 31 plots gender-stratified data for Alzheimer's disease mortality in Buncombe County. Gender-stratified Alzheimer's disease mortality rates for Buncombe County demonstrate some variability over the period covered in the figure, but the rates for county females were from 36% to 51% higher than comparable rates for county males over the period cited. In the 2006-2010 aggregate period the Alzheimer's disease mortality rate for Buncombe County females was 34.6 and for males, 25.4.

Figure 31. Gender Disparities in Alzheimer's Disease Mortality, Buncombe County (Five-Year Aggregates, 2002-2006 through 2006-2010)



In WNC, none of the 16 counties, including Buncombe, had large enough minority populations to yield stable Alzheimer's disease mortality rates for any minority group, so it is not possible to calculate stable mean region-wide rates for minorities. Statewide, the disparity in Alzheimer's disease mortality may be more gender-based than race-based. In NC as a whole in the 2006-2010 aggregate period, the Alzheimer's disease mortality rate for white non-Hispanic females was 32.5, compared to 23.3 for white, non-Hispanic males; the rate for African American non-Hispanic females was 27.6 compared to 20.9 for African American non-Hispanic males; and the rate for Other non-Hispanic females was 21.1 compared to 17.3 for Other non-Hispanic males. The Alzheimer's disease mortality rate for Hispanic females was 9.7; due to a small number of events, the NC SCHS did not release a comparable rate for Hispanic males (*Data Workbook*).

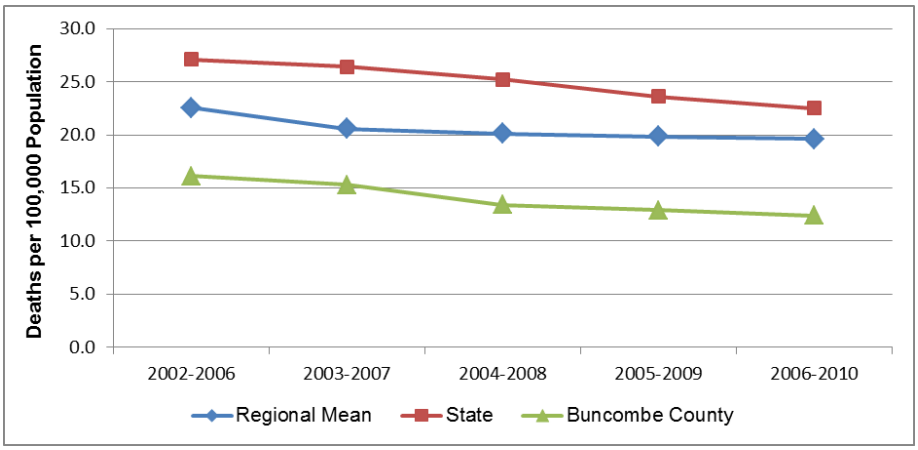
Diabetes Mellitus Mortality

Diabetes is a disease in which the body's blood glucose levels are too high due to problems with insulin production and/or utilization. Insulin is a hormone that helps the glucose get to cells where it is used to produce energy. With type 1 diabetes, the body does not make insulin. With type 2 diabetes, the more common type, the body does not make or use insulin well. Without enough insulin, glucose stays in the blood. Over time, having too much glucose in the blood can damage the eyes, kidneys, and nerves. Diabetes can also lead to heart disease, stroke and even the need to remove a limb (US National Library of Medicine).

Diabetes was the seventh leading cause of death in WNC, but the eleventh leading cause of death in Buncombe County in the 2006-2010 aggregate period (Table 30, cited previously).

Figure 32 plots trend data for diabetes mortality for several aggregate periods. According to data in Figure 32, the diabetes mortality rate in Buncombe County was below both the mean WNC and NC rates for the duration of the period cited. The mean diabetes mortality rate in WNC is and has been lower than the state rate. Statewide, the diabetes mortality rate fell from 27.1 to 22.5 (17.0%) over the period cited in the figure. Region-wide, the mean diabetes mortality rate fell from 22.6 to 19.6 (13.3%) over the same period. In Buncombe County the diabetes mortality rate declined 23.0% from the beginning of the period cited (16.1) to the end (12.4).

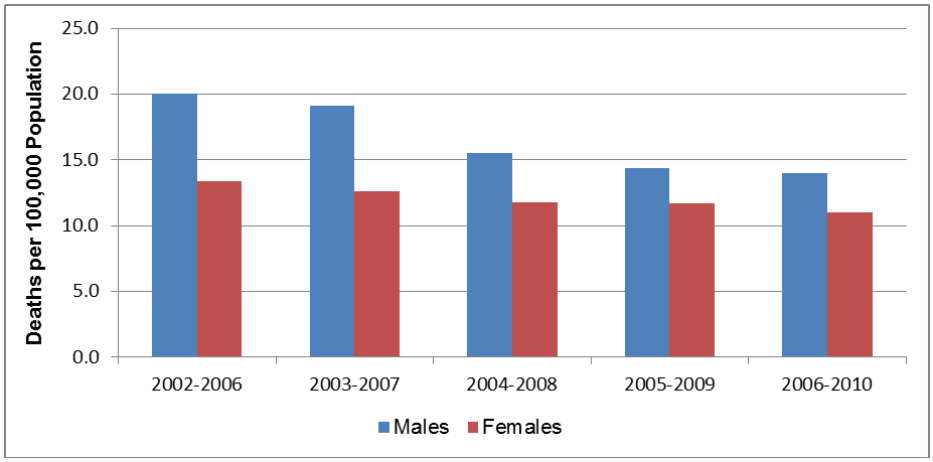
Figure 32. Diabetes Mellitus Mortality Rate, Deaths per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)



Note: There is some instability in the regional mean rates because each includes one or more unstable county rate.

Figure 33 plots gender-stratified diabetes mortality rates for Buncombe County, where diabetes mortality demonstrates a significant and changing gender disparity. From this data it would appear that the difference in diabetes mortality between men and women is narrowing as the rate for males is decreasing at a faster pace than is the rate for females. Over the period cited in Figure 33 the diabetes mortality rate among Buncombe County males fell from 20.0 to 14.0, a decrease of 30.0%. At the same time, the diabetes mortality rate among county females fell from 13.4 to 11.0, a decrease of 17.9%.

Figure 33. Gender Disparities in Diabetes Mellitus Mortality, Buncombe County (Five-Year Aggregates, 2002-2006 through 2006-2010)



In WNC, none of the 16 counties, including Buncombe County, had large enough minority populations to yield stable diabetes mortality rates for any minority group, so it is not possible to calculate stable mean region-wide rates for minorities. Statewide, diabetes mortality demonstrates significant racial disparities. At the state level in the 2006-2010 aggregate period, the highest diabetes mortality rates were observed among African American non-Hispanic males and females, with rates of 51.3 and 42.5, respectively. The next highest rates occurred among Other non-Hispanic persons, both male and female, with rates of 25.0 and 25.5, respectively. The diabetes mortality rate during this period for white non-Hispanics was 22.2 for males and 14.4 for females. The lowest diabetes mortality was observed in the Hispanic population, with a rate of 11.2 for men and 7.1 for women (*Data Workbook*).

Pneumonia and Influenza Mortality

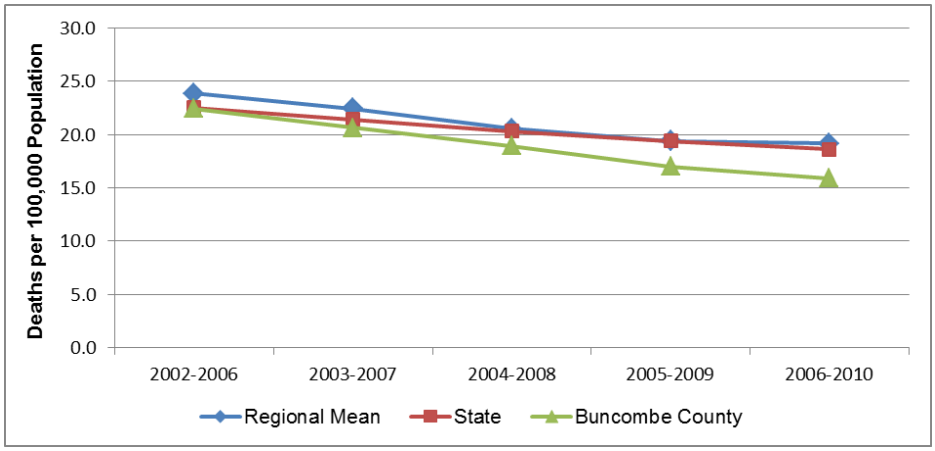
Pneumonia and influenza are diseases of the lungs. Pneumonia is an inflammation of the lungs caused by either bacteria or viruses. Bacterial pneumonia is the most common and serious form of pneumonia, and among individuals with suppressed immune systems, it may follow influenza or the common cold. Influenza (the "flu") is a contagious infection of the throat, mouth and lungs caused by an airborne virus (US National Library of Medicine).

The joint mortality category pneumonia and influenza was the eighth leading cause of death in both WNC and Buncombe County for the period 2006-2010 (Table 30, cited previously).

Figure 34 plots the mortality trend for pneumonia and influenza for several aggregate periods. From this data it is apparent that the mean pneumonia/influenza mortality rate in WNC closely paralleled the comparable NC rate throughout the period cited in the figure. Both the regional

and state mortality rates for this cause of death decreased in the net over the period. The mean WNC rate decreased from 23.8 to 19.1 (19.7%) and the comparable NC rate decreased from 22.5 to 18.6 (17.3%). A corresponding decrease in pneumonia/influenza mortality in Buncombe County was somewhat more dramatic, falling 29.0%, from 22.4 in 2002-2006 to 15.9 in 2006-2010. The county rate was lower than both the comparable WNC and NC rates by the end of the period shown in the figure.

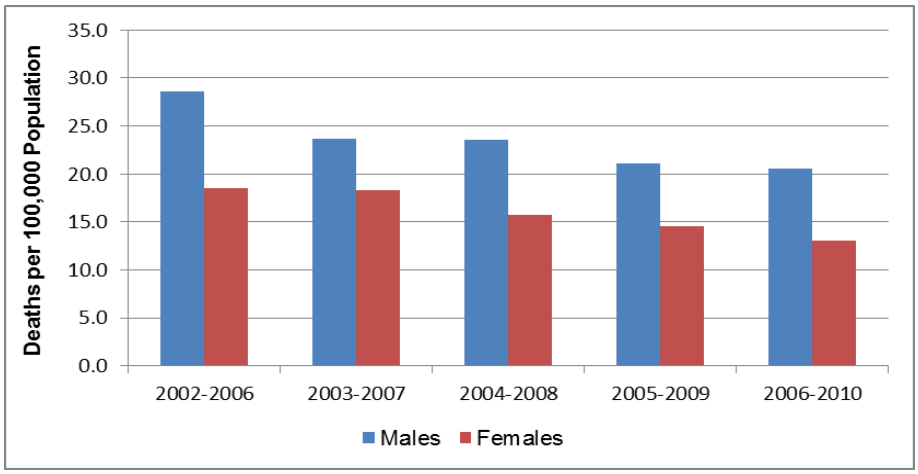
Figure 34. Pneumonia and Influenza Mortality Rate, Deaths per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)



Note: There is some instability in the regional mean rates because each includes one or more unstable county rate.

Figure 35 plots gender-stratified pneumonia/influenza mortality rates for Buncombe County for several aggregate periods. According to data displayed in the figure, males in the county had higher pneumonia/influenza mortality rates than females over the period cited, even as the rates among both Buncombe County males and females fell substantially. The rate among county males fell 28.0% from 28.6 to 20.6, and the rate among county females fell 29.2% from 18.8 to 13.1. In the 2006-2010 period the pneumonia/influenza mortality rate among Buncombe County males was 57.3% higher than the comparable rate among county females.

Figure 35. Gender Disparities in Pneumonia/Influenza Mortality, Buncombe County (Five-Year Aggregates, 2002-2006 through 2006-2010)



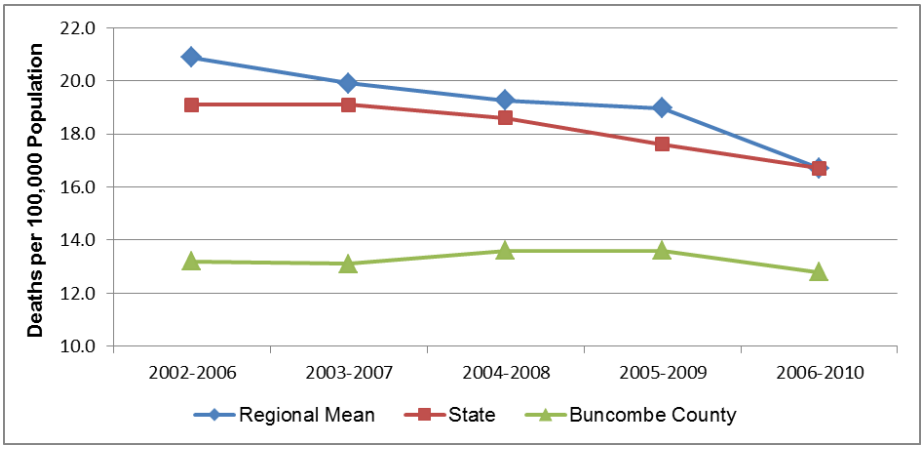
In WNC, none of the 16 counties, including Buncombe County had large enough minority populations to yield stable pneumonia/influenza mortality rates for any minority group, so it is not possible to calculate stable mean region-wide rates for minorities. At the state level pneumonia and influenza mortality rates demonstrate moderate racial disparities. Statewide in the 2006-2010 aggregate period the highest pneumonia/influenza mortality rate (24.1) occurred among African American non-Hispanic males, followed in order by white non-Hispanic males (21.5), white non-Hispanic females (17.3), African American non-Hispanic females (15.8), other non-Hispanic males (11.1), and other non-Hispanic females (9.0). The Hispanic population, both male and female, experienced the lowest pneumonia and influenza mortality rates, 5.8 and 7.1, respectively (*Data Workbook*).

Unintentional Motor Vehicle Injury (UMVI) Mortality

Death due to injuries incurred in unintentional motor vehicle crashes was the ninth leading cause of death in WNC and the tenth leading cause of death in Buncombe County in the 2006-2010 aggregate period (Table 30, cited previously).

Figure 36 plots UMVI mortality rates over several aggregate periods. From this data it appears that the mortality rate attributable to UMVI in Buncombe County was significantly lower than both the mean WNC and NC rates. UMVI mortality rates fell in WNC and NC over the period cited in the figure. In WNC, the mean UMVI mortality rate fell 20.1%, from 20.9 to 16.7, and in NC the rate fell 12.5%, from 19.1 to 16.7. Less overall change was apparent in Buncombe County, where the rate fell from 13.2 in the 2002-2006 aggregate period to 12.8 in the 2006-2010 aggregate period, a decrease of 3.0%.

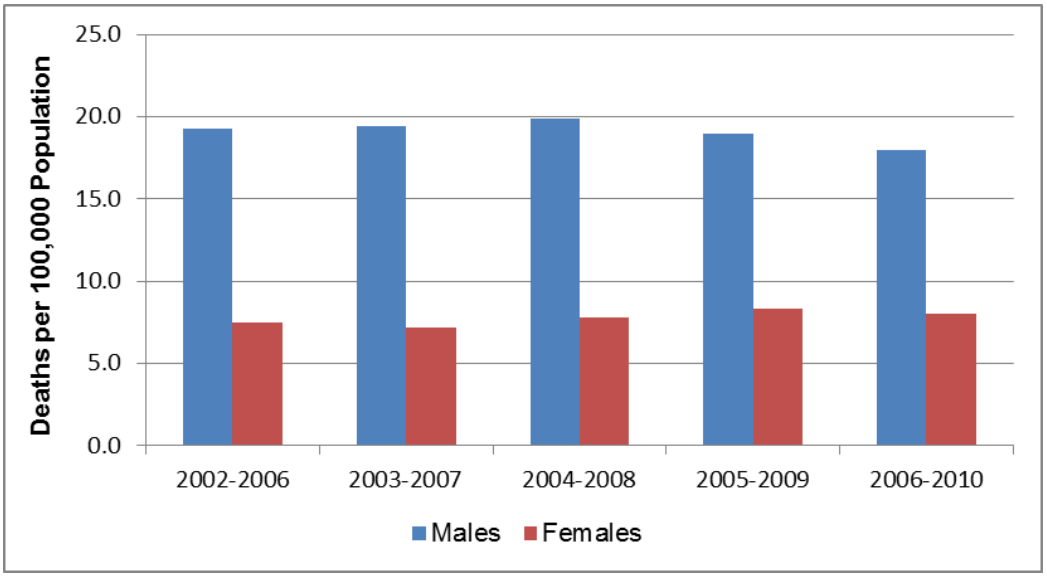
Figure 36. Unintentional Motor Vehicle Injury Mortality Rate
Deaths per 100,000 Population
(Five-Year Aggregates, 2002-2006 through 2006-2010)



Note: There is some instability in the regional mean rates because each includes one or more unstable county rate.

Figure 37 plots UMVI mortality differences between WNC men and women in Buncombe County for several aggregate periods. From this data it is apparent that UMVI mortality among Buncombe County males was from 2.3 to 2.7 times greater than the comparable rate among females over the period cited. While UMVI mortality rates among Buncombe County males decreased 6.7% (from 19.3 to 18.0) over the period shown, the comparable rate for county females actually increased 6.7%, from 7.5 to 8.0.

Figure 37. Gender Disparities in Unintentional Motor Vehicle Injury Mortality
Buncombe County
(Five-Year Aggregates, 2002-2006 through 2006-2010)



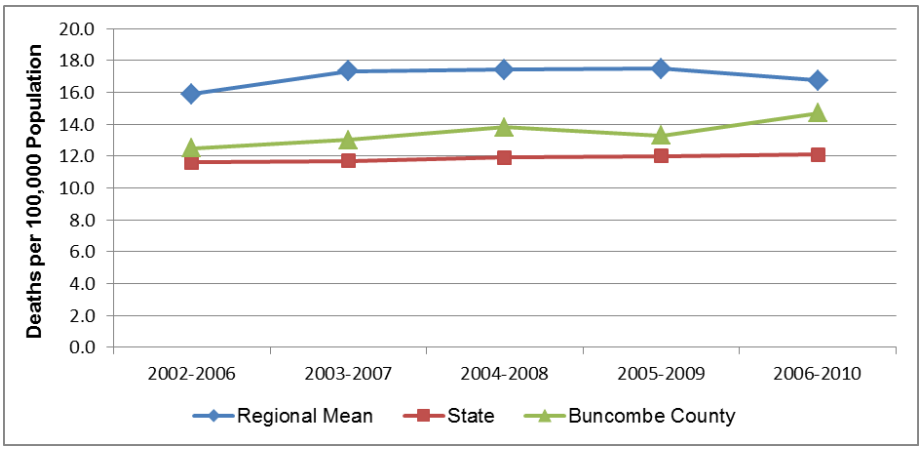
In WNC, none of the 16 counties, including Buncombe County, had large enough minority populations to yield stable UMVI mortality rates for any minority group, so it is not possible to calculate stable mean region-wide rates for minorities. Statewide, disparities in UMVI mortality appear more gender-based than racially-based. At the state level in 2006-2010, the highest UMVI mortality rates all occurred among males with the following rates, in decreasing order: 27.1 for African American non-Hispanic males, 24.2 for non-Hispanic males of other races, and 23.6 for both white non-Hispanic males and Hispanic males. Among women statewide the highest rates were noted among non-Hispanic females of other races (10.4), followed by white non-Hispanic females (9.9), African American non-Hispanic females (7.9) and Hispanic females (7.3) (*Data Workbook*).

Suicide Mortality

Suicide was the tenth leading cause of death in WNC and the ninth leading cause of death in Buncombe County for the 2006-2010 aggregate period (Table 30, cited previously).

Figure 38 plots suicide mortality rates for several aggregate periods. From these data it is clear that mortality due to suicide is lower in Buncombe County than in the WNC region, but higher than in NC as a whole. The mean suicide mortality rate in WNC ranged from 37% to 48% higher than the state rate over the period cited in Figure 38. While the suicide mortality rates in WNC and NC changed little over the period cited (with increases of 5.0% and 4.3%, respectively), the comparable rate in Buncombe County rose from 12.5 to 14.7, an increase of 17.6%.

Figure 38. Suicide Mortality Rate, Deaths per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)



Note: There is some instability in the regional mean rates because each includes one or more unstable county rate.

Suicide mortality in Buncombe County demonstrates a very pronounced gender disparity. From data in Figure 39 it is apparent that over the span of years cited in the figure, the suicide mortality rate for county males was 3.7 to 4.9 times the comparable rate for county females. In 2006-2010 the suicide mortality rate for Buncombe County males was 23.9; the comparable rate for females was 6.5. Note also that the suicide mortality rates for both men and women in Buncombe County increased over the period cited, by 16.8% among men and by 20.4% among women.

Figure 39. Gender Disparities in Suicide Mortality, Buncombe County (Five-Year Aggregates, 2002-2006 through 2006-2010)

In WNC, none of the 16 counties, including Buncombe County, had large enough minority populations to yield stable suicide mortality rates for any minority group, so it is not possible to calculate stable mean region-wide rates for minorities. At the state level, suicide mortality demonstrates a racial disparity as well as a gender disparity. Statewide in the 2006-2010 aggregate period the highest suicide mortality rates occurred among white non-Hispanic males (23.9) followed by other non-Hispanic males (10.8), African American non-Hispanic males (8.6) and Hispanic males (7.4). Among females, the highest suicide mortality rates occurred among white non-Hispanic females (6.7) followed by other non-Hispanic females (4.7), Hispanic females (1.7) and African American non-Hispanic females (1.5) (*Data Workbook*).

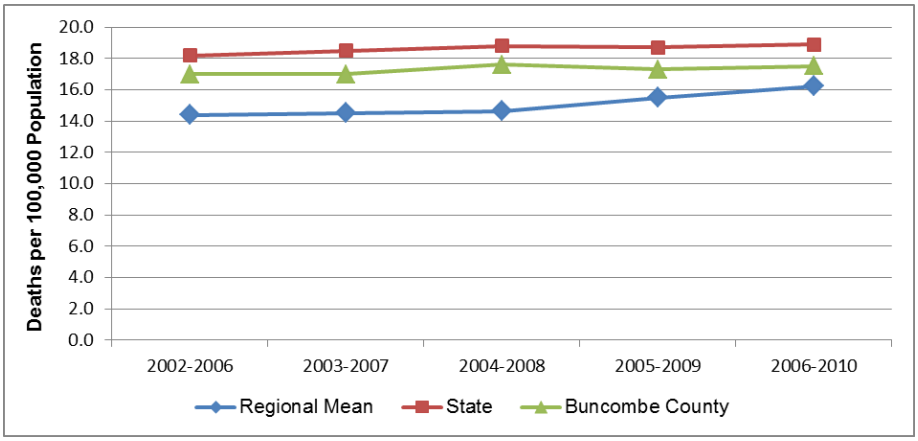
Nephritis, Nephrotic Syndrome and Nephrosis (Kidney Disease) Mortality

Nephritis refers to inflammation of the kidney, which causes impaired kidney function. Nephritis can be due to a variety of causes, including kidney disease, autoimmune disease, and infection. *Nephrotic syndrome* refers to a group of symptoms that include protein in the urine, low blood protein levels, high cholesterol levels, high triglyceride levels, and swelling. *Nephrosis* refers to any degenerative disease of the kidney tubules, the tiny canals that make up much of the substance of the kidney. Nephrosis can be caused by kidney disease, or it may be a complication of another disorder, particularly diabetes (MedineNet.com, March 2012; PubMed Health, 2011).

Kidney disease was the eleventh leading cause of death in WNC, but the seventh leading cause of death in Buncombe County for the 2006-2010 aggregate period (Table 30, cited previously).

Figure 40 plots kidney disease mortality over several aggregate periods. This data reveals that the mean kidney disease mortality rate in WNC was below the comparable figure for NC as a whole, and that the mortality rate in Buncombe County was above the WNC rate but below the state rate for the entire period cited in the figure. Between the 2002-2006 aggregate period and the 2006-2010 aggregate period the mean regional kidney disease mortality rate climbed from 14.4 to 16.2 (12.5%), and the NC rate increased slightly, from 18.2 to 18.9 (3.8%). In Buncombe County the kidney disease mortality rate rose from 17.0 to 17.5 (2.9%).

Figure 40. Kidney Disease Mortality Rate, Deaths per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)



Note: There is some instability in the regional mean rates because each includes one or more unstable county rate.

Figure 41 displays mean gender-stratified kidney disease mortality data for Buncombe County. According to data presented in Figure 41, the kidney disease mortality rate among Buncombe County men was from 31% to 49% higher than the comparable rate among county women throughout the span of time cited in the figure. While the kidney disease mortality rate among Buncombe County males remained relatively stable over the period cited, the rate among county females rose 9.0% (from 14.4 to 15.7) over the same period.

Figure 41. Gender Disparities in Kidney Disease Mortality, Buncombe County (Five-Year Aggregates, 2002-2006 through 2006-2010)

No county in WNC, including Buncombe, had large enough minority populations to yield stable kidney disease mortality rates for any minority group, so it is not possible to calculate stable mean region-wide rates for minorities. Statewide for 2006-2010 kidney disease mortality rates demonstrate both racial and gender disparities. Men of all racial groups suffer kidney disease mortality at rates higher than their female counterparts in the same racial group, and non-Hispanic African Americans of either gender have the highest kidney disease mortality rates among their gender group. For instance, kidney disease mortality among non-Hispanic African American males in this period was 42.4, compared to 19.7 among non-Hispanic white males, 18.0 among other non-Hispanic males, and 7.1 among Hispanic males. Similarly, the kidney disease mortality rate among non-Hispanic African American females was 34.6, followed by 15.3 among other non-Hispanic females, 12.5 among non-Hispanic white females, and 5.4 among Hispanic females (*Data Workbook*).

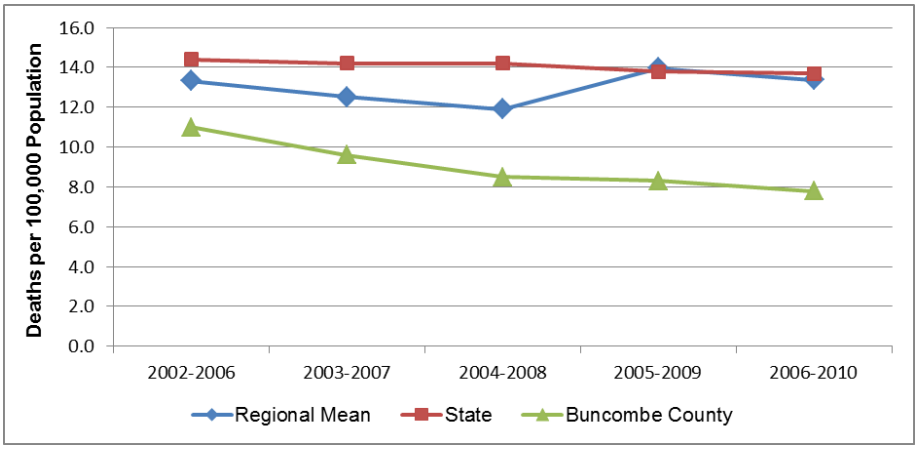
Septicemia Mortality

Septicemia is a rapidly progressing infection resulting from the presence of bacteria in the blood. The disease often arises from other infections throughout the body, such as meningitis, burns, and wound infections. Septicemia can lead to septic shock in which case low blood pressure and low blood flow cause organ failure (US National Library of Medicine). While septicemia can be community-acquired, some cases are acquired by patients hospitalized initially for other conditions; these are referred to as nosocomial infections. Sepsis is now a preferred term for septicemia, but NC SCHS continues to use the older term.

Septicemia was the twelfth leading cause of death in WNC and the thirteenth leading cause of death in Buncombe County for the aggregate period 2006-2010 (Table 30, cited previously).

Figure 42 plots septicemia mortality data for several aggregate periods. This data shows that the mean WNC septicemia mortality rate fluctuated over the period cited in approaching the state rate, while the state rate decreased 4.9%, from 14.1 to 13.7. Fluctuation at the WNC-level may be attributed partly to unstable regional mean rates. In Buncombe County from the 2002-2006 aggregate period to the 2006-2010 aggregate period, the septicemia mortality rate fell 29.0%, from 11.0 to 7.8. Throughout the period cited in the figure the Buncombe County septicemia mortality rate was below both the WNC and NC rate.

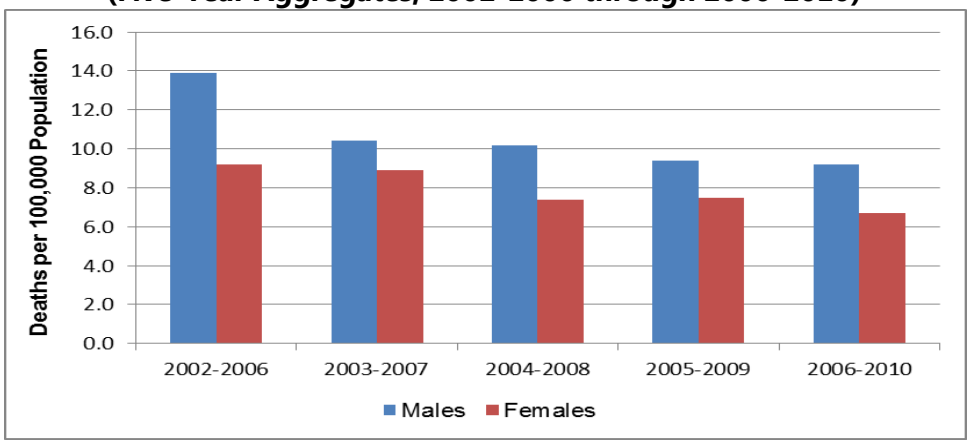
Figure 42. Septicemia Mortality Rate, Deaths per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)



Note: There is some instability in the regional mean rates because each includes one or more unstable county rate.

Gender-stratified septicemia mortality rates plotted for Buncombe County in Figure 43 demonstrate a gender disparity. It is clear from this data that septicemia mortality in Buncombe County is higher among males than females, but the character of the difference may be changing. In the 2002-2006 aggregate period the septicemia mortality rate for county males (13.9) was 51.1% higher than the rate among county females (9.2). By the 2006-2010 aggregate period, after several periods of decreases in mortality among both genders, the septicemia mortality rate among Buncombe County males had diminished to a point (9.2) 37.3% higher than the rate among county females (6.7).

Figure 43. Gender Disparities in Septicemia Mortality, Buncombe County (Five-Year Aggregates, 2002-2006 through 2006-2010)



In WNC, none of the 16 counties, including Buncombe County, had large enough minority populations to yield stable septicemia mortality rates for any minority group, so it is not possible to calculate stable mean region-wide rates for minorities. At the state level, where the calculation of stable septicemia mortality rates is possible, mortality is highest among African American non-Hispanics, both male and female. Statewide the septicemia mortality rate for African American non-Hispanic males in the 2002-2010 aggregate period was 23.7; for females of the same population group the rate was 18.8. For white non-Hispanic males the comparable rate was 13.7; for white non-Hispanic females the rate was 11.5. Among other non-Hispanic males the septicemia mortality rate was 10.6; among other non-Hispanic females the rate was 7.6. The lowest septicemia mortality rates occurred among Hispanics; for males the rate was 5.3, and for females, 4.9 (*Data Workbook*).

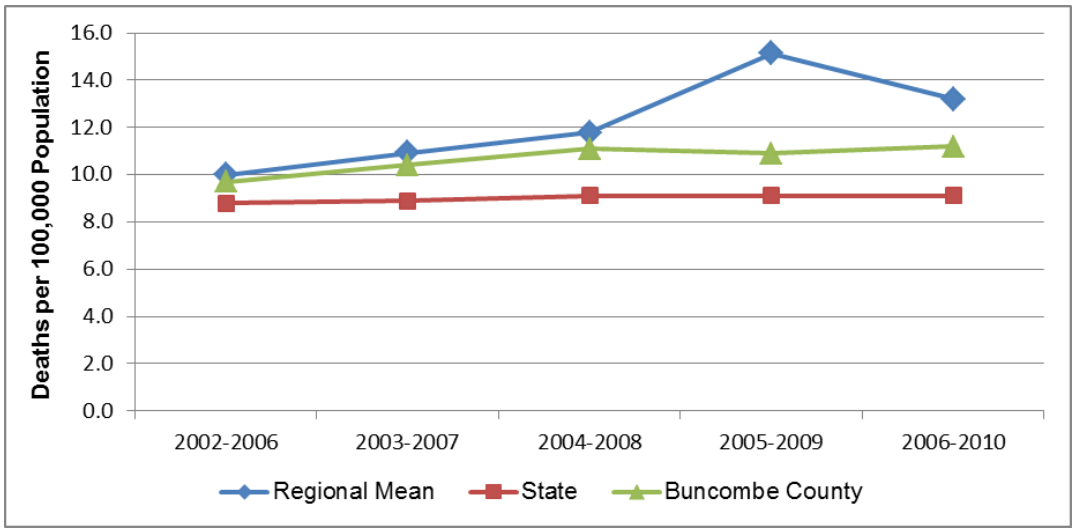
Chronic Liver Disease and Cirrhosis Mortality

Chronic liver disease describes an ongoing disturbance of liver function that causes illness. Liver disease, also referred to as hepatic disease, is a broad term that covers all the potential problems that cause the liver to fail to perform its designated functions. Usually, more than 75% or three quarters of liver tissue needs to be affected before decrease in function occurs. Cirrhosis is a term that describes permanent scarring of the liver. In cirrhosis, the normal liver cells are replaced by scar tissue that cannot perform any liver function (MedicineNet.com, June 2012).

Chronic liver disease and cirrhosis was the thirteenth leading cause of death in WNC and the twelfth leading cause of death in Buncombe County in the 2006-2010 aggregate period (Table 30, cited previously).

Figure 44 plots mortality data for liver disease over several aggregate periods. This data shows that the liver disease mortality rate in Buncombe County was higher than the comparable NC rate but lower than the mean WNC rate throughout the period cited. The mean WNC rate exceeded the state rate throughout the period cited. It also appears that the regional and Buncombe County rates have risen over the period cited. In WNC, the mean chronic liver disease mortality rate rose from 10.0 for 2002-2006 to 13.2 for 2006-2010, an increase of 32%. In Buncombe County, the comparable rise was from 9.7 to 11.2, a 15.5% increase. Throughout this period the state liver disease mortality rate has been stable at or near 9.1%.

Figure 44. Chronic Liver Disease and Cirrhosis Mortality Rate
Deaths per 100,000 Population
(Five-Year Aggregates, 2002-2006 through 2006-2010)



Gender-stratified data presented in Figure 45 reveals a strong gender-based disparity in liver disease mortality rates in Buncombe County. This gender-stratified data for several aggregate periods shows that mean liver disease mortality rates among Buncombe County men ranged from 2.9 to 3.5 times the comparable rates among Buncombe County women. Over the span of time depicted in the figure, the rate among county males rose 7.6% (from 15.8 to 17.1) and the rate among county females rose 28.9% (from 4.5 to 5.8).

Figure 45. Gender Disparities in Chronic Liver Disease and Cirrhosis Mortality, Buncombe County (Five-Year Aggregates, 2002-2006 through 2006-2010)

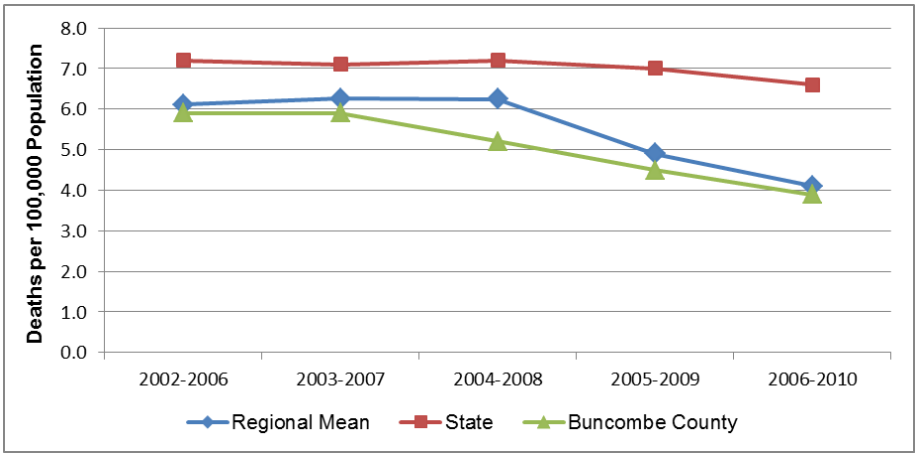
In WNC, none of the 16 counties, including Buncombe County, had large enough minority populations to yield stable chronic liver disease/cirrhosis mortality rates for any minority group, so it is not possible to calculate stable mean region-wide rates for minorities. At the state level, liver disease mortality rates demonstrate some differences among racial groups but a consistent trend of higher mortality rates among men than women. For example, the liver disease mortality rate is highest among white non-Hispanic men (13.8), followed by African American non-Hispanic men (11.2). The liver disease mortality rates among other non-Hispanic men was 7.5, and the rate among Hispanic men was 6.8. Liver disease mortality rates among females were highest for white non-Hispanic women (6.0), followed by other non-Hispanic women (5.2), and African American women non-Hispanic women (5.1). There were too few liver disease deaths among Hispanic women statewide to calculate a stable rate (*Data Workbook*).

Homicide Mortality

Death by homicide was the fourteenth leading cause of death in WNC and Buncombe County for the 2006-2010 aggregate period (Table 30, cited previously).

Figure 46 plots the homicide mortality rate trend over several aggregate periods. From this data it is apparent that homicide mortality rate in Buncombe County was lower than comparable rates for both WNC and NC as a whole throughout the period cited. The homicide mortality rate fell in all three jurisdictions over the period cited, from 5.9 to 3.9 (33.9%) in Buncombe County, from 6.1 to 4.1 (32.8%) in WNC, and from 7.2 to 6.6 (8.3%) in NC.

Figure 46. Homicide Mortality Rate, Deaths per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)



Note: There is some instability in the regional mean rates because each includes one or more unstable county rate.

According to data presented in Figure 47, the homicide mortality rate among Buncombe County males is approximately three to four times the rate among Buncombe County females. It should be noted, however, that the three rates provided for females are all unstable, and that NC SCHS did not compute homicide mortality rates for county females in the last two aggregate periods due to small numbers of events (n=13-16 homicide deaths per five-year aggregate period)

Figure 47. Gender Disparities in Homicide Mortality, Buncombe County (Five-Year Aggregates, 2002-2006 through 2006-2010)

In WNC, none of the 16 counties, including Buncombe County, had large enough minority populations to yield stable homicide mortality rates for any minority group, so it is not possible to calculate stable mean region-wide rates for minorities. At the state level homicide mortality demonstrates strong racial and gender disparities. In NC for the 2006-2010 aggregate period the highest homicide mortality rates were among African American non-Hispanic males (25.6), and Hispanic males and other non-Hispanic males (13.0). The next highest homicide mortality rate occurred among African American non-Hispanic females (5.2), followed by white, non-Hispanic males (4.6), other non-Hispanic females (3.4), Hispanic females (2.6), and white non-Hispanic females (2.2) (*Data Workbook*)

Acquired Immune Deficiency Syndrome (AIDS) Mortality

The human immunodeficiency virus (HIV) is the virus that causes AIDS. HIV attacks the immune system by destroying CD4 positive (CD4+) T cells, a type of white blood cell that is vital to fighting off infection. The destruction of these cells leaves people infected with HIV vulnerable to other infections, diseases and other complications. The acquired immunodeficiency syndrome (AIDS) is the final stage of HIV infection. A person infected with HIV is diagnosed with AIDS when he or she has one or more opportunistic infections, such as pneumonia or tuberculosis, and has a dangerously low number of CD4+ T cells (less than 200 cells per cubic millimeter of blood) (National Institutes of Health, 2012).

AIDS was the fifteenth leading cause of death in WNC and Buncombe County for the aggregate period 2006-2010 (Table 30, cited previously).

Because of small numbers of AIDS deaths across WNC, AIDS mortality rates are unstable or non-existent in 15 of the 16 counties in the region. A stable rate is available only for Buncombe County; hence it is not possible to plot meaningful regional AIDS mortality data. Figure 48 therefore plots only data for Buncombe County and the state as a whole. This data reveals that the AIDS mortality rate in Buncombe County was lower than the state rate across the range of years cited. However, while the state AIDS mortality rate decreased 23.5% (from 5.1 to 3.9) over the period cited, the comparable rate in Buncombe County changed little in the net.

Figure 48. AIDS Mortality Rate, Deaths per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)

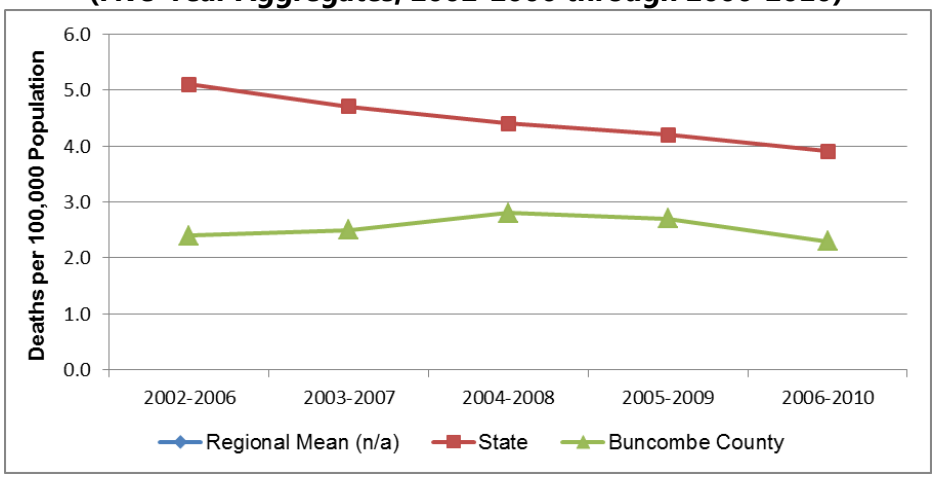
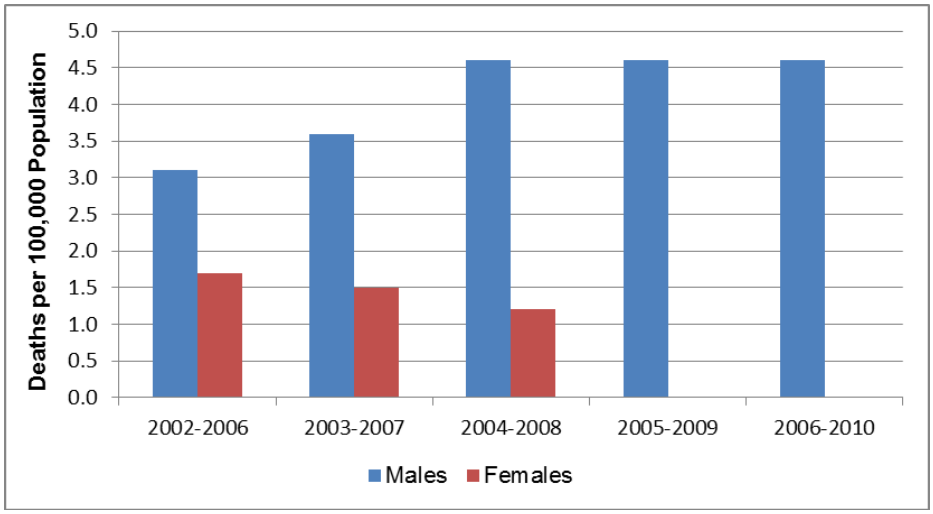


Figure 49 plots gender-stratified AIDS mortality data for Buncombe County. It is immediately apparent that in Buncombe County the AIDS mortality rate is much higher for males than for females. Note also that the rate among county males rose over the first three aggregate periods depicted in the figure and has remained at the highest level since. The three AIDS mortality rates shown for Buncombe County females are based on small numbers of events (n=7-10 deaths per five-year aggregate period) and should be considered unstable. The NC SCHS did not calculate female mortality rates for AIDS in Buncombe County for the last two aggregate periods for that reason.

Figure 49. Gender Disparities in AIDS Mortality, Buncombe County (Five-Year Aggregates, 2002-2006 through 2006-2010)



Even at the state level it is not possible to calculate a stable AIDS mortality rate for several minority population groups. Using the stable NC rates available, it is apparent that non-Hispanic African Americans suffered mortality attributable to AIDS at rates much higher than did other groups. For example, in the 2006-2010 aggregate period, the AIDS mortality rate for African American non-Hispanic men (20.2) was almost 12 times the rate among white non-Hispanic men (1.7), and the rate among African American non-Hispanic women (9.8) was almost 25 times the rate among white non-Hispanic women (0.4). The AIDS mortality rate among Hispanic men statewide during this period was 4.1; rates were not released for any other minority group because of below-threshold numbers of AIDS deaths (*Data Workbook*).

Life Expectancy

Life expectancy is the average number of additional years that someone at a given age would be expected to live if current mortality conditions remained constant throughout their lifetime. As the above data has demonstrated, there are many factors, from the prenatal period through the senior years, which can affect life expectancy. Table 34 presents a fairly recent summary of life expectancy for Buncombe County, WNC, and NC as a whole. From this data it appears that females born in Buncombe County in the period cited could expect to live 5.7 years longer than males born at the same time. Similarly, females born in WNC in the period cited in the table could expect to live 5.5 years longer on average than males born under the same parameters. African Americans born in Buncombe County at the same time could expect to live a 4.8 year shorter lifespan than their white counterparts; in WNC the comparable difference is 3.3 years. Life expectancy overall in Buncombe County (78.3 years) is 1.3 years longer than life expectancy in WNC (77.0 years), where life expectancy in turn is 0.3 years shorter than for the state as a whole (77.3 years).

Table 34. Life Expectancy at Birth (2006-2008)

Geography	Overall	Gender		Race	
		Male	Female	White	African American
Buncombe County	78.3	75.4	81.1	78.6	73.8
Regional Arithmetic Mean	77.0	74.3	79.8	77.3	74.0
State Total	77.3	74.5	80.0	78.1	73.8

Morbidity Data

Morbidity as used in this report refers generally to the current presence of injury, sickness or disease (and sometimes the symptoms and/or disability resulting from those conditions) in the living population. In this report disability, diabetes, obesity, injury, communicable disease (including sexually-transmitted infections) and mental health conditions are the topics covered under morbidity.

The parameter most frequently used to describe the current extent of any condition of morbidity in a population is *prevalence*. Prevalence is the number of existing cases of a disease or health condition in a population at a defined point in time or during a period. Prevalence usually is expressed as a proportion, not a rate, and often represents an estimate rather than a direct count.

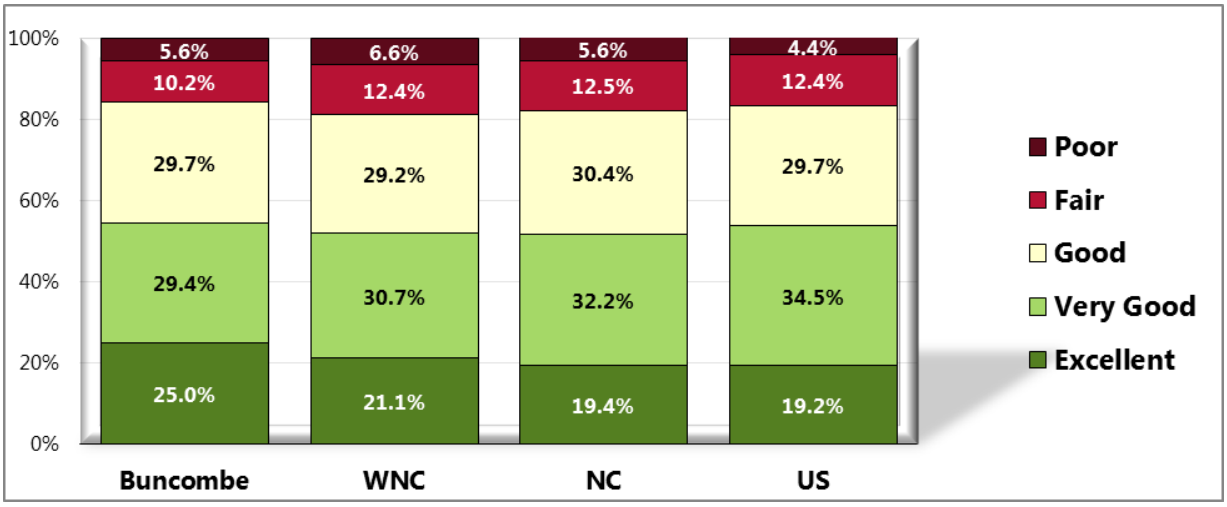
Why is this Important?

Health-related quality of life (HRQoL) is a multi-dimensional concept that includes domains related to physical, mental, emotional and social functioning. It goes beyond direct measures of population health, life expectancy and causes of death, and focuses on the impact health status has on quality of life. Understanding the HRQoL of the population helps communities identify unmet health needs, assess disparities among demographic and socioeconomic subpopulations, characterized the burden of disabilities and chronic disease, and track population patterns and trends. (County Health Rankings and Roadmaps)

Self-Reported Health Status

Survey respondents were asked, "Would you say that in general your health is excellent, very good, good, fair, or poor?"

Figure 50. Self-Reported Health Status (WNC Healthy Impact Survey)



Sources:
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 12]
- Behavioral Risk Factor Surveillance System Survey Data. Atlanta, Georgia. United States Department of Health and Human Services, Centers for Disease Control and Prevention (CDC): 2010 North Carolina data.
- 2011 PRC National Health Survey, Professional Research Consultants, Inc.

Notes:
- Asked of all respondents.

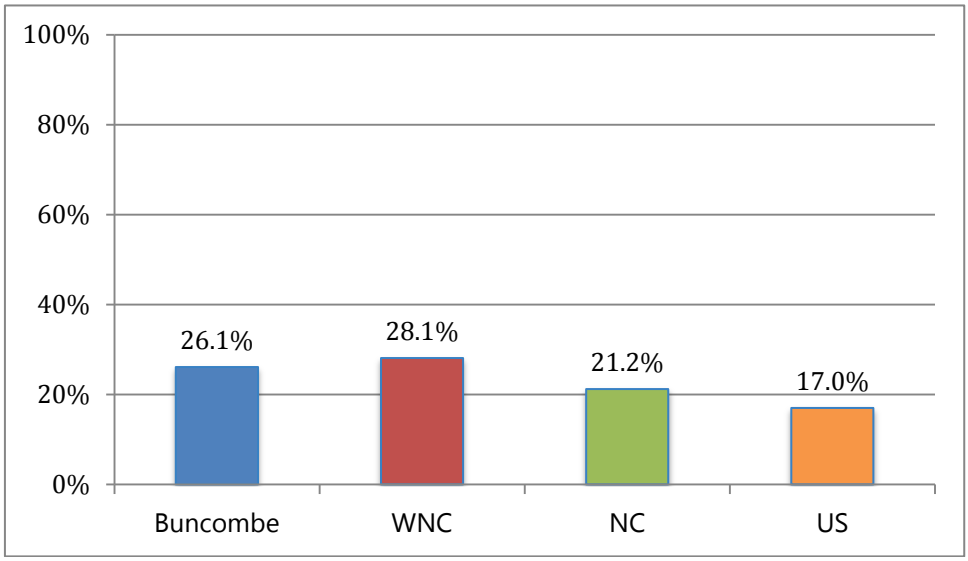
Disability and Limitations in Physical Activity

An individual can get a disabling impairment or chronic condition at any point in life. Compared with people without disabilities, people with disabilities are more likely to (DHHS, 2010):

- Experience difficulties or delays in getting the health care they need.
- Not have had an annual dental visit.
- Not have had a mammogram in past 2 years.
- Not have had a Pap test within the past 3 years.
- Not engage in fitness activities.
- Use tobacco.
- Be overweight or obese.
- Have high blood pressure.
- Experience symptoms of psychological distress.
- Receive less social-emotional support.
- Have lower employment rates.

Survey respondents were asked, "Are you limited in any way in any activities because of physical, mental or emotional problems?" Those who responded, "yes," were then asked to name the major impairment or health problem that limits them. Due to small county-level sample sizes, only regional data is shown for the latter question.

Figure 51. Limited in Activities in Some Way Due to Physical, Mental or Emotional Problem (WNC Healthy Impact Survey)



Sources:
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 67]
- Behavioral Risk Factor Surveillance System Survey Data. Atlanta, Georgia. United States Department of Health and Human Services, Centers for Disease Control and Prevention (CDC): 2010 North Carolina data.
- 2011 PRC National Health Survey, Professional Research Consultants, Inc.

Notes:
- Asked of all respondents

Table 33. Type of Problem That Limits Activities (WNC Healthy Impact Survey)
(Among Those Reporting Activity Limitations)
(Western North Carolina, 2012)

	Arthritis/ Rheumatism	Back/Neck Problem	Difficulty Walking	Fracture/Bone/ Joint Injury	Heart Problem	Lung/Breathing Problem	Mental/ Depression	Other (<3%)
Buncombe	15.4%	14.8%	10.7%	7.8%	1.0%	3.1%	2.3%	44.9%

Sources:
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 68]

Notes:
- Asked of those respondents reporting activity limitations.

Diabetes

Table 35 presents trend data from the US Centers for Disease Control and Prevention (CDC) on the estimated prevalence of diagnosed diabetes in Buncombe County and WNC. The prevalence of diagnosed diabetes and selected risk factors by county was estimated using data from CDC's Behavioral Risk Factor Surveillance System (BRFSS) and data from the U.S. Census Bureau's Population Estimates Program. Three years of data were used to improve the precision of the year-specific county-level estimates of diagnosed diabetes and selected risk factors.

From these data it appears that the estimated prevalence of diagnosed diabetes among adults in Buncombe County rose from 7.2% in 2005 to 7.9% in 2009, an increase of 9.7%. In WNC the estimated mean percent prevalence of diagnosed diabetes among adults rose from 8.5% in 2005 to 0.0% in 2009, an increase of 5.9%.

Table 35. Estimate of Diagnosed Diabetes Among Adults Age 20 and Older (2005-2009)

Geography	2005		2006		2007		2008		2009	
	#	%	#	%	#	%	#	%	#	%
Buncombe County	13,190	7.2	14,090	7.6	15,080	7.9	15,170	7.8	15,951	7.9
Regional Total	49,896	-	52,045	-	55,160	-	55,442	-	58,378	-
Regional Arithmetic Mean	3,119	8.5	3,253	8.7	3,448	8.9	3,465	8.8	3,649	9.0

In 2010, inpatient hospitalizations for diabetes among Buncombe County residents totaled 331 cases, or 1.4% of all inpatient hospitalizations listed for the county. In the same year, there were 1,240 inpatient hospital cases associated with treatment of diabetes in WNC. This number of cases represented 1.6% of all hospitalizations in the region. Statewide, diabetes hospitalizations composed 1.9% of all hospitalizations in NC (*Data Workbook*).

Obesity

Obesity is a problem throughout the population. However, among adults in the U.S., vast disparities in obesity exist. Within the U.S., the prevalence of obesity is highest for middle-aged people and for non-Hispanic black and Mexican American women. Among children and adolescents, the prevalence of obesity is highest among older and Mexican American children and non-Hispanic black girls. The association of income with obesity varies by age, gender, and race/ethnicity. Social and physical factors affecting diet and physical activity have an impact on weight. (DHHS, 2010).

Body Mass Index (BMI), which describes relative weight for height, is significantly correlated with total body fat content. The BMI should be used to assess overweight and obesity and to monitor changes in body weight. In addition, measurements of body weight alone can be used to determine efficacy of weight loss therapy. BMI is calculated as weight (kg)/height squared (m^2). To estimate BMI using pounds and inches, use: [weight (pounds)/height squared ($inches^2$)] x 703.

In this report, underweight is defined as a BMI of <18.5 kg/m^2, normal is defined as a BMI of 18.5 to 24.9 kg/m^2, overweight is defined as a BMI of 25.0 to 29.9 kg/m^2 and obesity as a BMI ≥30 kg/m^2. The rationale behind these definitions is based on epidemiological data that show increases in mortality with BMIs above 25 kg/m^2. The increase in mortality, however, tends to be modest until a BMI of 30 kg/m^2 is reached. For persons with a BMI ≥30 kg/m^2, mortality rates from all causes, and especially from cardiovascular disease, are generally increased by 50 to 100 percent above that of persons with BMIs in the range of 20 to 25 kg/m^2 (NIH, 1998)

Adult Obesity

Table 36 presents trend data from the CDC on the estimated prevalence of diagnosed adult obesity in Cherokee County and WNC. The prevalence of diagnosed obesity and selected risk factors by county was estimated using data from CDC's Behavioral Risk Factor Surveillance System (BRFSS) and data from the U.S. Census Bureau's Population Estimates Program. Three years of data were used to improve the precision of the year-specific county-level estimates of diagnosed diabetes and selected risk factors.

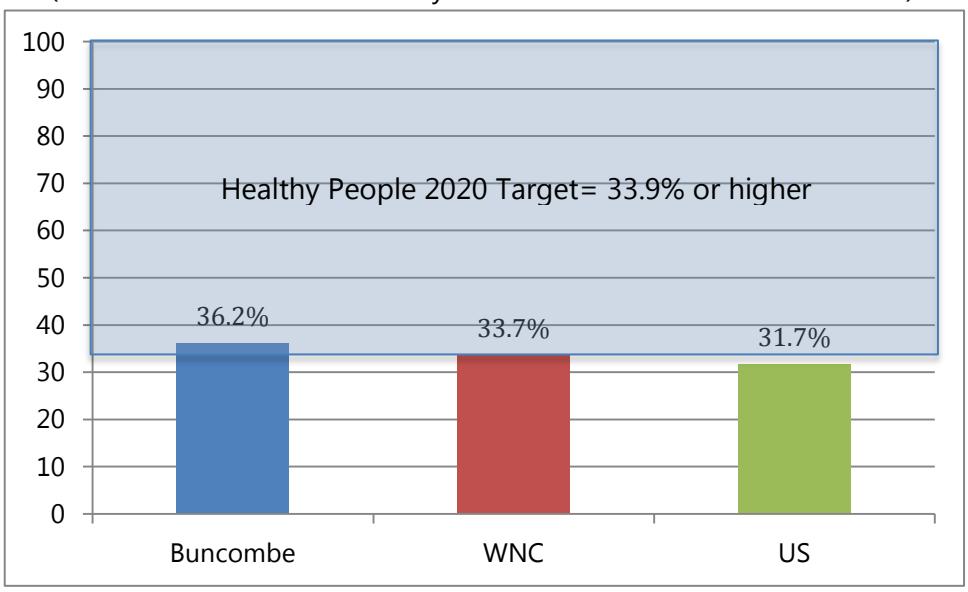
From these data it appears that the estimated prevalence of diagnosed obesity among adults in Buncombe County rose overall from 21.7% in 2005 to 24.0% in 2009, an increase of 10.6%. The estimated mean prevalence of adult obesity in WNC increased annually throughout the period cited. Between 2005 and 2009 the estimated mean percent of the WNC population diagnosed as obese rose from 25.2% to 28.0%, a total increase of 11.1%.

Table 36. Estimate of Diagnosed Obesity Among Adults Age 20 and Older (2005-2009)

Geography	2005		2006		2007		2008		2009	
	#	%	#	%	#	%	#	%	#	%
Buncombe County	36,080	21.7	36,580	21.5	36,590	21.0	38,740	22.2	42,410	24.0
Regional Total	128,908	-	136,661	-	139,114	-	143,681	-	148,403	-
Regional Arithmetic Mean	8,057	25.2	8,541	26.4	8,695	26.7	8,980	27.4	9,275	28.0

Based on self-reported heights and weights, the survey data below shows 2012 county and regional estimates of the prevalence of healthy weight, overweight, and obesity.

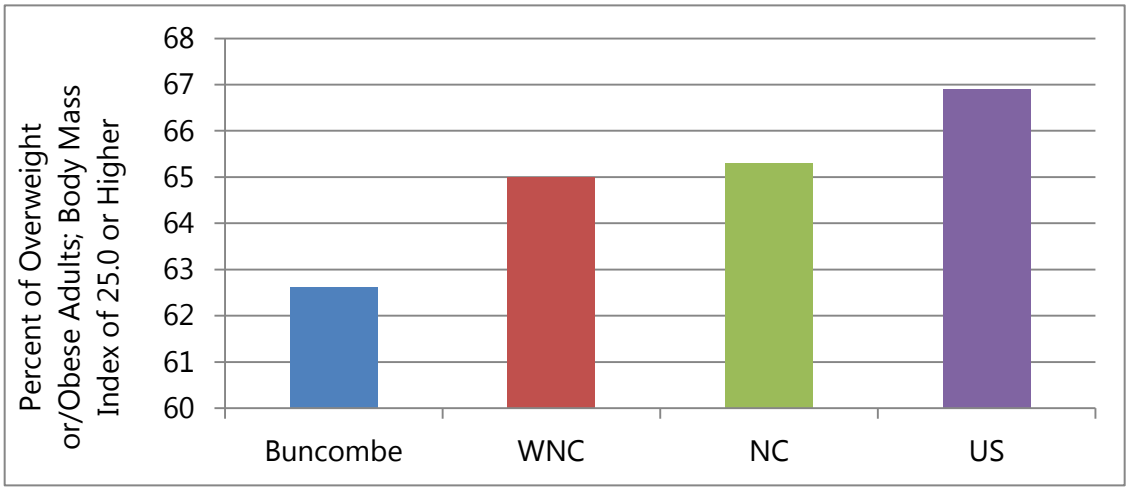
Figure 52. Healthy Weight (WNC Healthy Impact Survey)
(Percent of Adults With a Body Mass Index Between 18.5 and 24. 9)



Sources:
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 85]
- 2011 PRC National Health Survey, Professional Research Consultants, Inc.

Notes:
- Based on reported heights and weights, asked of all respondents.
- US Department of Health and Human Services. Healthy People 2020. December 2010.

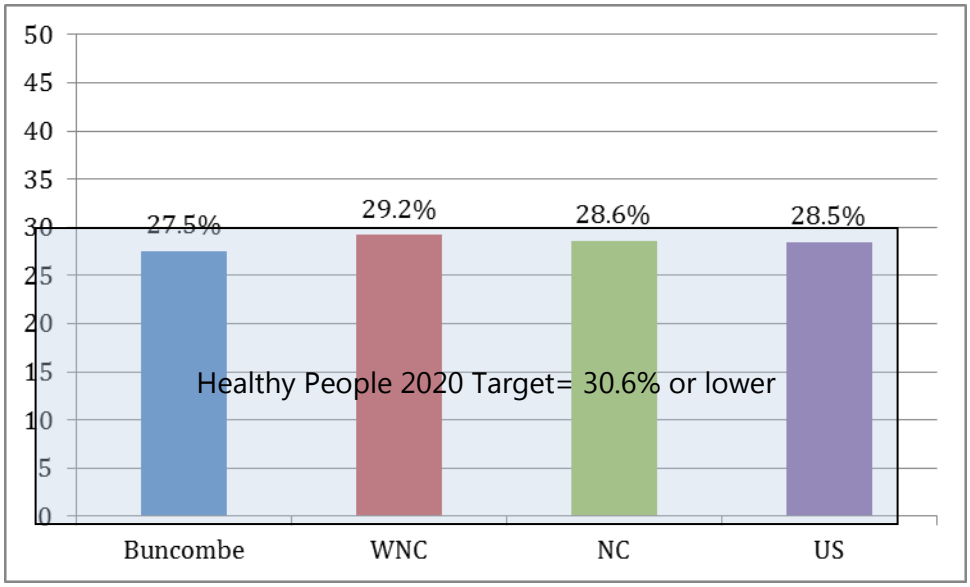
Figure 53. Prevalence of Total Overweight (WNC Healthy Impact Survey)
(Percent of Overweight or/Obese Adults; Body Mass Index of 25.0 or Higher)



Sources:
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 85]
- 2011 PRC National Health Survey, Professional Research Consultants, Inc.
- Behavioral Risk Factor Surveillance System Survey Data. Atlanta, Georgia. United States Department of Health and Human Services, Centers for Disease Control and Prevention (CDC): 2010 North Carolina data.

Notes:
- Based on reported heights and weights, asked of all respondents.
- The definition of overweight is having a body mass index (BMI), a ratio of weight to height (kilograms divided by meters squared), greater than or equal to 25.0, regardless of gender. The definition for obesity is a BMI greater than or equal to 30.0.

Figure 54. Prevalence of Obesity (WNC Healthy Impact Survey)
(Percent of Obese Adults; Body Mass Index of 30.0 or Higher)



Sources:
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 85]
- 2011 PRC National Health Survey, Professional Research Consultants, Inc.
- US Department of Health and Human Services. Healthy People 2020. December 2010. http://www.healthypeople.gov [Objective NWS-9]
- Behavioral Risk Factor Surveillance System Survey Data. Atlanta, Georgia. United States Department of Health and Human Services, Centers for Disease Control and Prevention (CDC): 2010 North Carolina data.

Notes:
- Based on reported heights and weights, asked of all respondents.
- The definition of obesity is having a body mass index (BMI), a ratio of weight to height (kilograms divided by meters squared), greater than or equal to 30.0, regardless of gender

Childhood Obesity

The NC Healthy Weight Initiative, using the NC Nutrition and Physical Activity Surveillance System (NC NPASS), collects height and weight measurements from children seen in NC DPH-sponsored WIC and Child Health Clinics, as well as some school-based Health Centers (NC DHHS – Nutrition Services Branch, 2012). (Note that this data is not necessarily representative of the county-wide or region-wide population of children.) This data is used to calculate Body Mass Indices (BMIs) in order to gain some insight into the prevalence of childhood obesity.

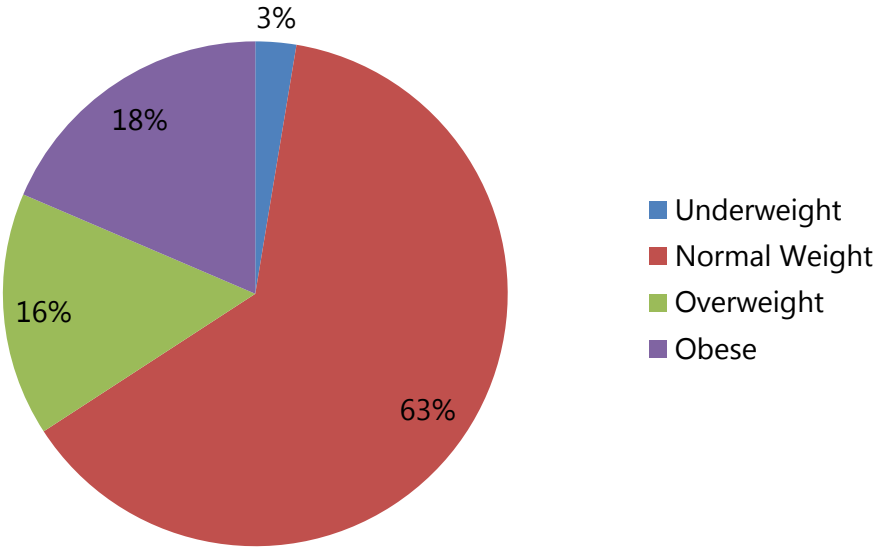
BMI is a calculation relating weight to height by the following formula:

BMI = (weight in kilograms) / (height in meters)

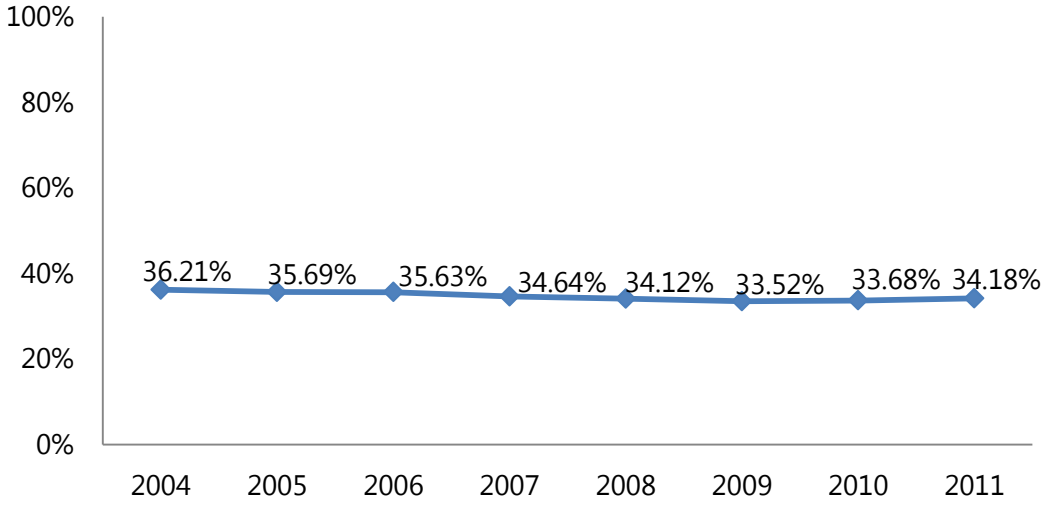
For children, a BMI in the 95th percentile or above is considered "obese" (formerly defined as "overweight"), while BMIs that are between the 85th and 94th percentiles are considered "overweight" (formerly defined as "at risk for overweight").

The following two figures represent the weight status of students K-5 in Buncombe County. The data was collected by the Buncombe County School Health Advisory Council for 2011.

Weight Status Distribution Among K-5 Students in Buncombe County, 2011.



Trends in Prevalence of Overweight and Obesity (Combined) Among K-5 Students in Buncombe County, 2004-2011.

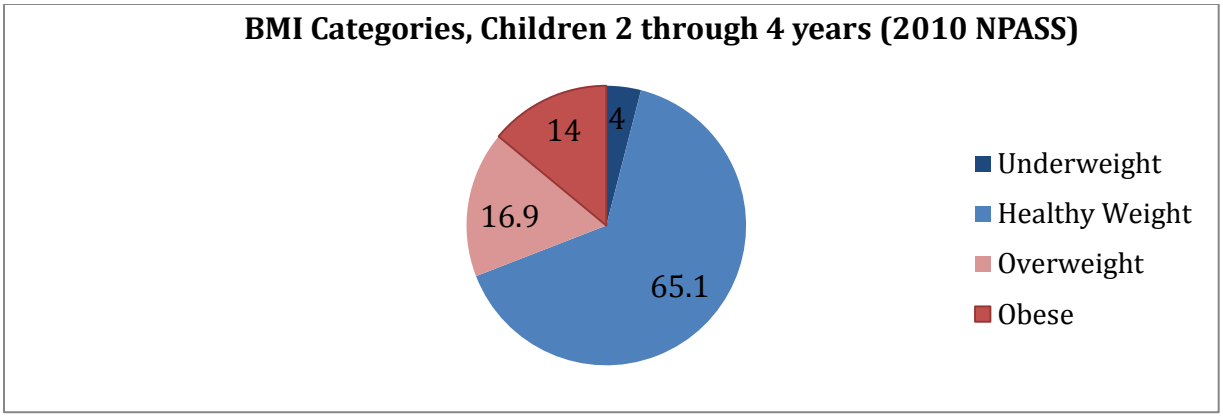


Tables 37, 38 and 39 present NC NPASS data for 2010 on children in three age groups: ages 2-4, ages 5-11, and ages 12-18.

From data presented in Table 37 it appears that the prevalence of healthy weight among 2-4 year-olds in Buncombe County (65.1%) was higher than the comparable figures for either WNC (64.5%) or NC (63.5%). The prevalence of *overweight* among children ages 2-4 was lower in Buncombe County (16.9%) than the mean for WNC (17.2%) but higher than the comparable figure for NC as a whole (16.1%). The prevalence of *obesity* in Buncombe County 2-4 year-olds (14.0%) was higher than the mean prevalence in WNC (13.6%) but lower than the prevalence in NC as a whole (15.6%). It must be noted that the regional means denoted in *italics* contain one or more county percentages that are unstable due to small numbers of children participating in the program.

Table 37. Prevalence of Obesity, Overweight, Healthy Weight and Underweight Children 2 through 4 years (2010)

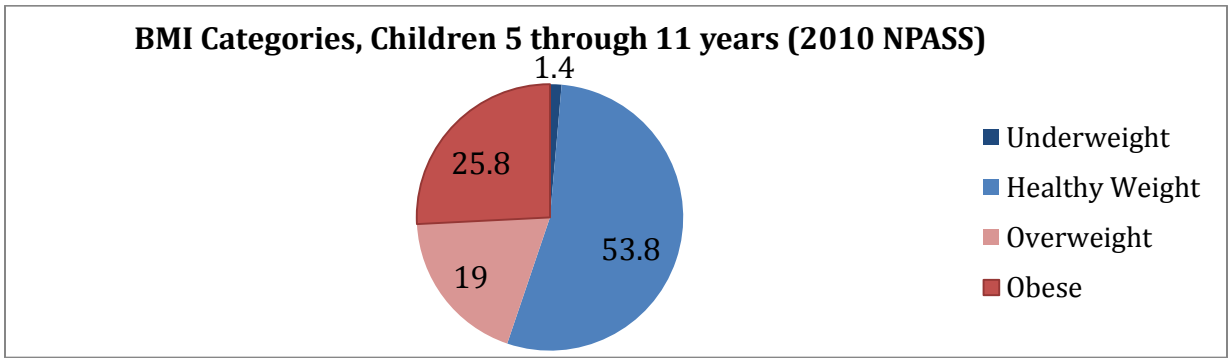
Geography	Total	Underweight		Healthy Weight		Overweight		Obese	
		<5th Percentile		≥5th to <85th Percentile		≥85th to <95th Percentile		≥95th Percentile	
	#	#	%	#	%	#	%	#	%
Buncombe County	1,534	61	4.0	999	65.1	259	16.9	215	14.0
Regional Total	6,814	316	-	4,410	-	1,139	-	949	-
Regional Arithmetic Mean	426	20	*4.8*	276	64.5	71	*17.2*	59	*13.6*
State Total	105,410	4,935	4.7	66,975	63.5	17,022	16.1	16,478	15.6



From data presented in Table 38 it appears that the prevalence children ages 5-11 with healthy weight in Buncombe County (53.8%) was lower than the comparable figure for both WNC (63.4%) and NC (54.3%). The prevalence of *overweight* children ages 5-11 in Buncombe County (19.0%) was higher than the comparable mean prevalence in WNC (14.3%) as well as the prevalence statewide (17.1%). The prevalence of *obesity* in this age group in Buncombe County (25.8%) was the same as the prevalence statewide, but higher than the comparable mean figure for WNC (19.4%). It must be noted that the regional means denoted in *italics* contain one or more county percentages that are unstable due to small numbers of children participating in the program.

Table 38. Prevalence of Obesity, Overweight, Healthy Weight and Underweight Children 5 through 11 years (2010)

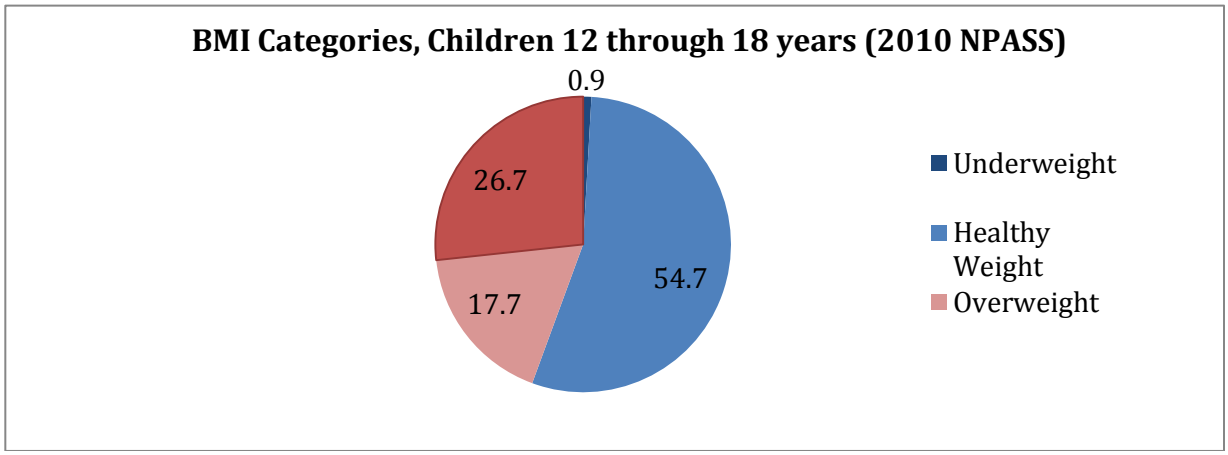
Geography	Total	Underweight		Healthy Weight		Overweight		Obese	
		<5th Percentile		≥5th to <85th Percentile		≥85th to <95th Percentile		≥95th Percentile	
	#	#	%	#	%	#	%	#	%
Buncombe County	714	10	1.4	384	53.8	136	19.0	184	25.8
Regional Total	1,243	26	-	721	-	208	-	288	-
Regional Arithmetic Mean	78	2	*2.9*	45	*63.4*	13	*14.3*	18	*19.4*
State Total	12,633	353	2.8	6,859	54.3	2,157	17.1	3,264	25.8



From data in Table 39 it appears that the prevalence of healthy weight children ages 12-18 was lower in Buncombe County (54.7%) than in WNC (56.3%) but higher than in NC (51.9%). The prevalence of *overweight* children ages 12-18 in Buncombe County (17.7%) was lower than the comparable prevalence in WNC (19.0%) or in NC as a whole (18.1%). The prevalence of *obesity* in this age group was higher in Buncombe County (26.7%) than in WNC (23.8%) but lower than in NC (28.0%). It must be noted that the regional means denoted in *italics* contain one or more county percentages that are unstable due to small numbers of children participating in the program.

Table 39. Prevalence of Obesity, Overweight, Healthy Weight and Underweight Children 12 through 18 years (2010)

Geography	Total	Underweight		Healthy Weight		Overweight		Obese	
		<5th Percentile		≥5th to <85th Percentile		≥85th to <95th Percentile		≥95th Percentile	
	#	#	%	#	%	#	%	#	%
Buncombe County	903	8	**0.9**	494	54.7	160	17.7	241	26.7
Regional Total	1,348	13	-	729	-	245	-	361	-
Regional Arithmetic Mean	84	1	*1.0*	46	*56.3*	15	*19.0*	23	*23.8*
State Total	6,854	133	1.9	3,560	51.9	1,241	18.1	1,920	28.0



For further details regarding this NC NPASS data, consult the *Data Workbook*.

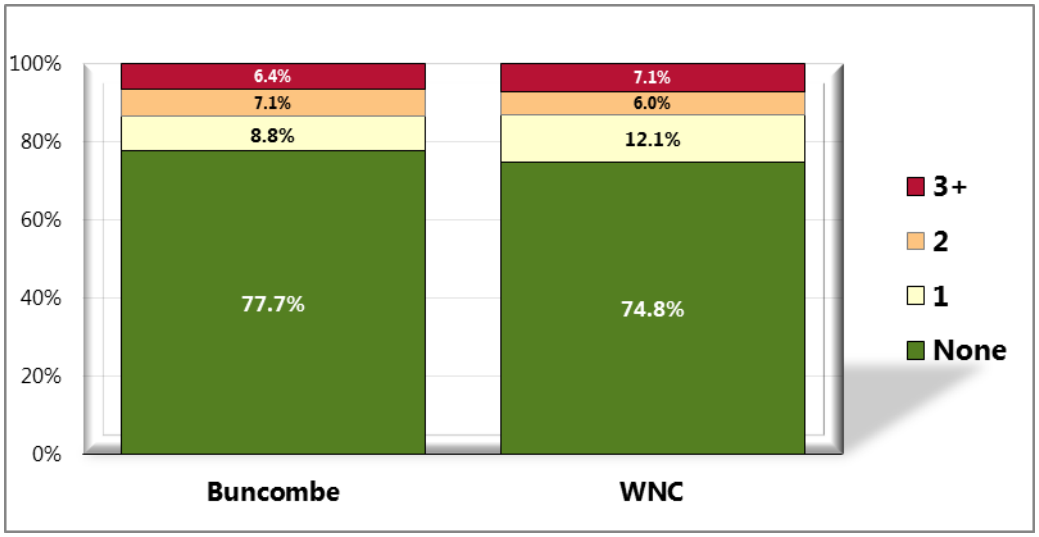
Injuries

Falls

There were 162 deaths due to falls in Buncombe County in the period 2006-2010. In 2009 alone there were 43, 39 of them in the over-65 age group (seven in the 65-74 year age group, 10 in the 75-84 age group, and 22 in the 85-and-over age group) (*Data Workbook*).

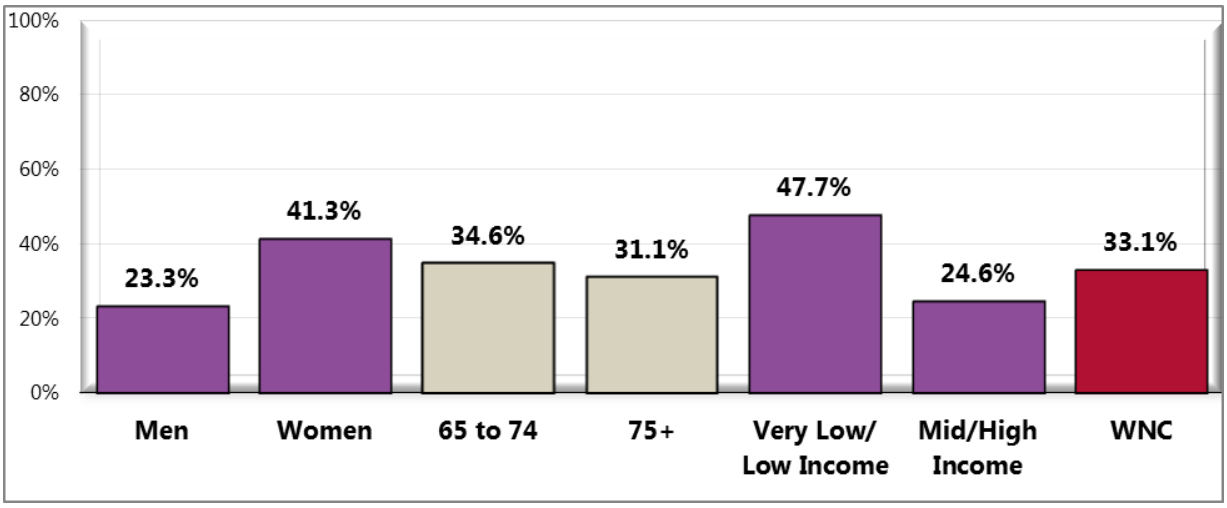
Survey respondents were also asked how many times they have fallen in the past 12 months, and how many of these falls caused an injury. Data is shown below for adults age 65 and older. Due to small county-level sample sizes, fall-related injury data is provided at the regional level.

Figure 55. Number of Falls in the Past Year (WNC Healthy Impact Survey)
(Among Adults Age 65 and Older)



Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 40]
Notes: ● Asked of respondents age 65 and older.
These counties have sample sizes deemed unreliable (n<50).

Figure 56. Sustained a Fall-Related Injury in the Past Year (WNC Healthy Impact Survey)
(Among Adults 65+ Who Have Fallen in the Past Year)
(Western North Carolina, 2012)



Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 41]
Notes:
- Asked of respondents age 65 and older who have fallen in the past year.
- Includes falls that caused respondent to limit his/her regular activities for at least a day or caused him/her to go see a doctor.
- Hispanics can be of any race. Other race categories are non-Hispanic categorizations (e.g., "White" reflects non-Hispanic White respondents).
- Income categories reflect respondent's household income as a ratio to the federal poverty level (FPL) for their household size. "Low Income" includes households with incomes up to 200% of the federal poverty level; "Mid/High Income" includes households with incomes at 200% or more of the federal poverty level.

Vehicle Crashes

The Highway Safety Research Center at the University of North Carolina at Chapel Hill tracks information about vehicle crashes across the state on an annual basis, including detail on the fraction of crashes that are alcohol-related. Table 40 presents trend data on vehicle crashes for the period from 2006 through 2010. The data presented for Buncombe County demonstrate high variability, with the percentage of alcohol-related crashes sometimes above and sometimes below the percentage for WNC. However, the percentage of alcohol-related traffic crashes in the county was above the comparable state rate in every year cited in the table. The data in the table also shows that the percentage alcohol-related vehicle crashes in WNC was higher than the comparable percentage for the state as a whole throughout the period cited, with the difference varying from 16% to 27% depending on the year.

Table 40. Alcohol-Related Traffic Crashes (2006-2010)

Geography	2006		2007		2008		2009		2010	
	# Crashes	% Alcohol-Related	# Crashes	% Alcohol-Related	# Crashes	% Alcohol-Related	# Crashes	% Alcohol-Related	# Crashes	% Alcohol-Related
Buncombe County	5,213	6.6	5,271	6.1	4,640	6.6	4,542	6.7	5,356	5.6
Regional Total	15,004	6.2	15,216	6.5	13,997	7.1	14,075	6.6	14,763	5.8
State Total	220,307	5.1	224,307	5.3	214,358	5.6	209,695	5.4	213,573	5.0

Table 41 presents additional detail on the nature of vehicular crashes for a single year, 2010. In Buncombe County 5.6% of *all* crashes were alcohol-related, but 36.7% of the *fatal* crashes (11 of 30) in the county were alcohol-related. In both WNC and NC as a whole, the proportion of *all* crashes that were alcohol-related was less than 6%, but the proportion of *fatal* crashes that were alcohol-related was over 30%. It is noteworthy that the percentages of crashes that were alcohol-related were higher in WNC than in NC for every outcome category displayed in Table 41.

Table 41. Outcomes of Traffic Crashes (2010)

Geography	Total Crashes		Property Damage Only Crashes		Non-Fatal Crashes		Fatal Crashes	
	# Reportable Crashes	% Alcohol-Related Crashes	# Reportable Crashes	% Alcohol-Related Crashes	# Reportable Crashes	% Alcohol-Related Crashes	# Reportable Crashes	% Alcohol-Related Crashes
Buncombe County	5,356	5.6	3,438	4.1	1,888	7.8	30	36.7
Regional Total	14,763	5.8	9,469	4.0	5,192	8.3	102	36.3
State Total	213,573	5.0	143,211	3.4	69,138	7.8	1,224	32.4

Distracted Drivers
There is no comparable data for Buncombe County, WNC or NC, but in the US as a whole in 2010, 3,092 people died and 416,000 were injured as a result of distracted driving (*Data Workbook)*

Workplace Injury
There is no comparable data for Buncombe County, WNC or the US, but in NC as a whole, the mortality rate associated with work-related injury was 3.9 deaths per 100,000 full-time equivalent workers in 2008, and 3.3 in 2009 (*Data Workbook*).

Poisonings
For the five-year aggregate period 2006-2010 there were 121 unintentional poisoning deaths in Buncombe County, with a corresponding age-adjusted mortality rate of 9.5 per 100,000 population. The comparable mean unintentional poisoning mortality rate for WNC was 23.1 over the same period.

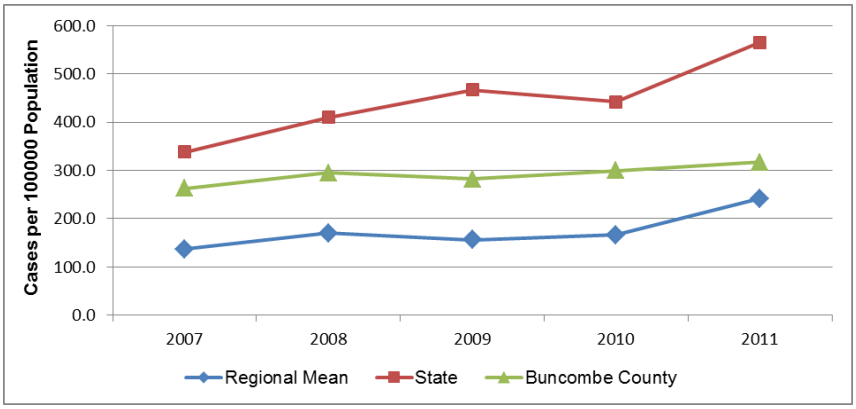
Communicable Disease

A communicable disease is a disease transmitted through direct contact with an infected individual or indirectly through a vector (Merriam-Webster.com). The topic of communicable diseases includes sexually transmitted infections (STIs). The STIs of greatest regional interest are chlamydia and gonorrhea. HIV/AIDS is sometimes grouped with STIs, since sexual contact is one mode of HIV transmission. While AIDS, as the final stage of HIV infection, was discussed previously among the leading causes of death, HIV is discussed here as a communicable disease.

Chlamydia is the most frequently reported bacterial STI in the US. It is estimated that there are approximately 2.8 million new cases of chlamydia in the US each year. Chlamydia cases frequently go undiagnosed and can cause serious problems in men and women, such as penile discharge and infertility respectively, as well as infections in newborn babies of infected mothers (MedicineNet.com, August 2012).

Figure 57 plots chlamydia rates for several years. From this data is appears that chlamydia infection is less prevalent in Buncombe County than in NC, but more prevalent than in WNC. In WNC, the mean chlamydia infection rate, which varied between 136.9 and 241.5, was 57% to 66% lower than the comparable rate for NC as a whole for the time span cited. Chlamydia rates in both NC and WNC increased overall between 2007 and 2011, as the NC rate rose 67.2% (from 337.7 to 564.8) and the WNC rate rose 76.4% (from 136.9 to 241.5). In Buncombe County over the same period the chlamydia infection rate increased 20.5%, from 262.8 to 316.8.

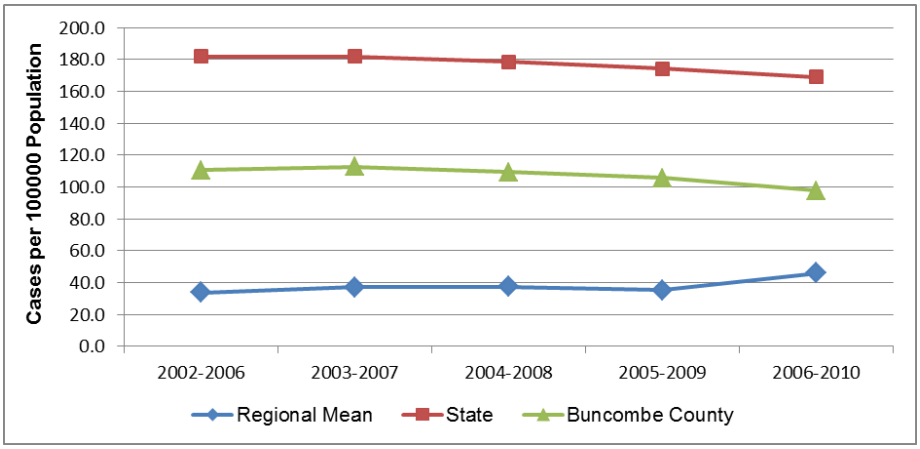
Figure 57. Chlamydia Rate, All Ages, Cases per 100,000 Population (Five Single Years, 2007-2011)



Gonorrhea is the second most commonly reported bacterial STI in the US. The highest rates of gonorrhea have been found in African Americans, people 20 to 24 years of age, and women, respectively. In women, gonorrhea can spread into the uterus and fallopian tubes, resulting in pelvic inflammatory disease (PID). PID affects more than 1 million women in the US every year and can cause tubal pregnancy and infertility in as many as 10 percent of infected women. In addition, some health researchers think gonorrhea adds to the risk of getting HIV infection (MedcineNet.com, April 2012).

Figure 58 plots gonorrhea rates for several aggregate periods. From this data it appears that gonorrhea is less prevalent in Buncombe County than in NC as a whole, but more prevalent than in WNC. The mean gonorrhea rate in WNC was 72% to 82% lower than the state rate for the span of aggregate periods shown in Figure 58. It is noteworthy that as the state gonorrhea rate decreased 7.2% (from 182.0 to 168.9) over the period cited, the mean WNC gonorrhea rate increased 36.2% (from 33.7 to 45.9) in the same time span. In Buncombe County the gonorrhea infection rate decreased 11.7% over the period cited, falling from 110.5 to 97.6.

Figure 58. Gonorrhea Rate, Cases per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)

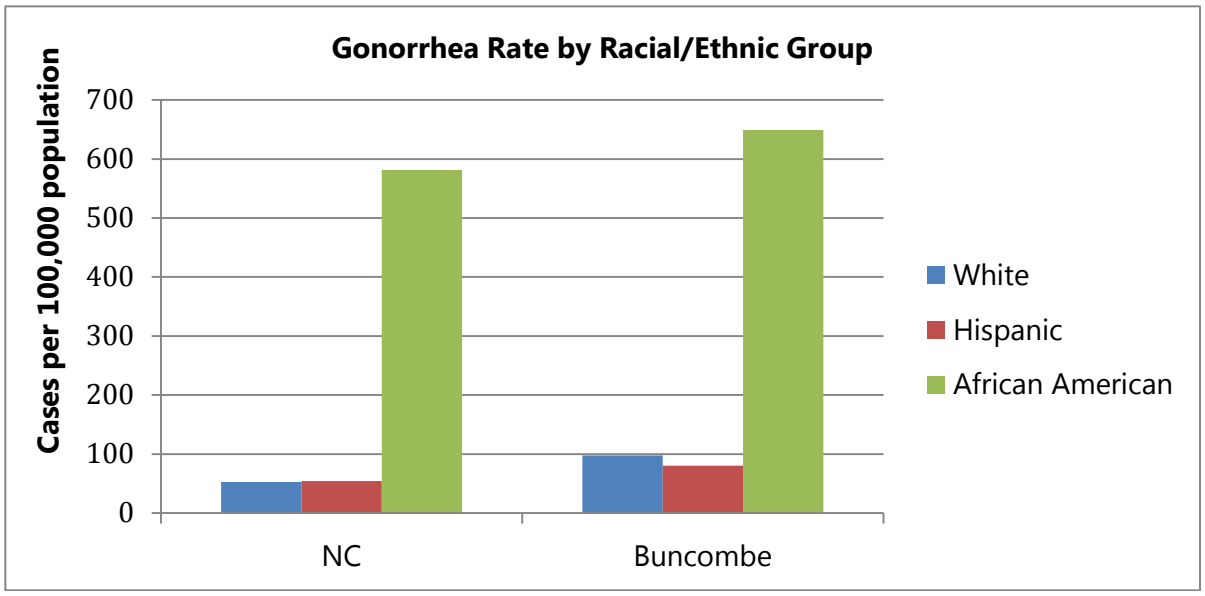


Note: There is some instability in the regional mean rates because each includes one or more unstable county rate.

Gonorrhea infection displays a strong racial disparity in Buncombe County. Table 42 presents data on gonorrhea prevalence in Buncombe County, WNC and NC for the aggregate period 2006-2010. From this data it is apparent that in Buncombe County during the period cited, the gonorrhea infection rate was highest among African American non-Hispanics (649.3) followed by Hispanics (80.2) and white non-Hispanics (53.1). Region-wide, the pattern is the same, although it should be noted that the regional mean rates are inherently unstable since they contain unstable county rates. Statewide, the highest gonorrhea infection rates are seen among non-Hispanic African Americans, followed by non-Hispanics of other races, then Hispanics.

Table 42. Gonorrhea Rate, by Racial/Ethnic Group, Cases per 100,000 Population Five-Year Aggregate (2006-2010)

County	Total		White, Non-Hispanic		African American, Non-Hispanic		Other, Non-Hispanic		Hispanic	
	# Cases	Rate	# Cases	Rate	# Cases	Rate	# Cases	Rate	# Cases	Rate
Buncombe County	1,121	97.6	528	53.1	542	649.3	8	**43.4**	43	80.2
Regional Total	2,305	-	1,064	-	1,119	-	23	-	99	-
Regional Arithmetic Mean	144	*45.9*	67	*20.5*	70	*1341.5*	1	*10.0*	6	*31.1*
State Total	77,867	168.9	16,488	52.9	58,041	581.6	1,485	96.7	1,853	54.2



HIV infection, an important communicable disease in some regions of NC, is a rare occurrence throughout most of WNC. Of the 16 counties in the region, only Buncombe has reported enough cases in some years to calculate a stable incidence rate. Table 43 presents Buncombe County, WNC and NC data on HIV infection.

The HIV infection rate in Buncombe County was lower than the comparable state rate but higher than the mean WNC rate in each of the three years cited in the table. HIV infection rates decreased annually in all three jurisdictions.

Table 43. HIV Infection Rate, Cases per 100,000 Population (2008-2010)

Geography	2008		2009		2010		Avg Rate (2008-2010)
	# Cases	Rate	# Cases	Rate	# Cases	Rate	
Buncombe County	32	14.0	20	8.6	14	6.0	9.5
Regional Total	58	-	46	-	40	-	-
Regional Arithmetic Mean	4	*6.3*	3	*5.7*	3	*5.5*	*5.8*
State Total	1,812	19.6	1,628	17.4	1,487	15.9	17.6

CHAPTER 4 – HEALTH BEHAVIORS

Physical Activity

Why is this Important?

Regular physical activity can improve the health and quality of life of Americans of all ages, regardless of the presence of a chronic disease or disability. Among adults and older adults, physical activity can lower the risk of: early death; coronary heart disease; stroke; high blood pressure; type 2 diabetes; breast and colon cancer; falls; and depression. Among children and adolescents, physical activity can: improve bone health; improve cardiorespiratory and muscular fitness; decrease levels of body fat; and reduce symptoms of depression. For people who are inactive, even small increases in physical activity are associated with health benefits. (County Health Rankings and Roadmaps)

Personal, social, economic, and environmental factors all play a role in physical activity levels among youth, adults, and older adults. Factors **positively** associated with adult physical activity include: postsecondary education; higher income; enjoyment of exercise; expectation of benefits; belief in ability to exercise (self-efficacy); history of activity in adulthood; social support from peers, family, or spouse; access to and satisfaction with facilities; enjoyable scenery; and safe neighborhoods. Factors **negatively** associated with adult physical activity include: advancing age; low income; lack of time; low motivation; rural residency; perception of great effort needed for exercise; overweight or obesity; perception of poor health; and being disabled. Older adults may have additional factors that keep them from being physically active, including lack of social support, lack of transportation to facilities, fear of injury, and cost of programs (DHHS, 2010).

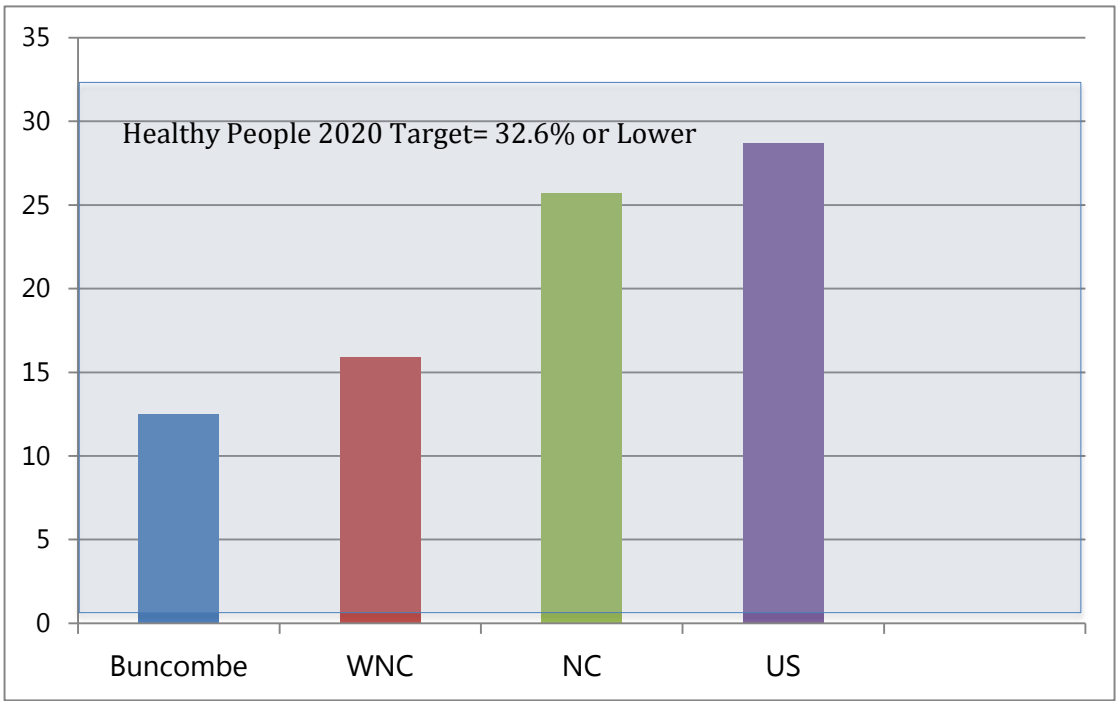
For all individuals, some activity is better than none. Physical activity is safe for almost everyone, and the health benefits of physical activity far outweigh the risks (DHHS, 2008).

Adults (age 18–64) should do 2 hours and 30 minutes a week of moderate-intensity, or 1 hour and 15 minutes (75 minutes) a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity aerobic physical activity. Aerobic activity should be performed in episodes of at least 10 minutes, preferably spread throughout the week. Additional health benefits are provided by increasing to 5 hours (300 minutes) a week of moderate-intensity aerobic physical activity, or 2 hours and 30 minutes a week of vigorous-intensity physical activity, or an equivalent combination of both.

Older adults (age 65 and older) should follow the adult guidelines. If this is not possible due to limiting chronic conditions, older adults should be as physically active as their abilities allow.

They should avoid inactivity. Older adults should do exercises that maintain or improve balance if they are at risk of falling.

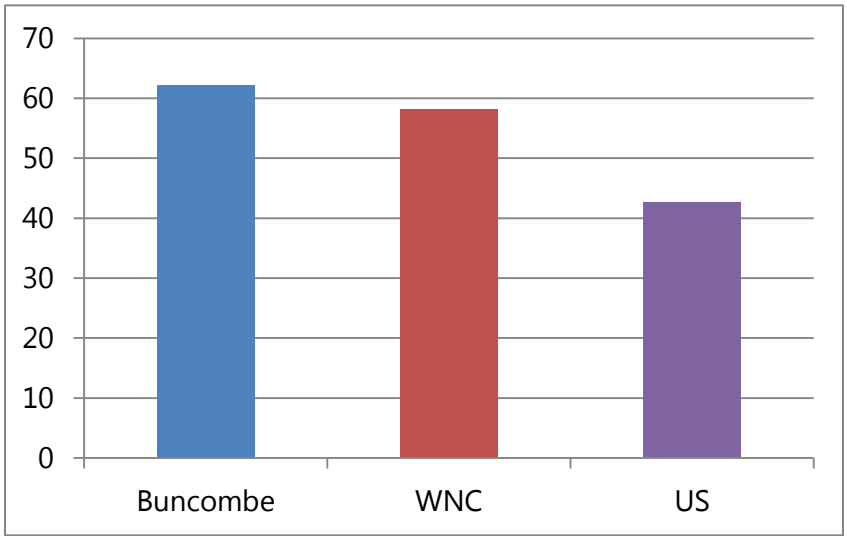
Figure 59. No Leisure-Time Physical Activity in the Past Month (WNC Healthy Impact Survey)



. Sources:
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 56]
- Behavioral Risk Factor Surveillance System Survey Data. Atlanta, Georgia. United States Department of Health and Human Services, Centers for Disease Control and Prevention (CDC): 2010 North Carolina data.
- 2011 PRC National Health Survey, Professional Research Consultants, Inc.
- US Department of Health and Human Services. Healthy People 2020. December 2010. http://www.healthypeople.gov [Objective PA-1]

Notes:
- Asked of all respondents.

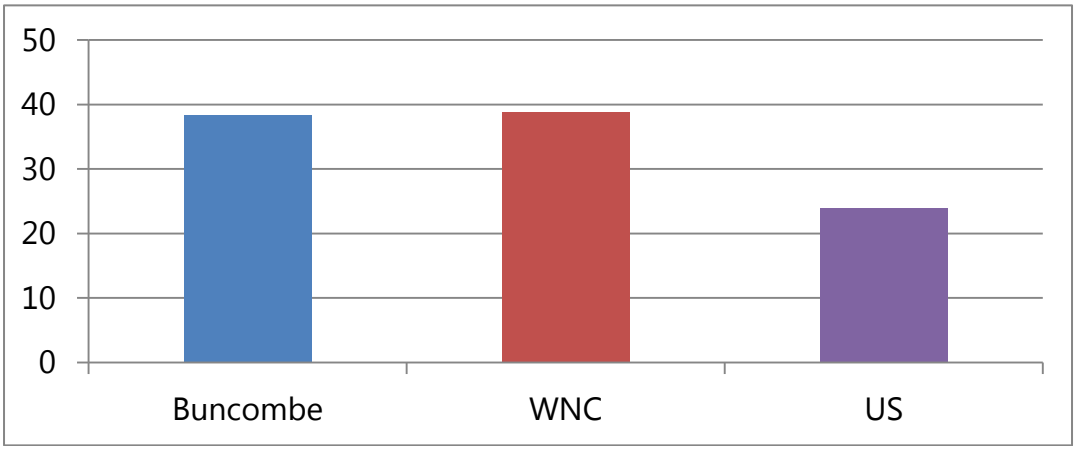
Figure 60. Meets Physical Activity Recommendations (WNC Healthy Impact Survey)



Sources:
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 80]
- 2011 PRC National Health Survey, Professional Research Consultants, Inc.

Notes:
- Asked of all respondents.
- In this case the term "meets physical activity recommendations" refers to participation in moderate physical activity (exercise that produces only light sweating or a slight to moderate increase in breathing or heart rate) at least 5 times a week for 30 minutes at a time, and/or vigorous physical activity (activities that cause heavy sweating or large increases in breathing or heart rate) at least 3 times a week for 20 minutes at a time.

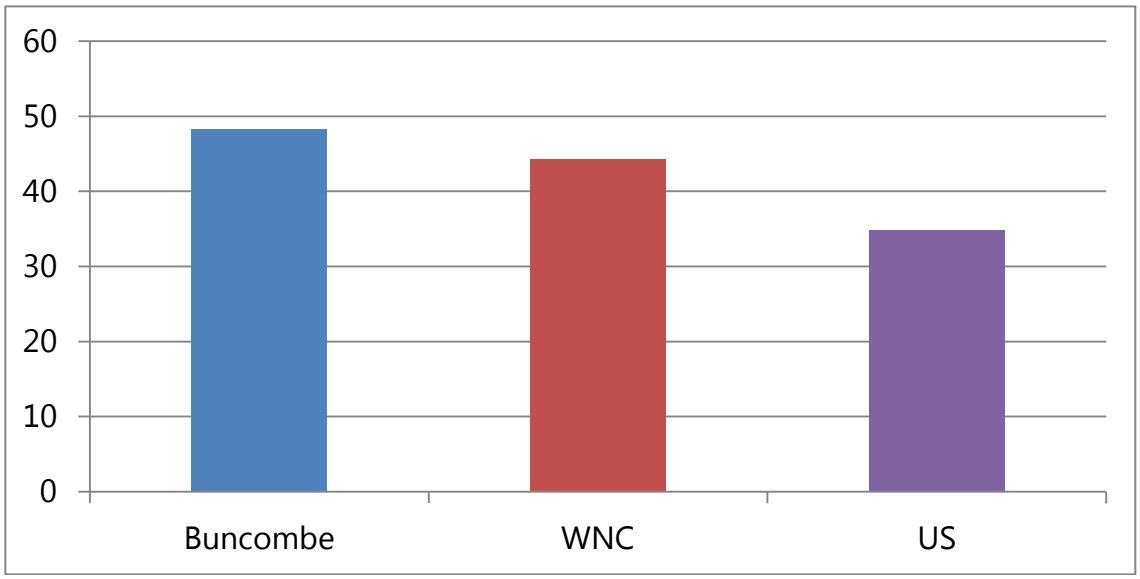
Figure 61. Moderate Physical Activity (WNC Healthy Impact Survey)



Sources:
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 81]
- 2011 PRC National Health Survey, Professional Research Consultants, Inc.

Notes:
- Asked of all respondents.
- Moderate Physical Activity: Takes part in exercise that produces only light sweating or a slight to moderate increase in breathing or heart rate at least 5 times per week for at least 30 minutes per time.

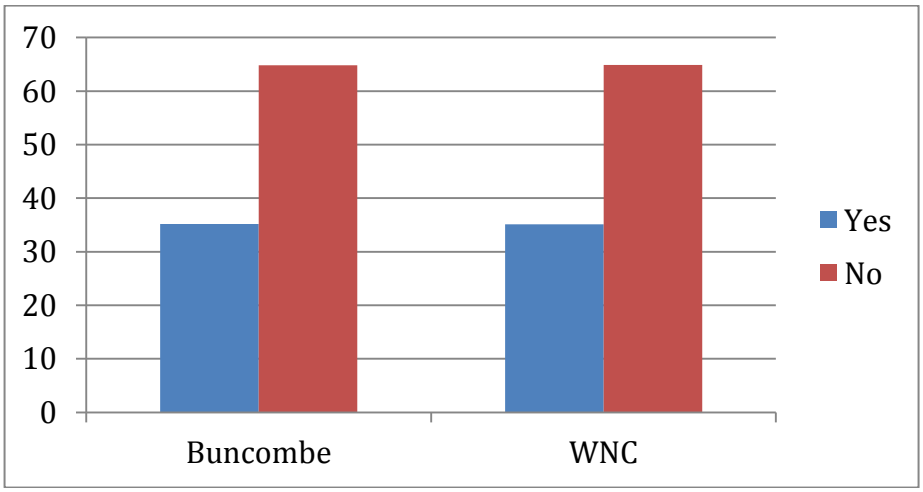
Figure 62. Vigorous Physical Activity (WNC Healthy Impact Survey)



Sources:
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 82]
- 2011 PRC National Health Survey, Professional Research Consultants, Inc.
- Behavioral Risk Factor Surveillance System Survey Data. Atlanta, Georgia. United States Department of Health and Human Services, Centers for Disease Control and Prevention (CDC): 2010 North Carolina data.

Notes:
- Asked of all respondents.
- Vigorous Physical Activity: Takes part in activities that cause heavy sweating or large increases in breathing or heart rate at least 3 times per week for at least 20 minutes per time.

Figure 63. Strengthening Physical Activity (WNC Healthy Impact Survey)



Sources:
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 83]

Notes:
- Asked of all respondents.
- Strengthening Physical Activity: Takes part in physical activities or exercises that strengthen muscles at least 2 times per week.

Diet and Nutrition

Social Determinants of Diet. Social factors thought to influence diet include:

- Knowledge and attitudes
- Skills
- Social support
- Societal and cultural norms
- Food and agricultural policies
- Food assistance programs
- Economic price systems

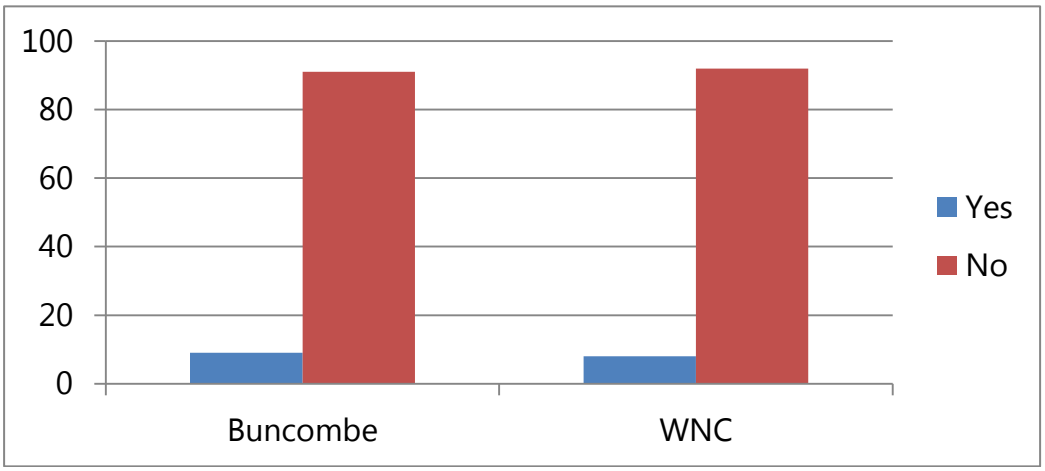
Physical Determinants of Diet. The places where people eat appear to influence their diet. For example, foods eaten away from home often have more calories and are of lower nutritional quality than foods prepared at home. Marketing also influences people's—particularly children's—food choices (DHHS, 2010). More information is available elsewhere in this report about some of these determinants.

Why is this Important?

Strong science exists supporting the health benefits of eating a healthful diet and maintaining a healthy body weight. Diet and body weight are related to health status. Good nutrition is important to the growth and development of children. A healthful diet also helps Americans reduce their risks for many health conditions, including: overweight and obesity; malnutrition; iron-deficiency anemia; heart disease; high blood pressure; dyslipidemia (poor lipid profiles); type 2 diabetes; osteoporosis; oral disease; constipation; diverticular disease; and some cancers. Efforts to change diet and weight should address individual behaviors, as well as the policies and environments that support these behaviors in settings such as schools, worksites, healthcare organizations, and communities.
(County Health Rankings and Roadmaps)

To measure fruit and vegetable consumption, survey respondents were asked how many one-cup servings of fruit and one-cup servings of vegetables (not counting lettuce salad or potatoes) they ate over the past week.

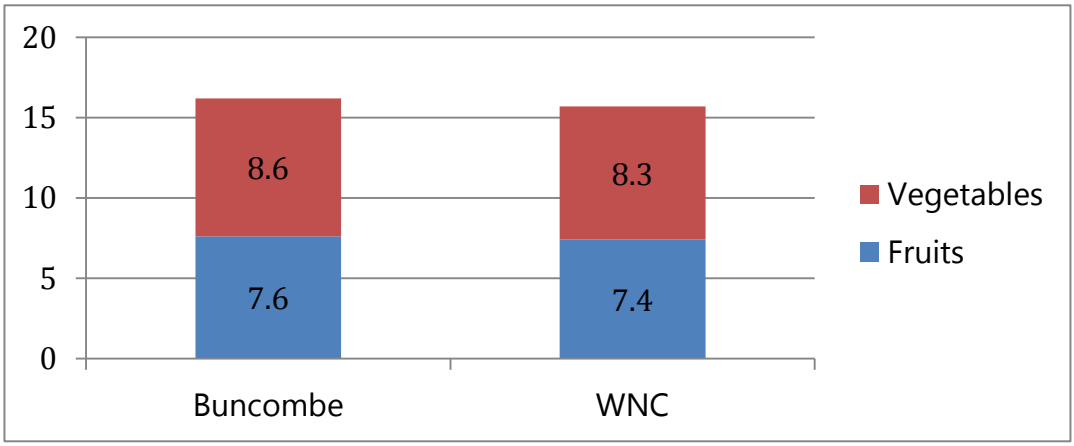
Figure 64. Had an Average of Five or More Servings of Fruits/Vegetables per Day in the Past Week (WNC Healthy Impact Survey)



Sources:
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 79]

Notes:
- Asked of all respondents.
- For this issue, respondents were asked to recall their food intake during the previous week. Reflects 35 or more 1-cup servings of fruits and/or vegetables in the past week, excluding lettuce salad and potatoes.

Figure 65. Average Servings of Fruits/Vegetables in the Past Week (WNC Healthy Impact Survey)



Sources:
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Items 53-54]

Notes:
- Asked of all respondents.
- For this issue, respondents were asked to recall their food intake during the previous week. Reflects 35 or more 1-cup servings of fruits and/or vegetables in the past week, excluding lettuce salad and potatoes

Substance Use/Abuse

Substance abuse refers to a set of related conditions associated with the consumption of mind- and behavior-altering substances that have negative behavioral and health outcomes. Social attitudes and political and legal responses to the consumption of alcohol and illicit drugs make substance abuse one of the most complex public health issues. In 2005, an estimated 22 million Americans struggled with a drug or alcohol problem. Almost 95% of people with substance use problems are considered unaware of their problem. Of those who recognize their problem, 273,000 have made an unsuccessful effort to obtain treatment. These estimates highlight the importance of increasing prevention efforts and improving access to treatment for substance abuse and co-occurring disorders. Substance abuse has a major impact on individuals, families, and communities. The effects of substance abuse are cumulative, significantly contributing to costly social, physical, mental, and public health problems (DHHS, 2010).

Why is this Important?

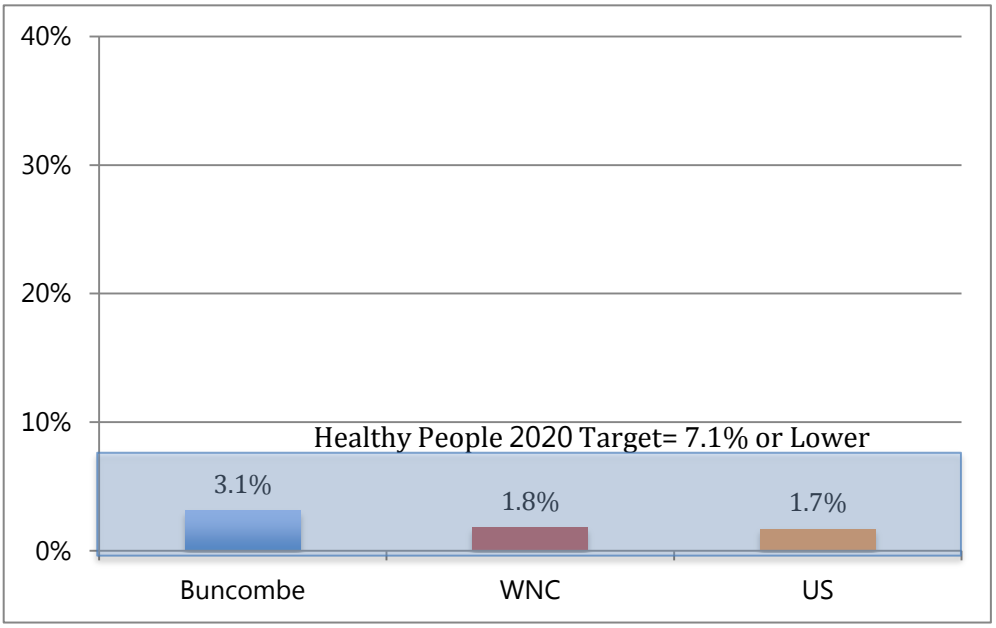
Consumption of too much alcohol is a risk factor for a number of adverse health outcomes. These include, but are not limited to, alcohol poisoning, hypertension, acute myocardial infarction, sexually transmitted infections, fetal alcohol syndrome, and interpersonal violence.

Among youth, the use of alcohol and other drugs has been linked to unintentional injuries, physical fights, academic and occupational problems, and illegal behavior. Drug use contributes directly and indirectly to the HIV epidemic and alcohol and drug use contribute markedly to infant morbidity and mortality. (County Health Rankings and Roadmaps)

Illicit Drugs

For the purposes of the survey, "illicit drug use" includes use of illegal substances or of prescription drugs taken without a physician's order. It is important to note that as a self-reported measure – and because this indicator reflects potentially illegal behavior – it is reasonable to expect that it might be underreported, and that actual illicit drug use in the community is likely higher.

Figure 66. Illicit Drug Use in the Past Month (WNC Healthy Impact Survey)



Sources:
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 52]
- 2011 PRC National Health Survey, Professional Research Consultants, Inc.
- US Department of Health and Human Services. Healthy People 2020. December 2010. http://www.healthypeople.gov [Objective SA-13.3]

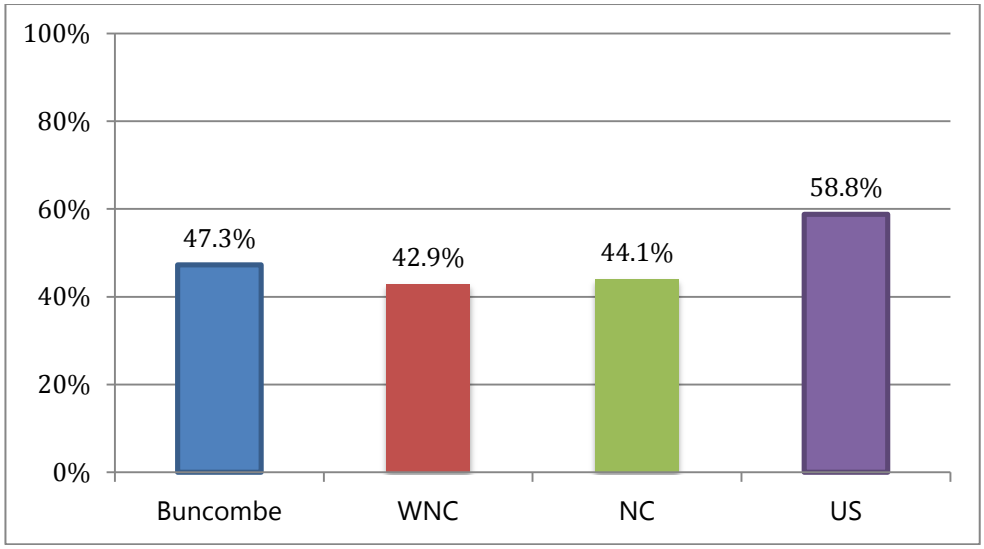
Notes:
- Asked of all respondents.
- Includes reported use of an illegal drug or of a prescription drug not prescribed to the respondent.

Alcohol

"**Current drinkers**" include survey respondents who had at least one drink of alcohol in the month preceding the interview. For the purposes of this study, a "drink" is considered one can or bottle of beer, one glass of wine, one can or bottle of wine cooler, one cocktail, or one shot of liquor. "**Chronic drinkers**" include survey respondents reporting 60 or more drinks of alcohol in the month preceding the interview.

In this assessment, "**binge drinkers**" include adults who report drinking 5 or more alcoholic drinks on any single occasion during the past month. Note that state and national data reflect different thresholds for men (5+ drinks) and women (4+ drinks), so county and regional data is not directly comparable to state and national figures.

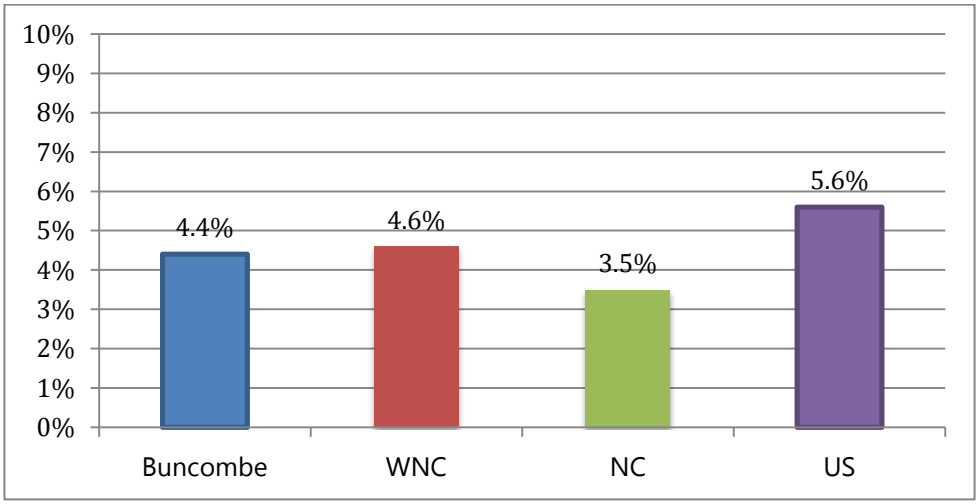
Figure 67. Current Drinkers (WNC Healthy Impact Survey)



Sources:
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 88]
- Behavioral Risk Factor Surveillance System Survey Data. Atlanta, Georgia. United States Department of Health and Human Services, Centers for Disease Control and Prevention (CDC): 2010 North Carolina data.
- 2011 PRC National Health Survey, Professional Research Consultants, Inc.

Notes:
- Asked of all respondents.
- Current drinkers had at least one alcoholic drink in the past month.

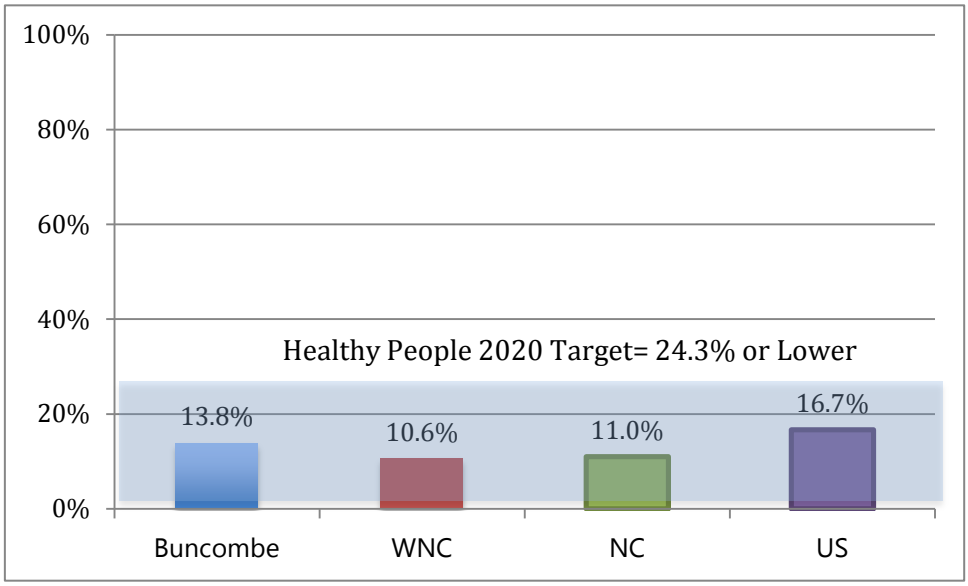
Figure 68. Chronic Drinkers (WNC Healthy Impact Survey)



Sources:
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 89]
- Behavioral Risk Factor Surveillance System Survey Data. Atlanta, Georgia. United States Department of Health and Human Services, Centers for Disease Control and Prevention (CDC): 2010 North Carolina data.
- 2011 PRC National Health Survey, Professional Research Consultants, Inc.

Notes:
- Asked of all respondents.
- Chronic drinkers are defined as having 60+ alcoholic drinks in the past month.

Figure 69. Binge Drinkers (WNC Healthy Impact Survey)



Sources:
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 90]
- Behavioral Risk Factor Surveillance System Survey Data. Atlanta, Georgia. United States Department of Health and Human Services, Centers for Disease Control and Prevention (CDC): 2010 North Carolina data.
- 2011 PRC National Health Survey, Professional Research Consultants, Inc.
- US Department of Health and Human Services. Healthy People 2020. December 2010. http://www.healthypeople.gov [Objective SA-14.3]

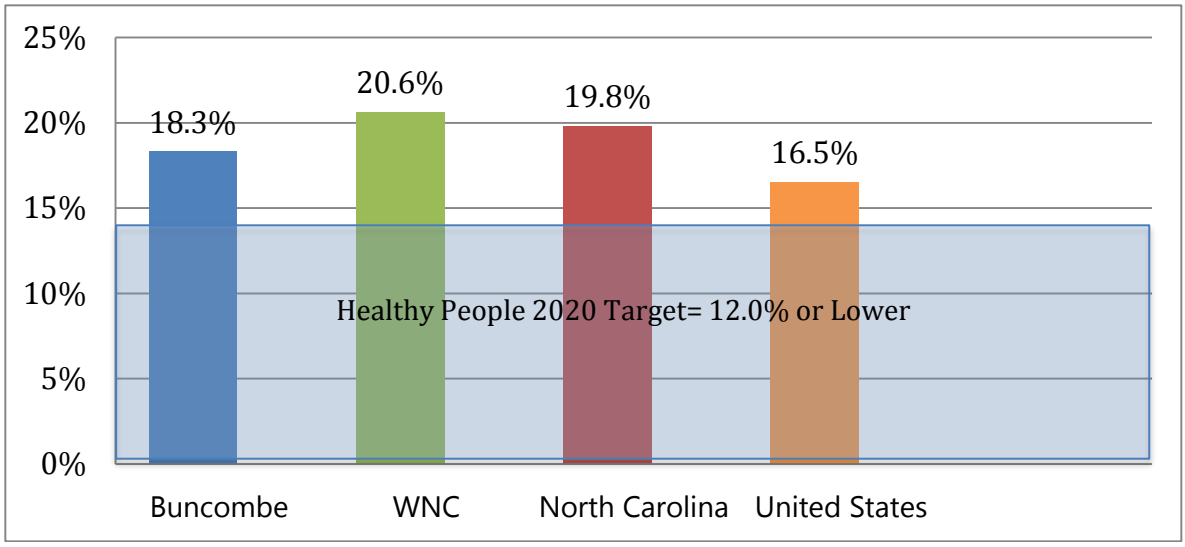
Notes:
- Asked of all respondents.
- Binge drinkers are defined as those consuming 5+ alcoholic drinks on any one occasion in the past 30 days; * note that state and national data reflect different thresholds for men (5+ drinks) and women (4+ drinks).

Tobacco

Tobacco use is the single most preventable cause of death and disease in the United States. Each year, approximately 443,000 Americans die from tobacco-related illnesses. For every person who dies from tobacco use, 20 more people suffer with at least one serious tobacco-related illness. In addition, tobacco use costs the US $193 billion annually in direct medical expenses and lost productivity. Preventing tobacco use and helping tobacco users quit can improve the health and quality of life for Americans of all ages. People who stop smoking greatly reduce their risk of disease and premature death. Benefits are greater for people who stop at earlier ages, but quitting tobacco use is beneficial at any age.

Many factors influence tobacco use, disease, and mortality. Risk factors include race/ethnicity, age, education, and socioeconomic status. Significant disparities in tobacco use exist geographically; such disparities typically result from differences among states in smoke-free protections, tobacco prices, and program funding for tobacco prevention (DHHS, 2010).

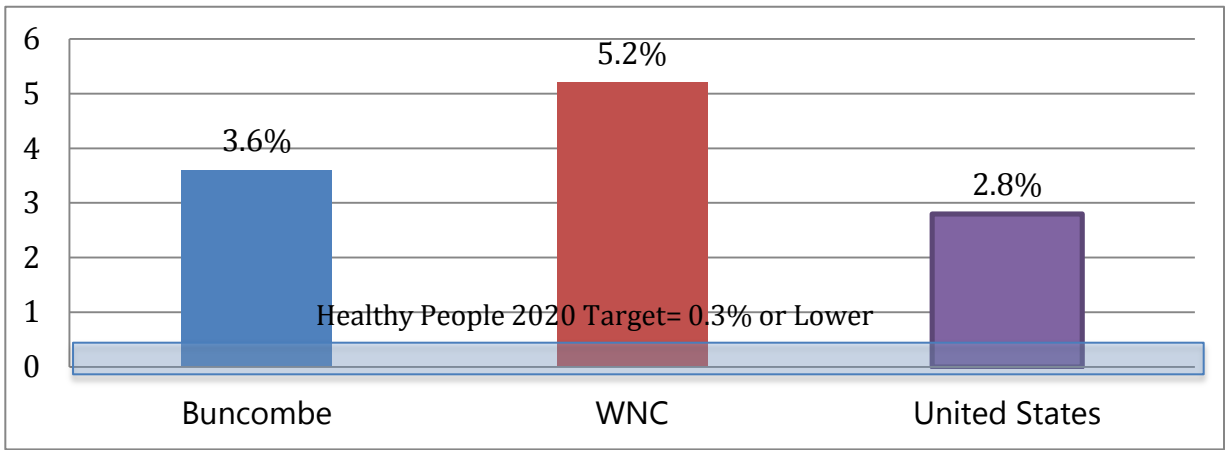
Figure 70. Current Smokers (WNC Healthy Impact Survey)



Sources:
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 86]
- 2011 PRC National Health Survey, Professional Research Consultants, Inc.
- Behavioral Risk Factor Surveillance System Survey Data. Atlanta, Georgia. United States Department of Health and Human Services, Centers for Disease Control and Prevention (CDC): 2010 North Carolina data.
- US Department of Health and Human Services. Healthy People 2020. December 2010. http://www.healthypeople.gov [Objective TU-1.1]

Notes:
- Asked of all respondents.
- Includes regular and occasional smokers (every day and some days).

Figure 71. Currently Use Smokeless Tobacco Products (WNC Healthy Impact Survey)



Sources:
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 43]
- 2011 PRC National Health Survey, Professional Research Consultants, Inc.
- US Department of Health and Human Services. Healthy People 2020. December 2010. http://www.healthypeople.gov [Objective TU-1.2]

Notes:
- Asked of all respondents.
- Includes regular and occasional users (every day and some days).

Table 44. Top Three Resources Respondents Would Go to for Help Quitting Tobacco (WNC Healthy Impact Survey)

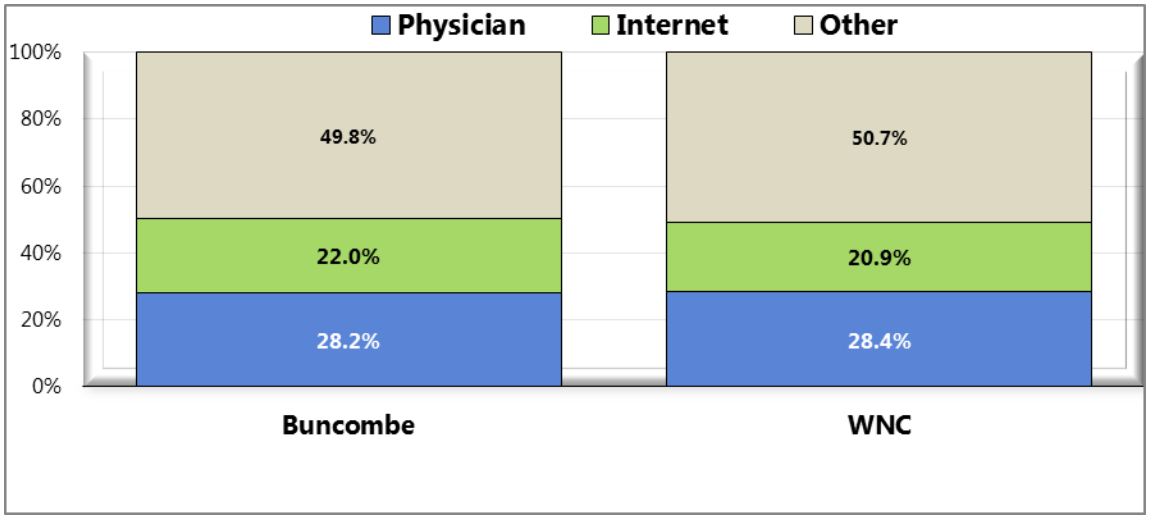
	Doctor	On My Own/Cold Turkey	Don't Know
Buncombe	✓	✓	✓
WNC	✓	✓	✓

Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 48]
Notes: ● Asked of all respondents.

Health Information

Survey respondents were asked about where they get their healthcare information.

Figure 72. Primary Source of Healthcare Information (WNC Healthy Impact Survey)



Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 11]
Notes: ● Asked of all respondents.

CHAPTER 5 – CLINICAL CARE PARAMETERS

Medical Care Access

Access to health services means the timely use of personal health services to achieve the best health outcomes. It requires three distinct steps: 1) gaining entry into the health care system; 2) accessing a health care location where needed services are provided; and 3) finding a health care provider with whom the patient can communicate and trust (DHHS, 2010).

Why is this Important?

Access to comprehensive, quality health care services is important for the achievement of health equity and for increasing the quality of a healthy life for everyone. It impacts: overall physical, social, and mental health status; prevention of disease and disability; detection and treatment of health conditions; quality of life; preventable death; and life expectancy.

Health insurance by itself does not ensure access. It is also necessary to have comprehensive coverage, providers that accept the individual's health insurance, relatively close proximity of providers to patients, and primary care providers in the community.

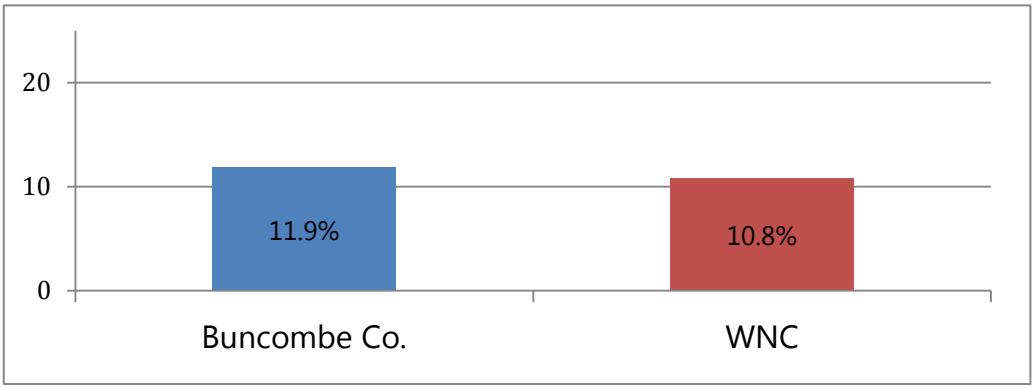
Evidence shows that a higher density of primary care providers is associated with lower probability of hospitalization for ambulatory- care sensitive conditions.
(County Health Rankings and Roadmaps)

Self-Reported Access

Survey respondents were asked if there was a time in the past 12 months when they needed medical care, but could not get it. If they responded, "yes," they were asked to name the main reason they could not get needed medical care. Due to small county-level sample sizes, the responses to the latter question are displayed at the regional-level, below.

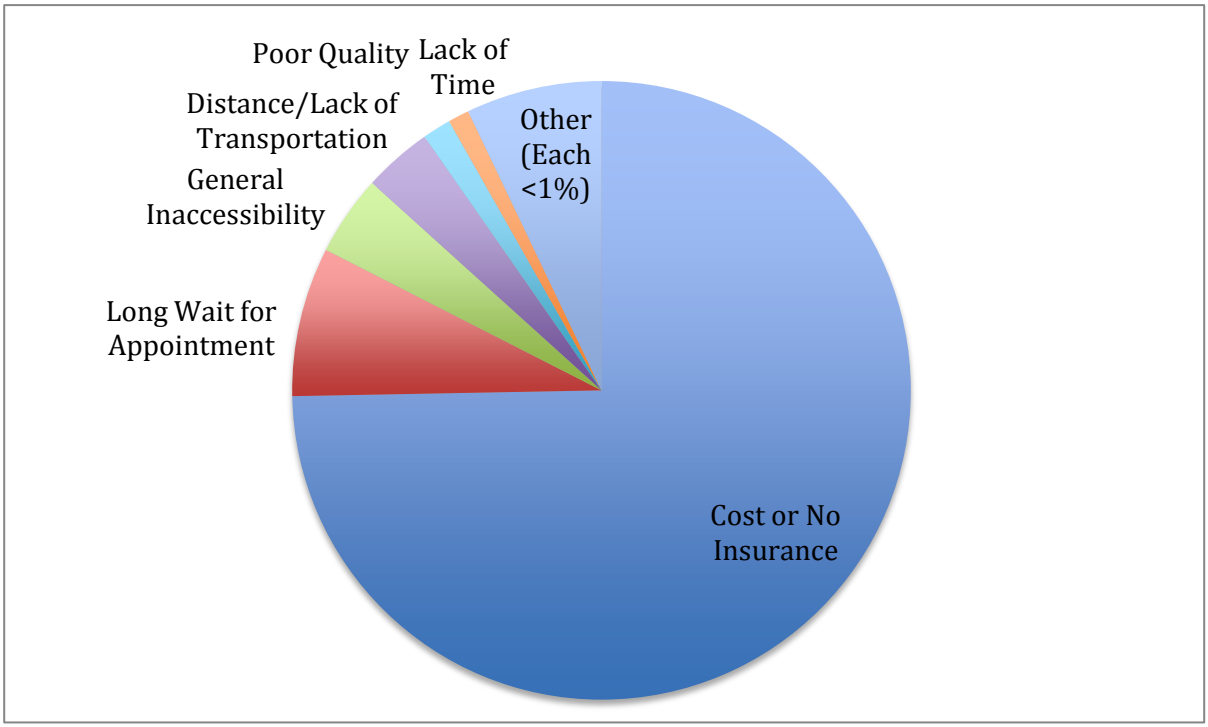
Survey respondents were also asked to indicate their agreement with the following statement: "*Considering cost, quality, number of options and availability, there is good healthcare in my county*." Survey respondents in Buncombe County were also asked about prescription medicine access.

Figure 73. Was Unable to Get Needed Medical Care at Some Point in the Past Year (WNC Healthy Impact Survey)



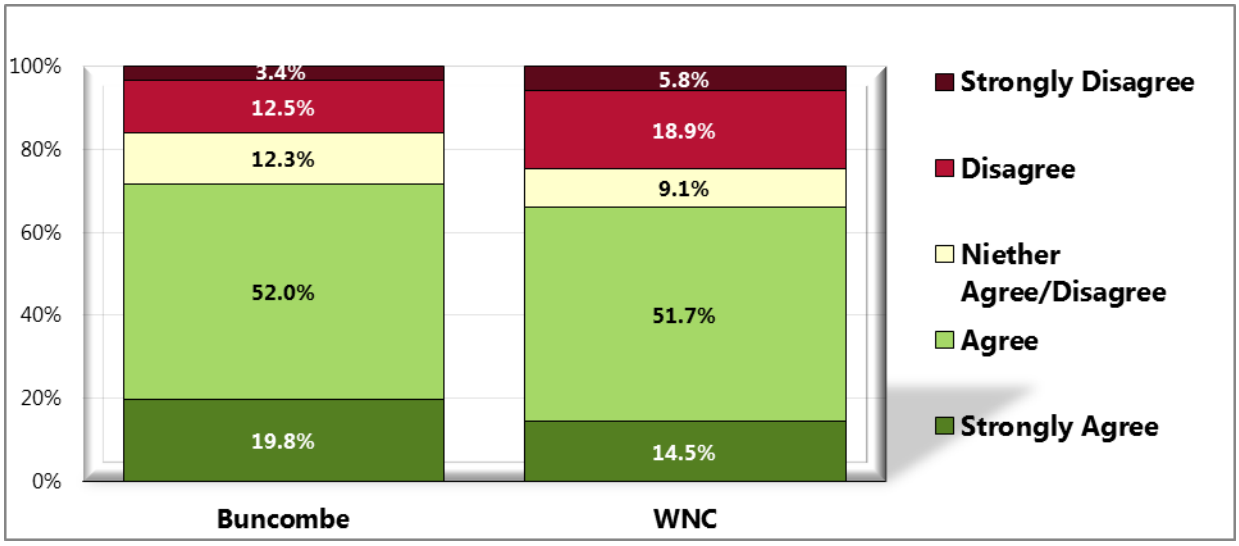
Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 13]
Notes: ● Asked of all respondents.

Figure 74. Primary Reason for Inability to Get Needed Medical Care (WNC Healthy Impact)
(Adults Unable to Get Needed Medical Care at Some Point in the Past Year)
(Western North Carolina, 2012)



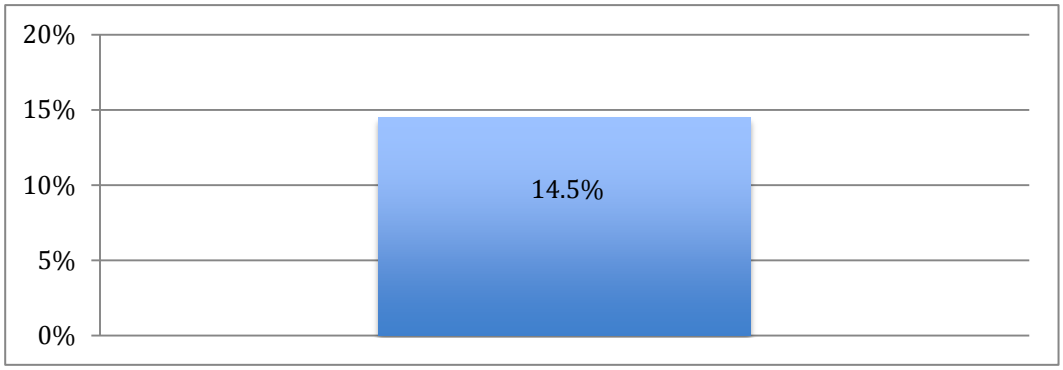
Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 14]
Notes: ● Asked of all respondents.

Figure 75. "Considering cost, quality, number of options And availability, there is good health care in my county (WNC Healthy Impact Survey)



Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 7]
Notes: ● Asked of all respondents

Figure 76. Had a Time in the Past Year When Could Not Get a Desired Prescription (WNC Healthy Impact Survey)



Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 99]
Notes: ● Asked of all respondents.

Health Care Providers

Provider/Population Ratios

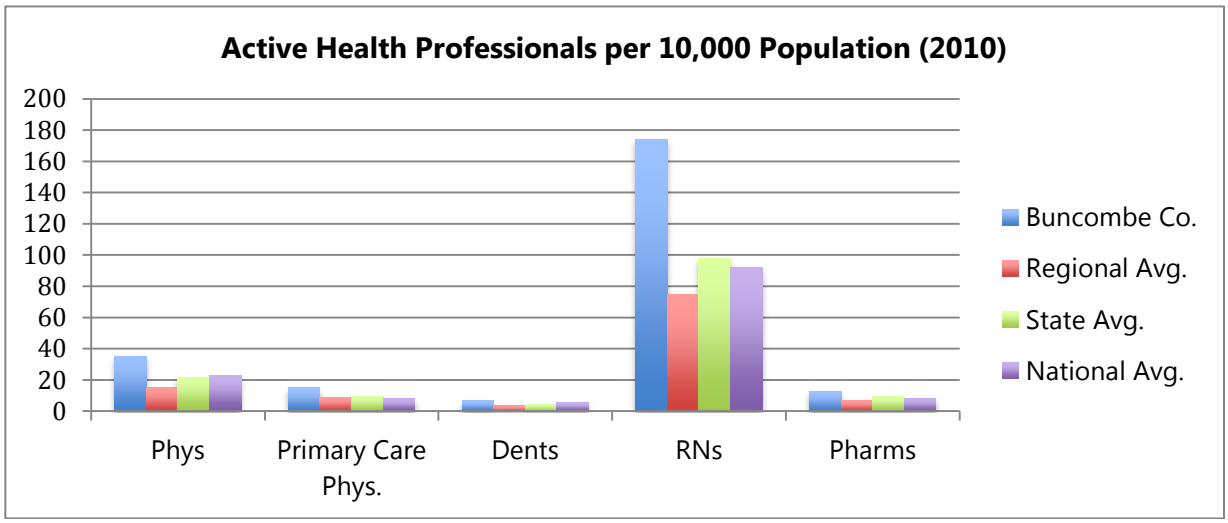
One way to judge the supply of health care providers in a jurisdiction is to calculate the ratio of the number of health professionals to the number of persons in the population of that jurisdiction. In NC, there is data on the ratio of active health professionals per 10,000 population calculated at the county level. Table 45 presents those data (which for simplicity's sake will be referred to simply as the "ratio") for Buncombe County, WNC, the state as a whole, and the US for five key categories of health care professionals: physicians, primary care physicians, dentists, registered nurses, and pharmacists. The years covered are 2008 and 2010.

According to this data, the ratios of professionals to population for Buncombe County are higher in every category than for WNC, NC, or the US. It should be noted that the mean ratios for WNC are lower than the comparable state averages in every professional category listed in the table.

Table 45. Active Health Professionals per 10,000 Population (2008 and 2010)

Geography	2008					2010				
	Phys	Primary Care Phys	Dents	RNs	Pharms	Phys	Primary Care Phys	Dents	RNs	Pharms
Buncombe County	35.7	14.6	6.8	173.7	13.2	35.2	14.8	6.7	174.2	12.5
Regional Average	15.0	8.9	3.4	75.3	7.0	14.8	8.9	3.4	74.9	6.9
State Average	21.2	9.0	4.3	95.1	9.3	21.7	9.4	4.4	97.4	9.2
National Average	23.2*	8.5*	4.9	91.4	8.0	22.7**	8.2**	5.7	92.0	8.3

* Data are for 2006
** Data are for 2008



Providers by Specialty

Table 46 lists the number of active health care professionals in Buncombe County and WNC, by specialty, for 2010. All provider specialties in the list are represented in Buncombe County.

Table 46. Active Health Professionals in Buncombe County and WNC, by Specialty (2010)

Category of Professionals	Buncombe County	WNC Total
Physicians		
Primary Care Physicians	353	813
Family Practice	139	368
General Practice	3	10
Internal Medicine	114	240
Obstetrics/Gynecology	45	85
Pediatrics	52	110
Other Specialties	488	853
Dentists and Dental Hygienists		
Dentists	161	342
Dental Hygienists	167	479
Nurses		
Registered Nurses	4,167	7,981
Nurse Practitioners	156	316
Certified Nurse Midwives	13	28
Licensed Practical Nurses	719	1,854
Other Health Professionals		
Chiropractors	97	192
Occupational Therapists	136	242
Occupational Therapy Assistants	29	99
Optometrists	35	84
Pharmacists	299	669
Physical Therapists	275	511
Physical Therapy Assistants	91	309
Physician Assistants	152	290
Podiatrists	10	24
Practicing Psychologists	135	201
Psychological Assistants	44	87
Respiratory Therapists	180	370

Uninsured Population

Table 47 presents periodic two-year data on the proportion of the non-elderly population (ages 19-64) without health insurance of any kind. While there was a 21.0% increase in the percent of uninsured at the state level from 2006-2007 to 2009-2010, the percent of uninsured adults in WNC actually decreased from one biennial period to the next throughout the span of years shown in the table. In Buncombe County an increase in the 2008-2009 period was followed by an equal decrease in the following two-year period, so the net change was zero.

Why is this Important?

Evidence shows that uninsured individuals experience more adverse outcomes (physically, mentally, and financially) compared to insured individuals. The uninsured are less likely to receive preventive and diagnostic health care services, are more often diagnosed at a later disease stage, and on average receive less treatment for their condition compared to insured individuals.

Ethnic minorities are more likely to be uninsured than non-Hispanic whites. Employment-based coverage is the largest source of health coverage in the U.S., and many unskilled, low paying, and part-time jobs do not offer health coverage benefits. In general, employment status is the most important predictor of health care coverage in the U.S.
(County Health Rankings and Roadmaps)

**Table 47. Estimated Percent Uninsured Adults, Ages 19-64
Biennial Periods (2006-2007, 2008-2009, and 2009-2010)**

Geography	Percent Uninsured		
	2006-2007	2008-2009	2009-2010
Buncombe County	20.8	21.1	20.8
Regional Arithmetic Mean	23.4	22.3	22.0
State Total	19.5	23.2	23.6

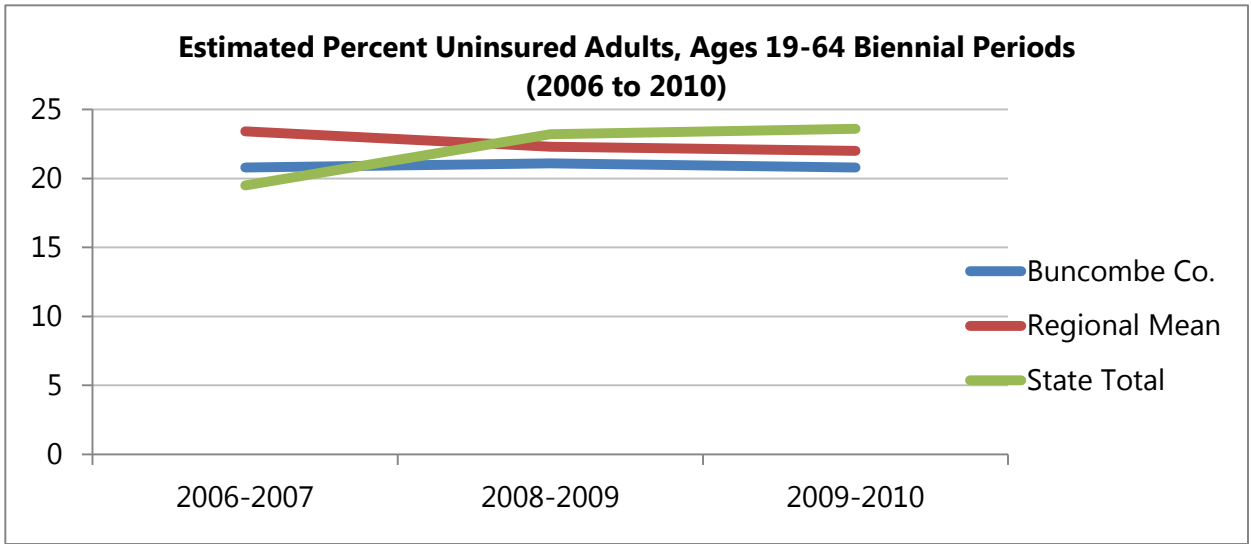
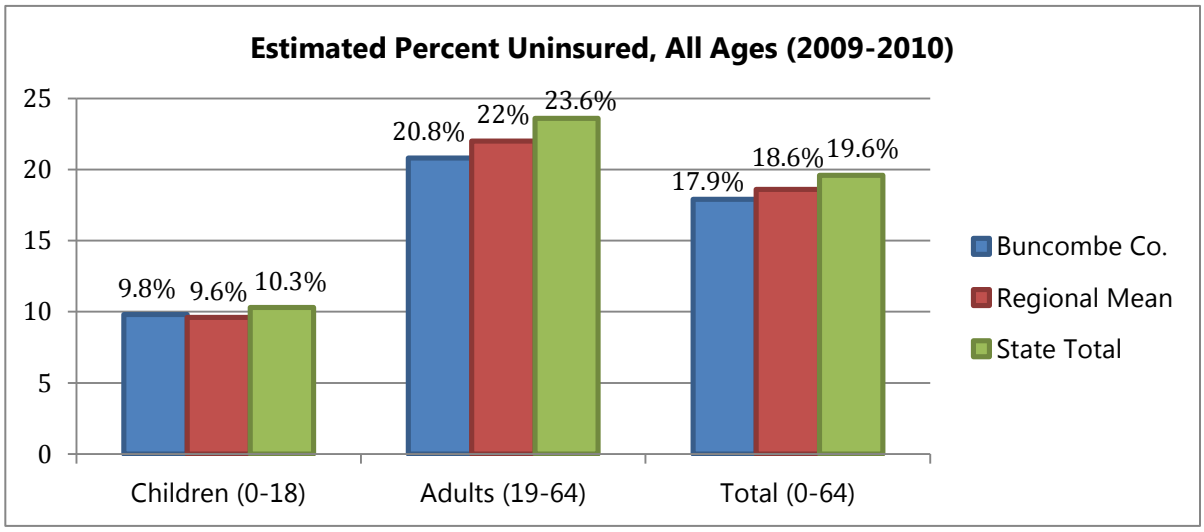


Table 48 shows the percent uninsured for one biennium (2009-2010) stratified by age. This data makes it clear that in Buncombe County as well as in WNC and NC as a whole, insurance coverage is better for children, among whom the percentage uninsured is less than half the percentage uninsured among the 19-64 age group. For all age categories cited, the percent uninsured is approximately the same or lower in Buncombe County than in WNC or NC.

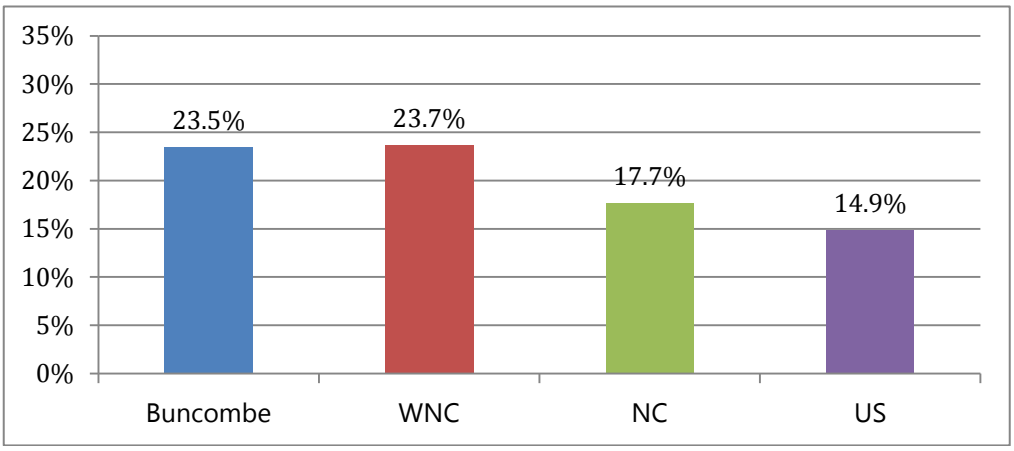
Table 48. Estimated Percent Uninsured, All Ages (2009-2010)

Geography	2009-2010		
	Children (0-18)	Adults (19-64)	Total (0-64)
Buncombe County	9.8	20.8	17.9
Regional Arithmetic Mean	9.6	22.0	18.6
State Total	10.3	23.6	19.6



Survey data also provides county and regional estimates of health insurance coverage. Lack of health insurance coverage reflects respondents age 18 to 64 (thus, excluding the Medicare population) who have no type of insurance coverage for healthcare services – neither private insurance nor government-sponsored plans (e.g., Medicaid).

Figure 77. Lack of Healthcare Insurance Coverage (WNC Healthy Impact Survey)
(Among Adults 18-64)



Sources:
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 125]
- Behavioral Risk Factor Surveillance System Survey Data. Atlanta, Georgia. United States Department of Health and Human Services, Centers for Disease Control and Prevention (CDC): 2010 North Carolina data.
- 2011 PRC National Health Survey, Professional Research Consultants, Inc.
- US Department of Health and Human Services. Healthy People 2020. December 2010. http://www.healthypeople.gov [Objective AHS-1]

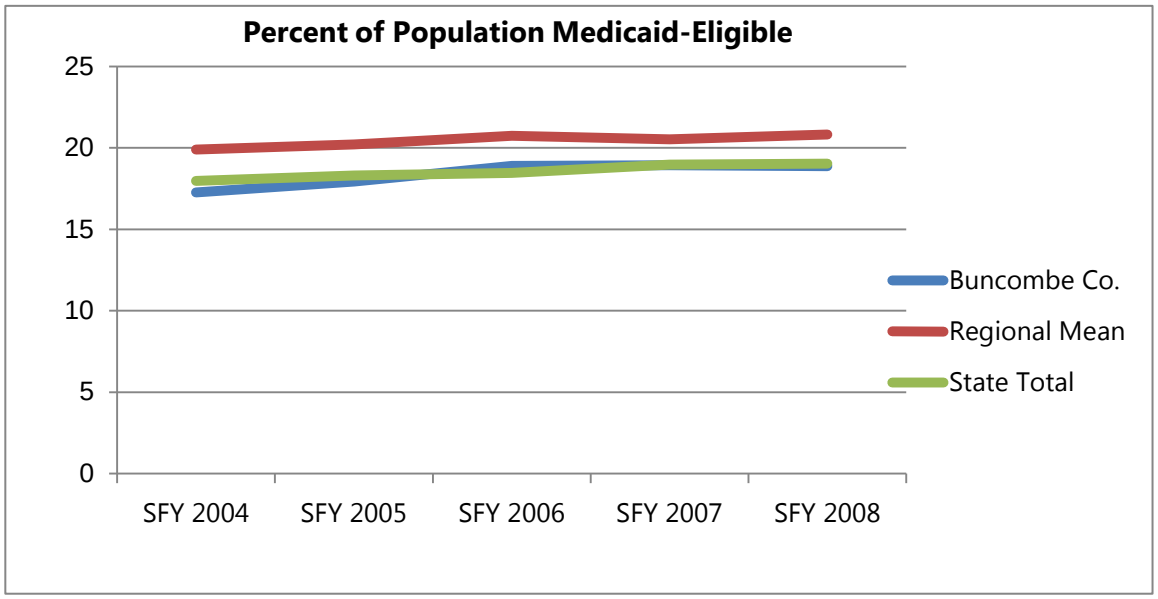
Notes:
- Reflects adults under the age of 65.
- Includes any type of insurance, such as traditional health insurance, prepaid plans such as HMOs, or government-sponsored coverage (e.g., Medicare, Medicaid, Indian Health Services, etc.).

Medicaid Eligibility

Table 49 presents trend data on the number and percent of persons eligible for Medicaid for several state fiscal years. This data demonstrates that in Buncombe County the number and percent of Medicaid-eligible persons rose annually every year except SYF2008, when the number increased but the percentage decreased. The annual percent of Medicaid-eligible Buncombe County residents was higher than the comparable figures for WNC and NC for each year shown in the figure. With the exception of SFY2007, the mean percent of the WNC population eligible for Medicaid rose from one year to the next throughout the period cited in the table. Note that between SFY2006 and SFY2007 the number in WNC that were Medicaid-eligible rose even if the percentage did not. Further, the mean percent Medicaid-eligible in WNC exceeded the comparable percent eligible statewide for every period cited.

Table 49. Number and Percent of Population Medicaid-Eligible (SFY2004 through SFY2008)

Geography	SFY 2004		SFY 2005		SFY 2006		SFY 2007		SFY 2008	
	#	%	#	%	#	%	#	%	#	%
Buncombe County	36,624	17.26	38,600	17.94	40,951	18.89	41,922	18.94	42,601	18.88
Regional Total	128,727	-	132,895	-	138,616	-	139,891	-	142,606	-
Regional Arithmetic Mean	16,091	19.90	16,612	20.21	17,327	20.75	17,486	20.52	17,826	20.82
State Total	1,512,360	17.97	1,563,751	18.31	1,602,645	18.46	1,682,028	18.98	1,726,412	19.04



Screening and Prevention

Diabetes

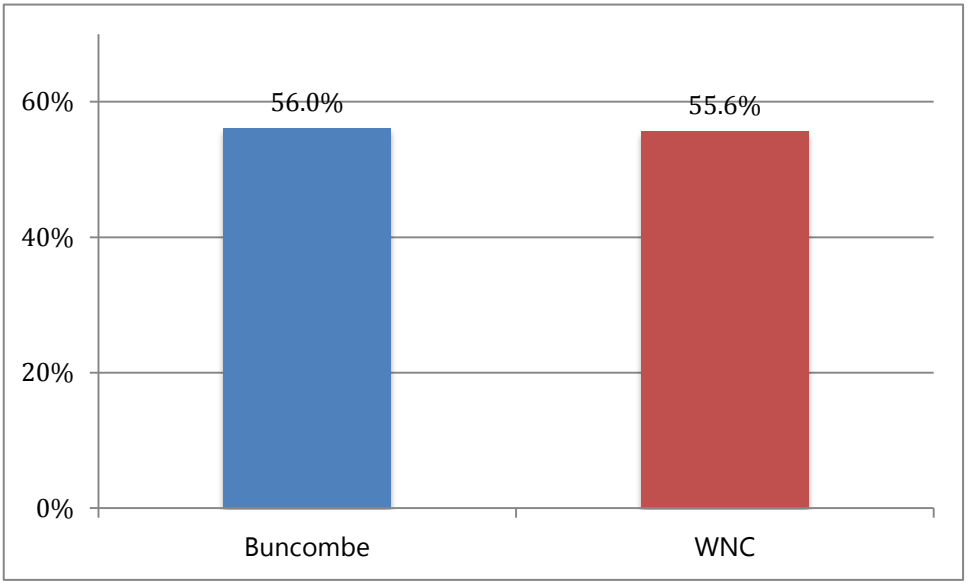
Diabetes mellitus occurs when the body cannot produce or respond appropriately to insulin. Insulin is a hormone that the body needs to absorb and use glucose (sugar) as fuel for the body's cells. Without a properly functioning insulin signaling system, blood glucose levels become elevated and other metabolic abnormalities occur, leading to the development of serious, disabling complications. Many forms of diabetes exist; the three common types are Type 1, Type 2, and gestational diabetes.

Diabetes mellitus affects an estimated 23.6 million people in the United States and is the 7th leading cause of death. Diabetes mellitus:

- Lowers life expectancy by up to 15 years.
- Increases the risk of heart disease by 2 to 4 times.
- Is the leading cause of kidney failure, lower limb amputations, and adult-onset blindness.

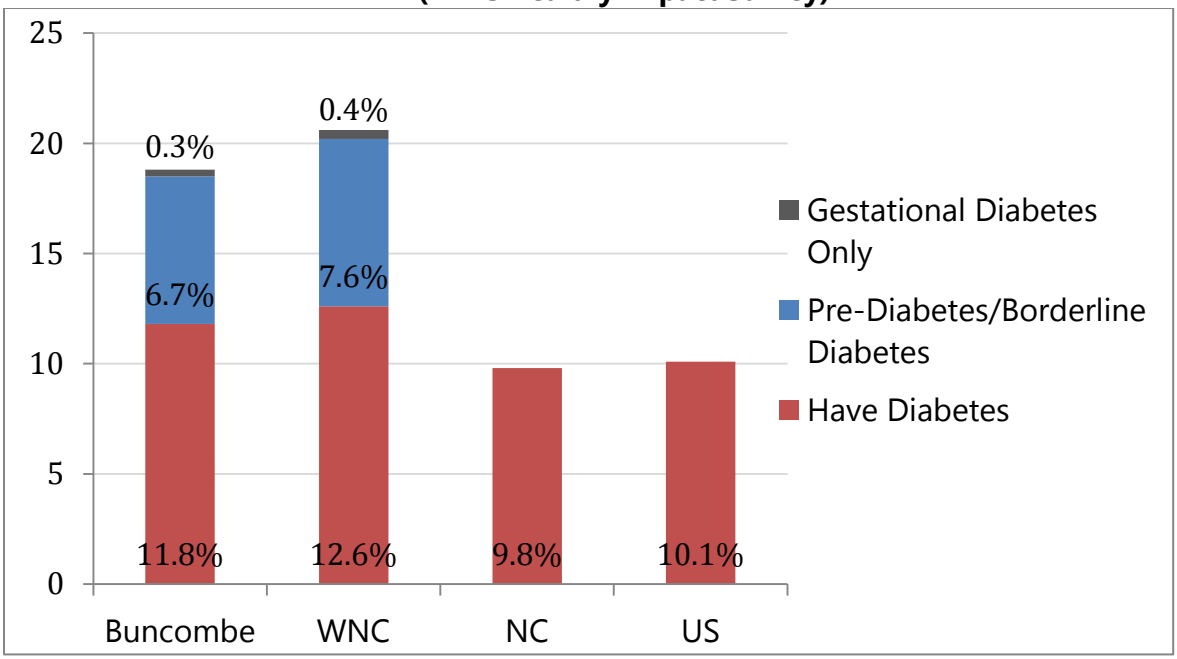
People from minority populations are more frequently affected by type 2 diabetes. Minority groups constitute 25% of all adult patients with diabetes in the US and represent the majority of children and adolescents with type 2 diabetes. Lifestyle change has been proven effective in preventing or delaying the onset of type 2 diabetes in high-risk individuals (DHHS, 2010)

Figure 78. Tested for Diabetes in the Past Three Years (WNC Healthy Impact Survey)
(Among Adults Who Have Not Been Diagnosed With Diabetes)



Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 19]
Notes: ● Asked of respondents who have never been diagnosed with diabetes; also includes women who have only been diagnosed when pregnant.

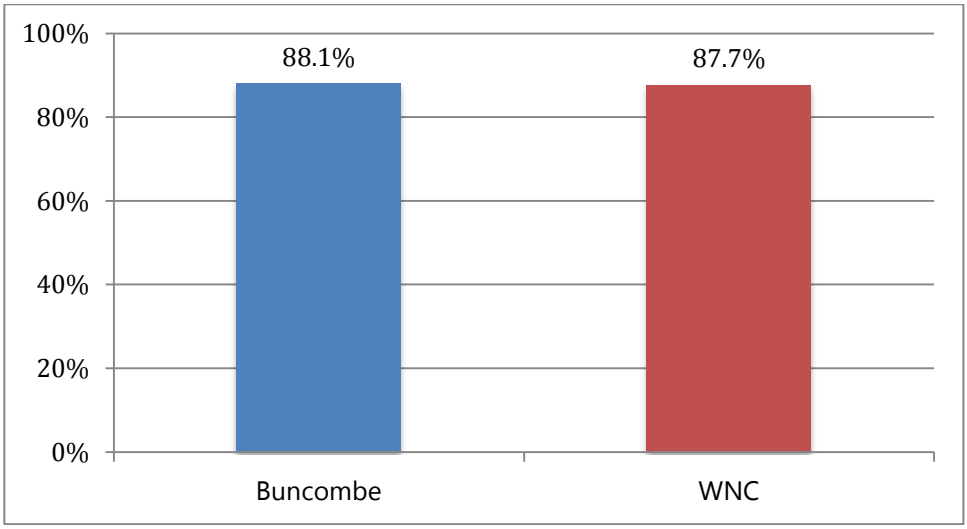
Figure 79. Prevalence of Diabetes (Ever Diagnosed)
(WNC Healthy Impact Survey)



Sources:
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 78]
- 2011 PRC National Health Survey, Professional Research Consultants, Inc.
- Behavioral Risk Factor Surveillance System Survey Data. Atlanta, Georgia. United States Department of Health and Human Services, Centers for Disease Control and Prevention (CDC): 2010 North Carolina data.

Notes:
- Asked of all respondents.
- Local and national data exclude gestation diabetes (occurring only during pregnancy).

Figure 80. Taking Action to Control Diabetes or Prediabetes (WNC Healthy Impact Survey)
(Among Adults Diagnosed with Diabetes or Prediabetes/Borderline Diabetes)



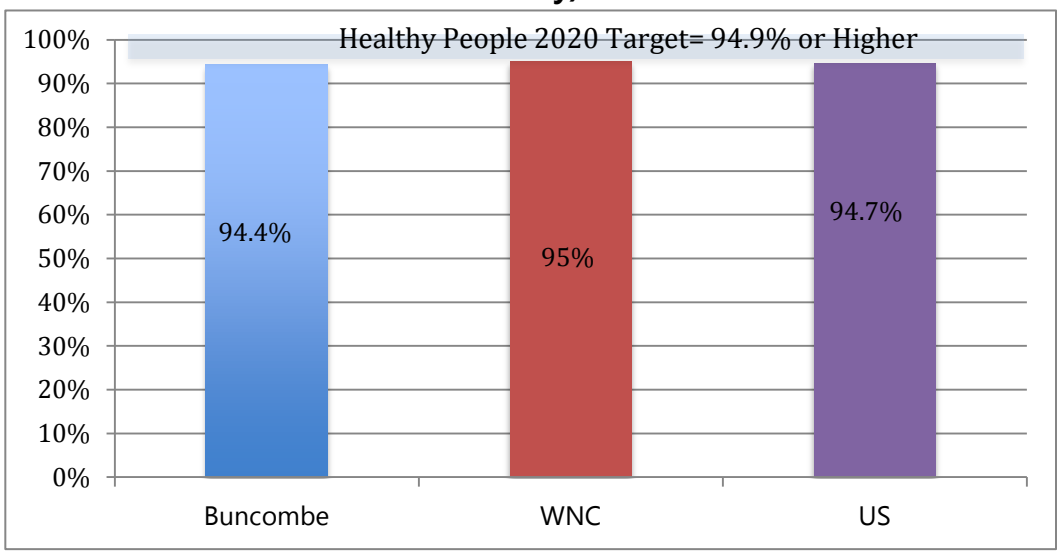
Sources:
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 21]

Notes:
- Asked of respondents who have been diagnosed with diabetes or prediabetes/borderline diabetes.
- In this case, the term "action" refers to taking natural or conventional medicines or supplements, diet modification, or exercising.

Hypertension

Controlling risk factors for heart disease and stroke remains a challenge. High blood pressure is still a major contributor to the national epidemic of cardiovascular disease. High blood pressure affects approximately 1 in 3 adults in the United States, and more than half of Americans with high blood pressure do not have it under control (DHHS, 2010).

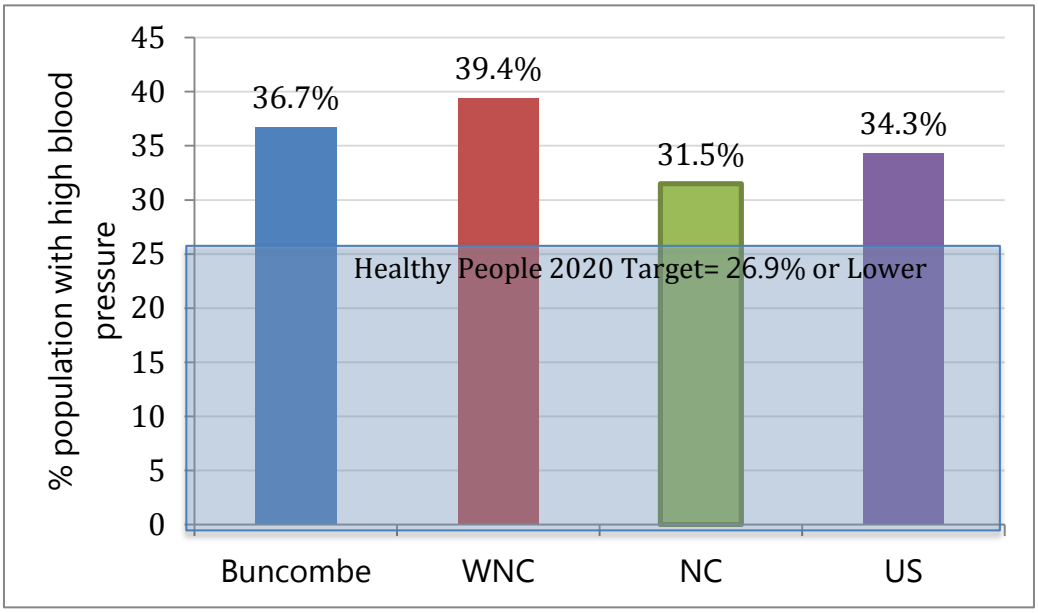
Figure 81. Have Had Blood Pressure Checked in the Past Two Years (WNC Healthy Impact Survey)



Sources:
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 24]
- 2011 PRC National Health Survey, Professional Research Consultants, Inc.
- US Department of Health and Human Services. Healthy People 2020. December 2010. http://www.healthypeople.gov [Objective HDS-4]

Notes:
- Asked of all respondents.

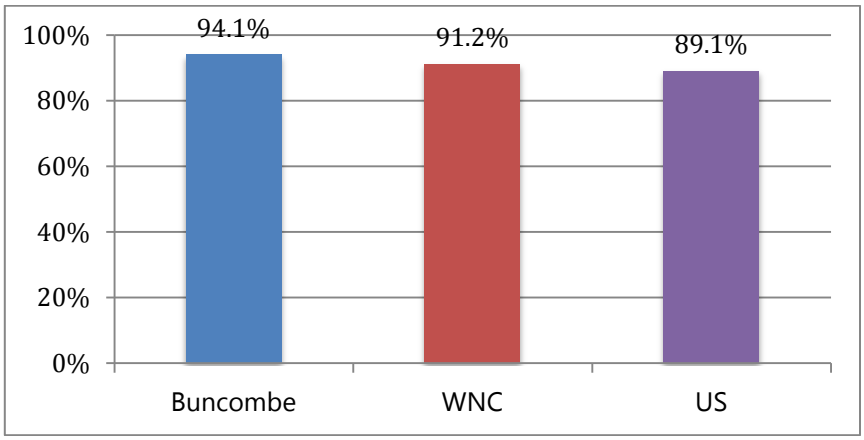
Figure 82. Prevalence of High Blood Pressure (WNC Healthy Impact Survey)



Sources:
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 76]
- Behavioral Risk Factor Surveillance System Survey Data. Atlanta, Georgia. United States Department of Health and Human Services, Centers for Disease Control and Prevention (CDC): 2009 North Carolina data.
- 2011 PRC National Health Survey, Professional Research Consultants, Inc.
- US Department of Health and Human Services. Healthy People 2020. December 2010. http://www.healthypeople.gov [Objective HDS-5.1]

Notes:
- Asked of all respondents.

Figure 83. Taking Action to Control Hypertension (WNC Healthy Impact Survey)
(Among Adults with High Blood Pressure)



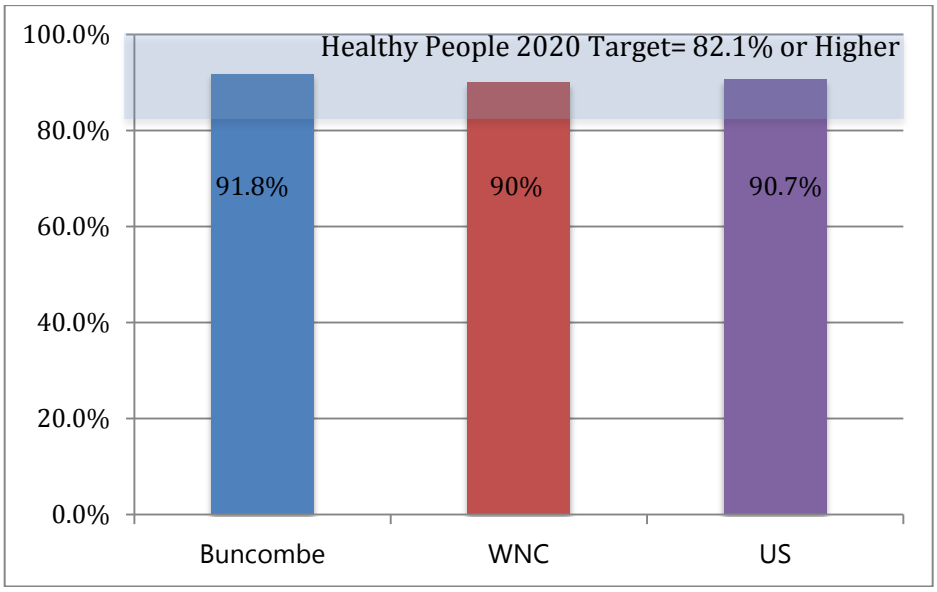
Sources:
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 23]
- 2011 PRC National Health Survey, Professional Research Consultants, Inc.

Notes:
- Asked of respondents who have been diagnosed with high blood pressure.
- In this case, the term "action" refers to medication, change in diet, and/or exercise.

Cholesterol

Cholesterol is also a major contributor to the national epidemic of cardiovascular disease. Survey respondents were asked a series of questions about their blood cholesterol levels.

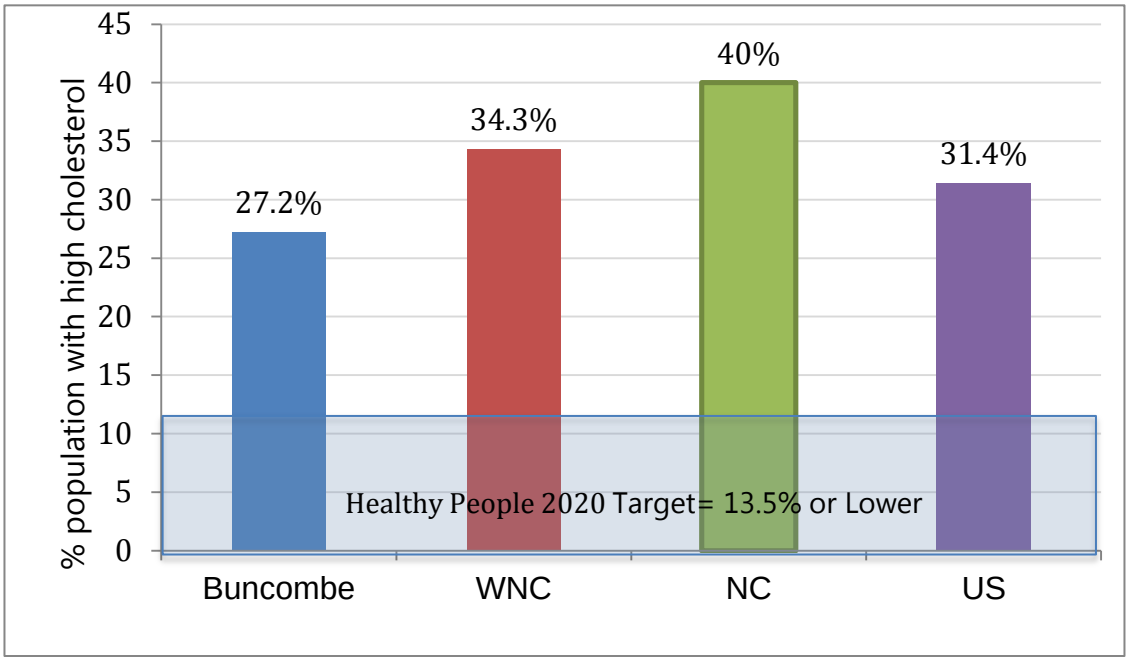
Figure 84. Have Had Blood Cholesterol Levels Checked in the Past Five Years (WNC Healthy Impact Survey)



Sources:
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 27]
- 2011 PRC National Health Survey, Professional Research Consultants, Inc.
- US Department of Health and Human Services. Healthy People 2020. December 2010. http://www.healthypeople.gov [Objective HDS-6]

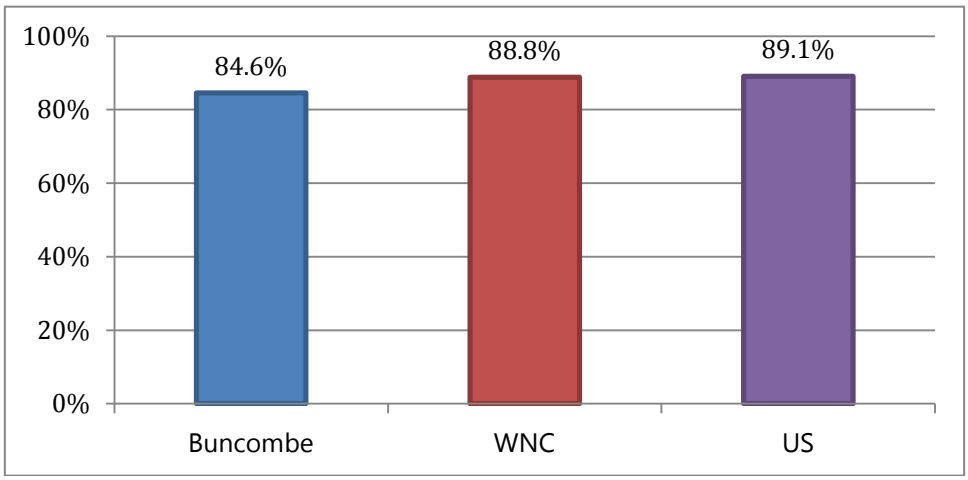
Notes:
- Asked of all respondents.

Figure 85. Prevalence of High Blood Cholesterol (WNC Healthy Impact Survey)



Sources:
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 77]
- Behavioral Risk Factor Surveillance System Survey Data. Atlanta, Georgia. United States Department of Health and Human Services, Centers for Disease Control and Prevention (CDC): 2009 North Carolina data.
- 2011 PRC National Health Survey, Professional Research Consultants, Inc.
- US Department of Health and Human Services. Healthy People 2020. December 2010. http://www.healthypeople.gov [Objective HDS-7]

Figure 86. Taking Action to Control High Blood Cholesterol (WNC Healthy Impact Survey)
(Among Adults With High Blood Pressure)



Sources:
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 26]
- 2011 PRC National Health Survey, Professional Research Consultants, Inc.

Notes:
- Asked of respondents who have been diagnosed with high blood cholesterol.
- In this case, the term "action" refers to medication, change in diet, and/or exercise.

Healthcare Utilization

Why is this Important?

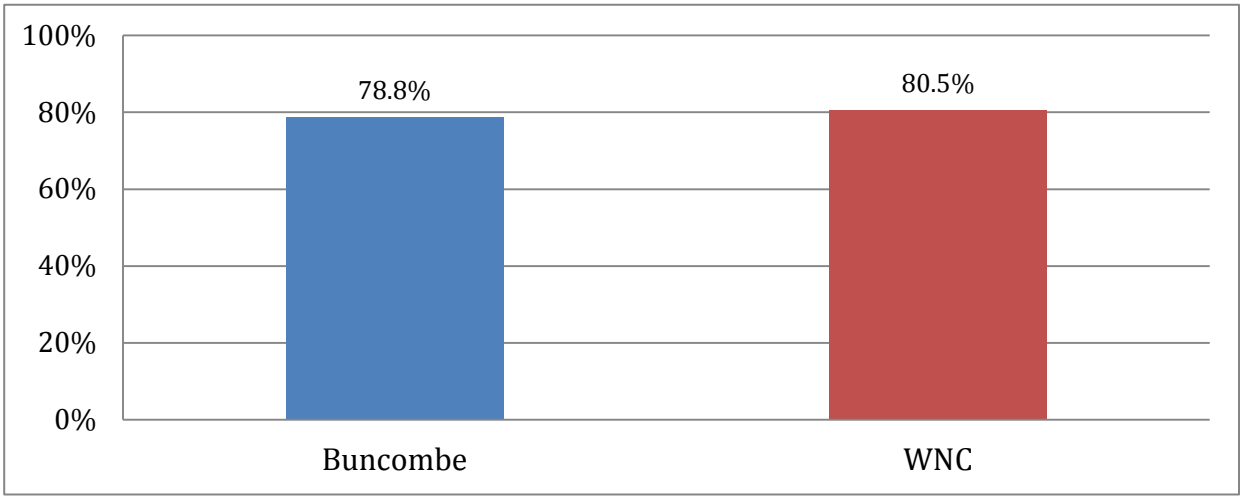
Improving health care services includes increasing access to and use of evidence-based preventive services. Clinical preventive services are services that: **prevent** illness by detecting early warning signs or symptoms before they develop into a disease (primary prevention); or **detect** a disease at an earlier, and often more treatable, stage (secondary prevention) (DHHS, 2010).

Routine Medical Care

Improving health care services depends in part on ensuring that people have a usual and ongoing source of care. People with a usual source of care have better health outcomes and fewer disparities and costs. Having a primary care provider (PCP) as the usual source of care is especially important. PCPs can develop meaningful and sustained relationships with patients and provide integrated services while practicing in the context of family and community. Having a usual PCP is associated with:

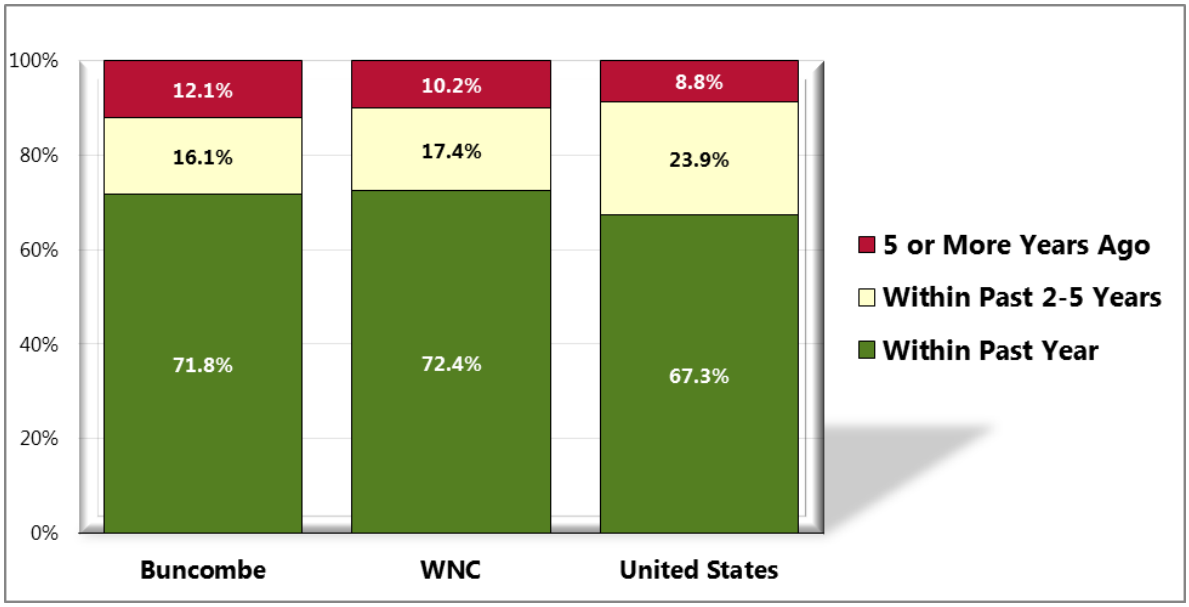
- Greater patient trust in the provider
- Good patient-provider communication
- Increased likelihood that patients will receive appropriate care

Figure 87. Have One Person Thought of as Respondent's Personal Doctor or Health Care Provider (WNC Healthy Impact Survey)



Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 16]
Notes: • Asked of all respondents.

Figure 88. Length of Time Since Last Routine Check-Up (WNC Healthy Impact Survey)



Sources:
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 15]
- 2011 PRC National Health Survey, Professional Research Consultants, Inc.

Notes:
- Asked of all respondents.

Emergency Department Utilization

According to data in Table 50, the diagnoses associated with the highest frequency of emergency department visits in Buncombe County in 2010 were psychiatric disorders (20.08% of all ED visits), followed by chest pain/ischemic heart disease (11.79%) and lower respiratory disorders (11.01%). On the regional level, the diagnoses associated with the highest frequency of ED visits were chest pain/ischemic heart disease (11.83% of all ED visits), followed by psychiatric disorders (10.98%) and lower respiratory disorders (9.48%)

Table 50. North Carolina Emergency Department Visits, NC DETECT Data (2010)

Diagnosis	Buncombe County		WNC Mean
	#	%	%
Chest pain/ischemic heart disease	9,745	11.79	11.83
Heart failure	2,103	2.54	2.58
Cardiac arrest	81	0.10	0.14
Lower respiratory disorders	9,104	11.01	9.48
Diabetes	6,745	8.16	8.80
Neoplasms	1,227	1.48	1.57
Dental problems	950	1.15	1.85
Stroke/TIA	411	0.50	0.62
Traumatic brain injury	144	0.17	0.30
Psychiatric disorders	16,598	20.08	10.98
Substance abuse	3,944	4.77	2.99
Total ED Visits	82,667	n/a	n/a

* % represents percent of total ED visits

** "S" indicates the data was suppressed due to a case count under 10

Note: for the full description of the disease group diagnosis codes included in each diagnosis line, see the *Data Workbook*.

Table 51 presents a summary of the major first-listed emergency department diagnoses for the WNC region according to DRG code. According to this data, the most common first-listed diagnosis codes in emergency departments across the region are abdominal pain (2.37% of all ED visits) and back pain, sprains of the lumbar spice, and sciatica (also 2.37%). It would appear that some of these cases could qualify for diversion to other health care providers *if* they were present in the community.

Table 51. Most Common First-Listed Diagnosis Codes in Emergency Departments, WNC
NC DETECT Data
2010

Diagnosis	Diagnosis Codes	# ED Visits	% of Total ED Visits
Abdominal pain	789.0, 789.00, 789.03, 789.09	7,597	2.37
Back pain, sprains of lumbar spine, sciatica	724.2, 724.3, 724.5, 847.2	7,590	2.37
Essential hypertension	401.9	7,490	2.34
Nausea with vomiting or vomiting alone	787.01, 787.03	5,873	1.83
Headache, Migraine, unspecified	784.0, 346.9	5,584	1.74
Acute URI/Pharyngitis, Streptococcal sore throat	034.0, 465.9, 462	5,458	1.70
Cough, Bronchitis	786.2, 466.0, 490	4,703	1.47
Dental caries, periapical abscess, tooth structure, disorders	521.00, 522.5, 525.9	4,210	1.31
UTI	599	4,027	1.26
Fever, Unknown origin	780.6, 780.60	3,285	1.03
Asthma, unspecified	493.90, 439.92	2,823	0.88
Neck sprains/stains	723.1, 847.0	2,728	0.85
Pain in joint	719.41, 719.45, 719.46	2,609	0.81
Pain in limb	729.5	2,486	0.78
Chest pain	786.5, 786.50, 786.59	2,186	0.68
Otitis media	382.9	2,083	0.65
Pneumonia	486	1,934	0.60
Open wound of hand or finger without complication	882.0, 883.0	1,644	0.51
Contusion of face, scalp, and neck except eyes	920	1,622	0.51
Syncope and collapse	780.2	1,552	0.48
TOTAL ED VISITS		320,429	

Inpatient Hospitalizations

Table 52 lists the diagnostic categories accounting for the most cases of inpatient hospitalization for 2010. The source data is based on a patient's county of residence, so the WNC totals presented in the table represent the sum of hospitalizations from each of the 16 WNC counties.

According to data in Table 52, the diagnosis resulting in the highest number of cases of hospitalization in 2010 among Buncombe County residents was cardiovascular and circulatory diseases (including heart disease and cerebrovascular disease), which accounted for 3,314 hospitalizations. The next highest number of hospitalizations (2,969) was for the broad category of "other diagnoses, including mental disorders", followed by pregnancy and childbirth (2,664 cases).

Table 52. Inpatient Hospital Utilization by Buncombe County Residents, by Principal Diagnoses Excluding Newborns and Discharges from Out-of-State Hospitals (2011)

Diagnostic Category	Total # Cases		
	Buncombe County	Region	North Carolina
INFECTIOUS & PARASITIC DISEASES	728	2,741	41,705
-- Septicemia	358	1,604	27,412
-- AIDS	23	41	1,456
MALIGNANT NEOPLASMS	769	2,599	31,225
-- Colon, Rectum, Anus	68	324	3,770
-- Trachea, Bronchus, Lung	101	346	4,541
-- Female Breast	34	157	1,498
-- Prostate	62	192	2,505
BENIGN, UNCERTAIN & OTHER NEOPLASMS	195	650	8,948
ENDOCRINE, METABOLIC & NUTRITIONAL DISEASES	851	2,905	40,208
-- Diabetes	331	1,240	18,101
BLOOD & HEMOPOETIC TISSUE DISEASES	230	770	14,011
NERVOUS SYSTEM & SENSE ORGAN DISEASES	528	1,597	19,315
CARDIOVASCULAR & CIRCULATORY DISEASES	3,314	12,961	162,327
-- Heart Disease	2,265	9,006	108,060
-- Cerebrovascular Disease	592	2,259	29,429
RESPIRATORY DISEASES	2,219	8,683	93,891
-- Pneumonia/Influenza	668	3,089	29,852
-- Chronic Obstructive Pulmonary Disease	712	2,557	30,832
DIGESTIVE SYSTEM DISEASES	2,364	8,527	95,068
-- Chronic Liver Disease/Cirrhosis	57	178	2,361
GENITOURINARY DISEASES	1,096	4,123	45,978
-- Nephritis, Nephrosis, Nephrotic Synd.	303	1,036	14,368
PREGNANCY & CHILDBIRTH	2,664	7,921	125,271
SKIN & SUBCUTANEOUS TISSUE DISEASES	339	1,287	17,734
MUSCULOSKELETAL SYSTEM DISEASES	1,804	5,950	58,753
-- Arthropathies and Related Disorders	948	3,155	30,683
CONGENITAL MALFORMATIONS	92	294	3,318
PERINATAL COMPLICATIONS	40	198	4,035
SYMPTOMS, SIGNS & ILL-DEFINED CONDITIONS	1,163	3,916	48,299
INJURIES & POISONING	2,268	7,474	78,637
OTHER DIAGNOSES (INCL. MENTAL DISORDERS)	2,969	7,329	84,657
ALL CONDITIONS	23,633	79,925	973,380

Source: *Inpatient Hospital Utilization and Charges by Principal Diagnosis, and County of Residence, North Carolina, 2010 (Excluding Newborns & Discharges from Out of State Hospitals)* Retrieved June 20, 2012, from North Carolina State Center for Health Statistics (NC SCHS), 2012 County Health Data Book website: http://www.schs.state.nc.us/schs/data/databook/

Dental Services

The significant improvement in the oral health of Americans over the past 50 years is a public health success story. Most of the gains are a result of effective prevention and treatment efforts. One major success is community water fluoridation, which now benefits about 7 out of 10 Americans who get water through public water systems. However, some Americans do not have access to preventive programs. People who have the least access to preventive services and dental treatment have greater rates of oral diseases. A person's ability to access oral healthcare is associated with factors such as education level, income, race, and ethnicity.

Why is this Important?

Oral health is essential to overall health. Good oral health improves a person's ability to speak, smile, smell, taste, touch, chew, swallow, and make facial expressions to show feelings and emotions. However, oral diseases, from cavities to oral cancer, cause pain and disability for many Americans. Good self-care, such as brushing with fluoride toothpaste, daily flossing, and professional treatment, is key to good oral health. Health behaviors that can lead to poor oral health include:

- Tobacco use
- Excessive alcohol use
- Poor dietary choices

(County Health Rakings and Roadmaps)

There are also social determinants that affect oral health. In general, people with lower levels of education and income, and people from specific racial/ethnic groups, have higher rates of disease. People with disabilities and other health conditions, like diabetes, are more likely to have poor oral health (DHHS, 2010).

Utilization of Dental Services by the Medicaid Population

Table 53 presents data on the percent of the Medicaid population eligible for dental care that utilizes it. This data represents the Medicaid population of all ages, but split into under-age-21 and age-21-and over-categories. In all three jurisdictions the Medicaid population under age 21 appears to be more likely to utilize dental services than the population age 21 and older. The figures for Buncombe County are higher than in the other jurisdictions.

Table 53. Medicaid Recipients Receiving Dental Services, All Ages (2010)

Geography	Medicaid Recipients Utilizing Dental Services (by Ages Group)					
	<21 Years Old			21+ Years Old		
	# Eligible for Services	# Receiving Services	% Eligibles Receiving Services	# Eligible for Services	# Receiving Services	% Eligibles Receiving Services
Buncombe County	25,303	12,992	51.3	18,238	5,797	31.8
Regional Total	85,652	42,135	49.2	62,817	18,536	29.5
State Total	1,113,692	541,210	48.6	679,139	214,786	31.6

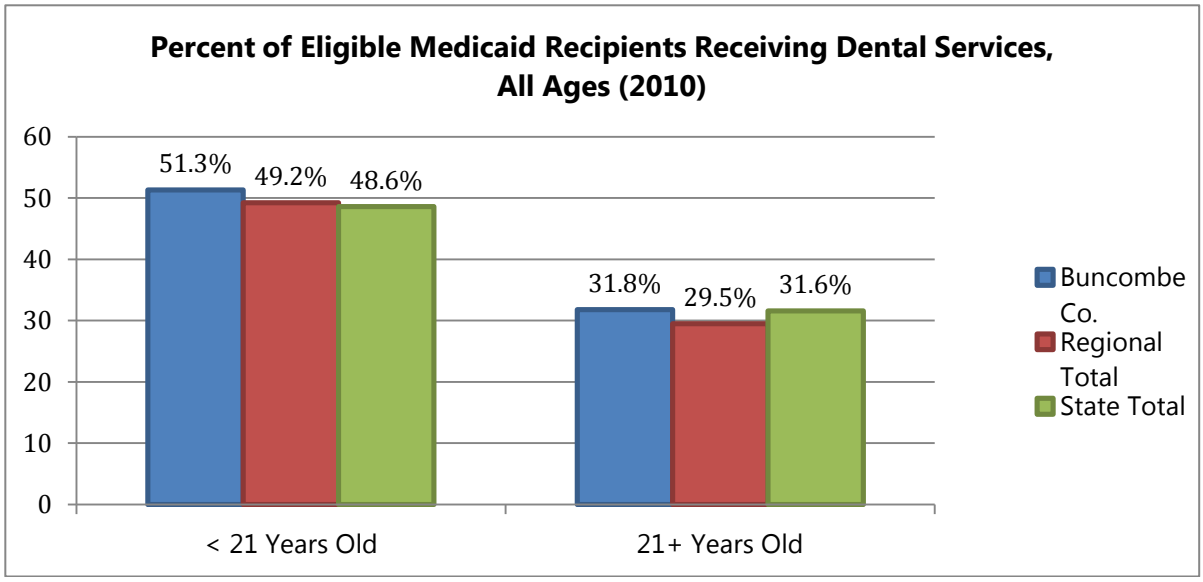
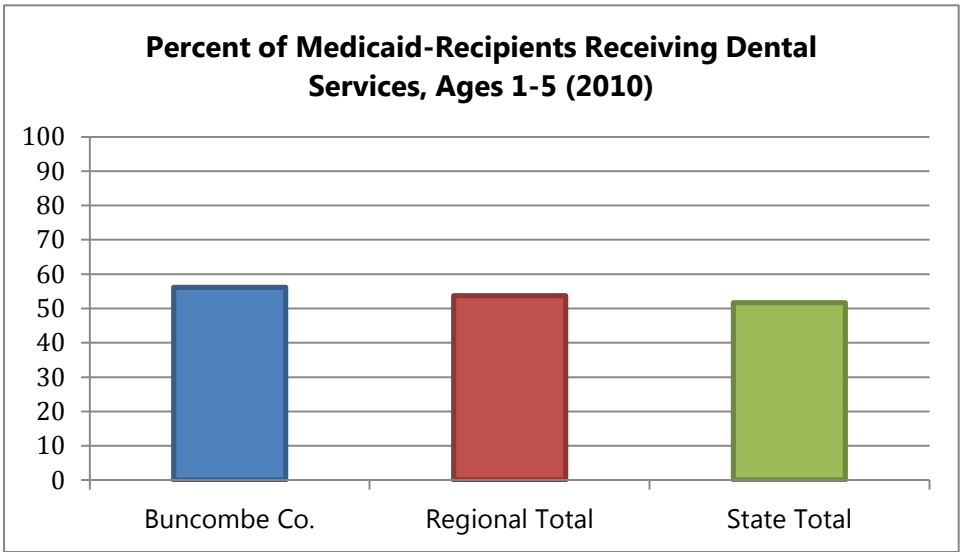


Table 54, focusing only on children ages 1-5, helps in understanding why utilization in the under-21 age group is so high. In this youngest age group, half or more of the eligible population received dental services in all three jurisdictions.

Table 54. Medicaid-Recipients Receiving Dental Services, Ages 1-5 (2010)

Geography	Children (aged 1-5) Enrolled in Medicaid Who Received Any Dental Service In the Previous 12 Months)		
	# Eligible for Services*	# Receiving Services**	% Eligibles Receiving Services
Buncombe County	8,164	4,580	56.1
Regional Total	26,820	14,407	53.7
State Total	n/a	n/a	51.7

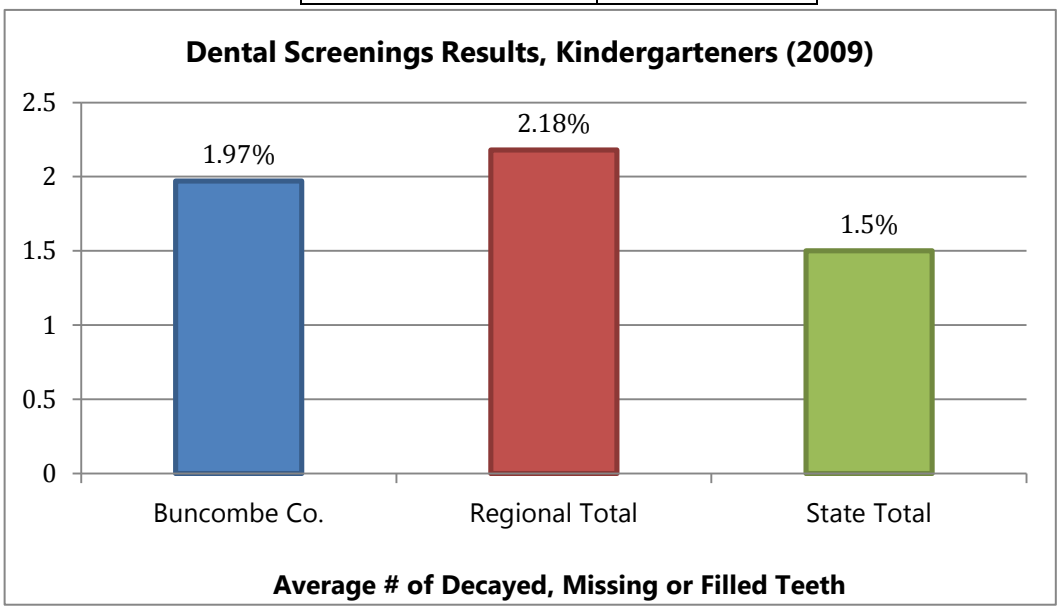


Dental Screening Results among Children

Table 55 presents 2009 dental screening results for kindergarteners. While the screening process captures other data, this data covers only the average number of decayed, missing or filled teeth. The average number of decayed, missing or filled teeth discovered among kindergarteners screened in Buncombe County (1.97 per child) was 10% lower than the mean percentage for WNC (2.18) but 31% higher than the state average (1.50).

Table 55. Dental Screening Results, Kindergarteners (2009)

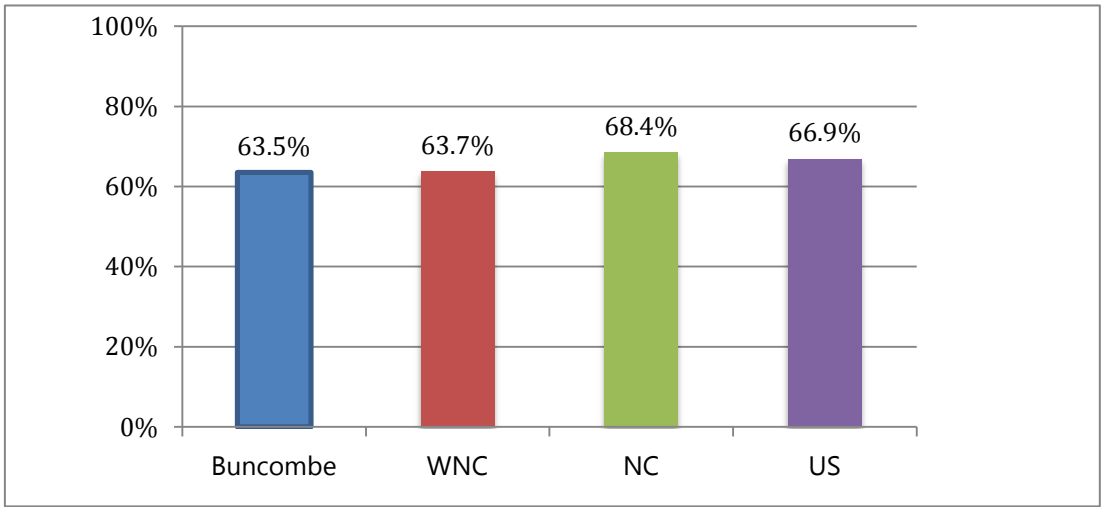
Geography	Average # Decayed, Missing or Filled Teeth
Buncombe County	1.97
Regional Arithmetic Mean	2.18
State Total	1.50



Utilization of Preventive Dental Care

Survey respondents were asked, "About how long has it been since you last visited a dentist or a dental clinic for any reason? This includes visits to dental specialists, such as orthodontists.

Figure 89. Have Visited a Dentist or Dental Clinic Within the Past Year (WNC Healthy Impact Survey)



Sources:
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 17]
- 2011 PRC National Health Survey, Professional Research Consultants, Inc.
- US Department of Health and Human Services. Healthy People 2020. December 2010. http://www.healthypeople.gov [Objective OH-7]
- Behavioral Risk Factor Surveillance System Survey Data. Atlanta, Georgia. United States Department of Health and Human Services, Centers for Disease Control and Prevention (CDC): 2010 North Carolina data.

Notes:
- Asked of all respondents.

Mental Health

Mental health is a state of successful performance of mental function, resulting in productive activities, fulfilling relationships with other people, and the ability to adapt to change and to cope with challenges. Mental health is essential to personal well-being, family and interpersonal relationships, and the ability to contribute to community or society. Mental disorders are health conditions that are characterized by alterations in thinking, mood, and/or behavior that are associated with distress and/or impaired functioning. Mental disorders contribute to a host of problems that may include disability, pain, or death. Mental illness is the term that refers collectively to all diagnosable mental disorders.

Mental disorders are among the most common causes of disability. The resulting disease burden of mental illness is among the highest of all diseases. According to the national Institute of Mental Health (NIMH), in any given year, an estimated 13 million American adults (approximately 1 in 17) have a seriously debilitating mental illness. Mental health disorders are the leading cause of disability in the United States and Canada, accounting for 25% of all years of life lost to disability and premature mortality. Moreover, suicide is the 11th leading cause of death in the United States, accounting for the deaths of approximately 30,000 Americans each year.

The unit of NC government responsible for overseeing mental health services is the Division of Mental Health, Developmental Disabilities and Substance Abuse Services (DMH/DD/SAS). The NC mental health system is built on a system of Local Management Entities (LMEs)—area authorities or county programs—responsible for managing, coordinating, facilitating and monitoring the provision of MH/DD/SAS services in the catchment area served. There are two LMEs serving the population in WNC: Smoky Mountain Center and Western Highlands Network. (NC Division of Mental Health, August 2012).

Mental Health Service Utilization Trends

Table 56 presents figures on the numbers of persons receiving services in Area Mental Health Programs in 2006 through 2010. No clear pattern of service utilization is apparent from this data in any of the three jurisdictions. It should be noted that the mental health system in NC is in some disarray, as reform of the recent past is being reconsidered.

Table 56. Persons Served in Area Mental Health Programs (2006-2010)

Geography	# Persons Served in Area Mental Health Programs				
	2006	2007	2008	2009	2010
Buncombe County	8,337	8,663	7,067	8,244	9,837
Regional Total	30,952	31,271	28,380	24,527	28,453
State Total	322,397	315,338	306,907	309,155	332,796

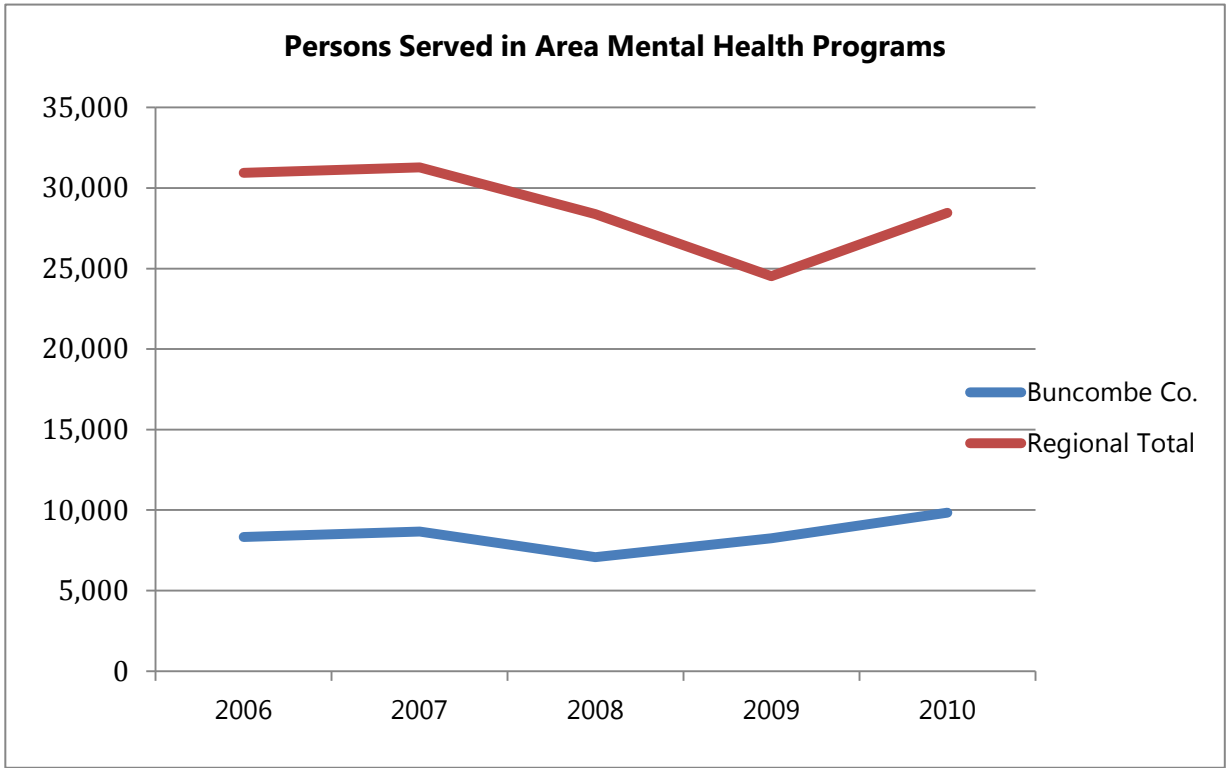


Table 57 presents figures on the numbers of persons receiving services in NC state alcohol and drug treatment centers. Although the pattern of increase is not straight-line in both cases, it appears that increasing numbers of persons in Buncombe County and WNC have received services from NC state alcohol and drug treatment centers since 2007. Noteworthy at the regional level was a 23% increase in persons being served between 2009 and 2010. In Buncombe County there was an annual increase in the number of persons served, with a net increase of 56% between 2007 and 2010.

Table 57. Persons Served in NC State Alcohol and Drug Treatment Centers (2006-2010)

Geography	# Persons Served in NC Alcohol and Drug Treatment Centers				
	2006	2007	2008	2009	2010
Buncombe County	330	330	412	468	516
Regional Total	664	604	774	751	921
State Total	4,003	3,733	4284	4,812	4,483

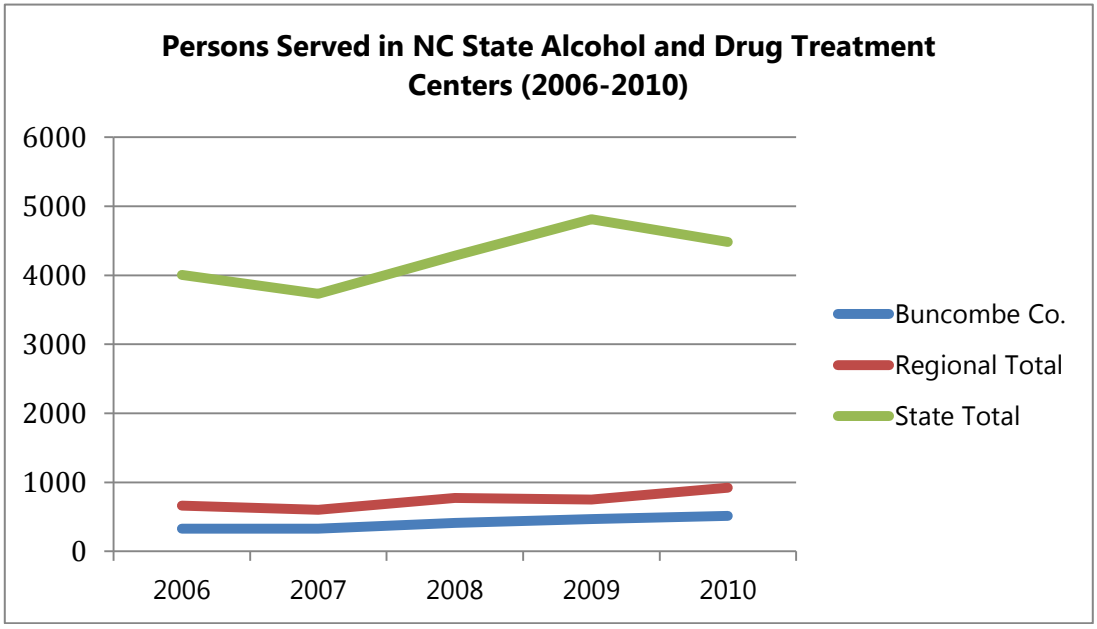
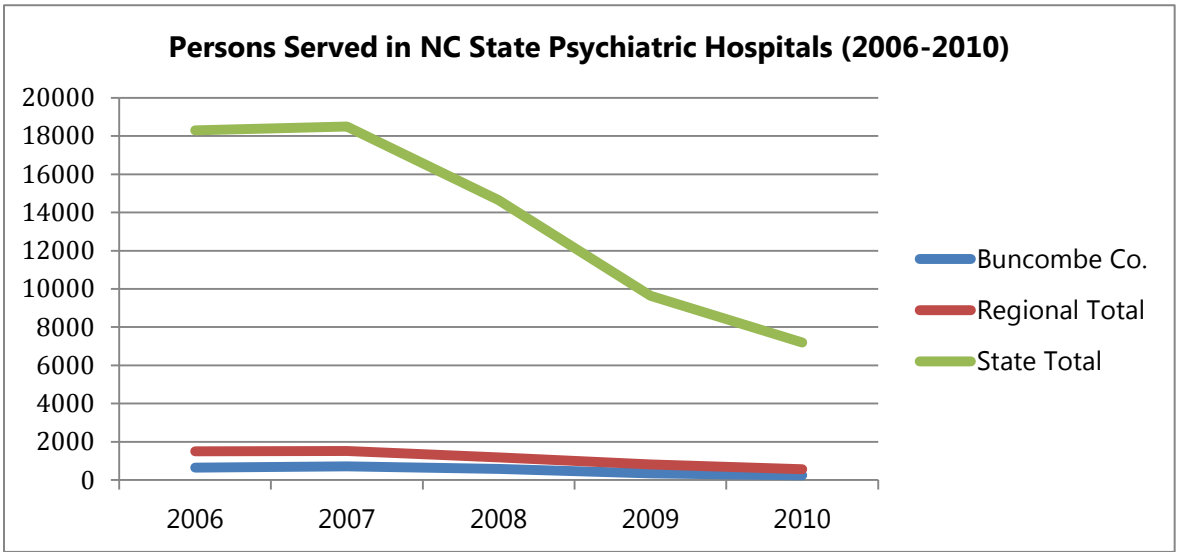


Table 58 presents figures on the numbers of persons receiving services in NC state psychiatric hospitals. The number of persons in Buncombe County utilizing these services fell every year from 2007 to 2010, decreasing by 61% over that period. The number of persons in WNC receiving these services also fell. The number of persons in WNC utilizing state psychiatric hospital services in 2010 (564) was 63% lower than the number utilizing services in 2006 (1,509). The decrease in persons receiving services likely is a reflection of a decreasing availability of state services, rather than a decreasing need for services.

Table 58. Persons Served in NC State Psychiatric Hospitals (2006-2010)

Geography	# Persons Served in NC State Psychiatric Hospitals				
	2006	2007	2008	2009	2010
Buncombe County	644	726	581	352	250
Regional Total	1,509	1,529	1190	818	564
State Total	18,292	18,498	14643	9,643	7,188



Poor Mental Health Days

Survey respondents were asked, "Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many of the past 30 days was your mental health not good?

Figure 90. Number of Days in the Past 30 Days on Which Mental Health Was Not Good (WNC Healthy Impact Survey)

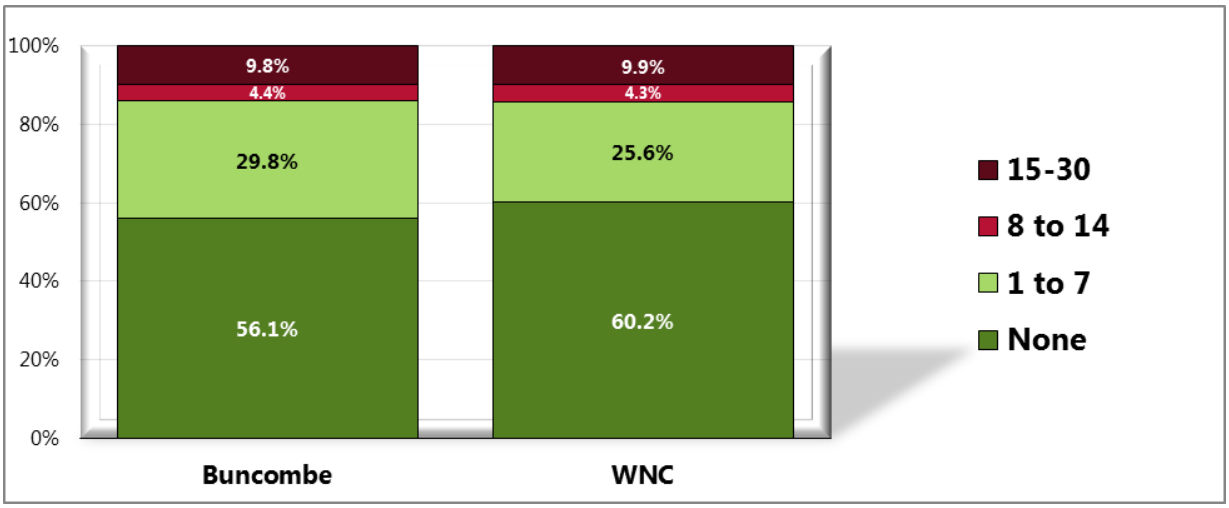
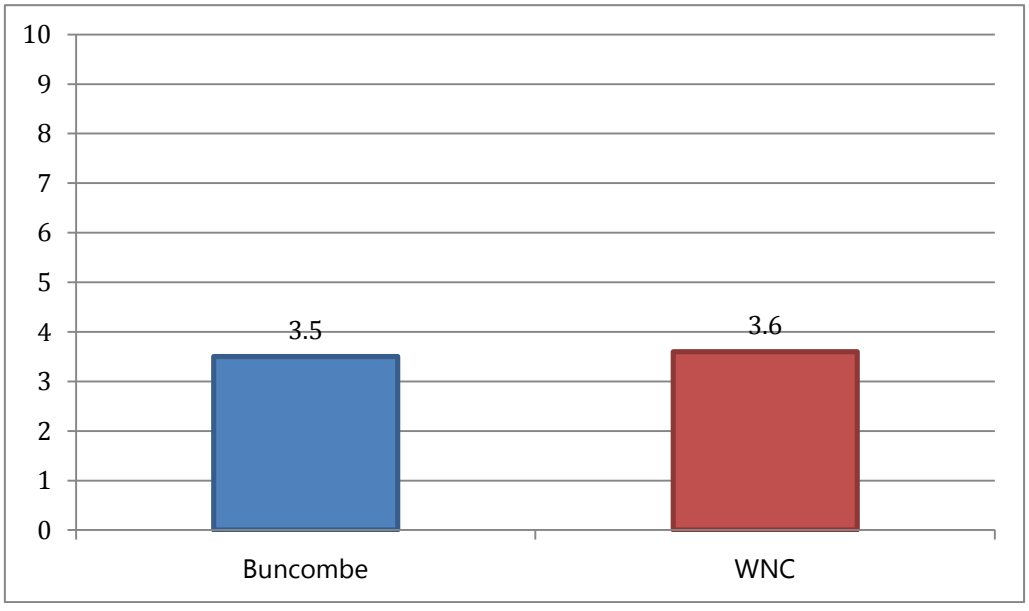


Figure 91. Average Number of the Past 30 Days on Which Mental Health Was Not Good (WNC Healthy Impact Survey)

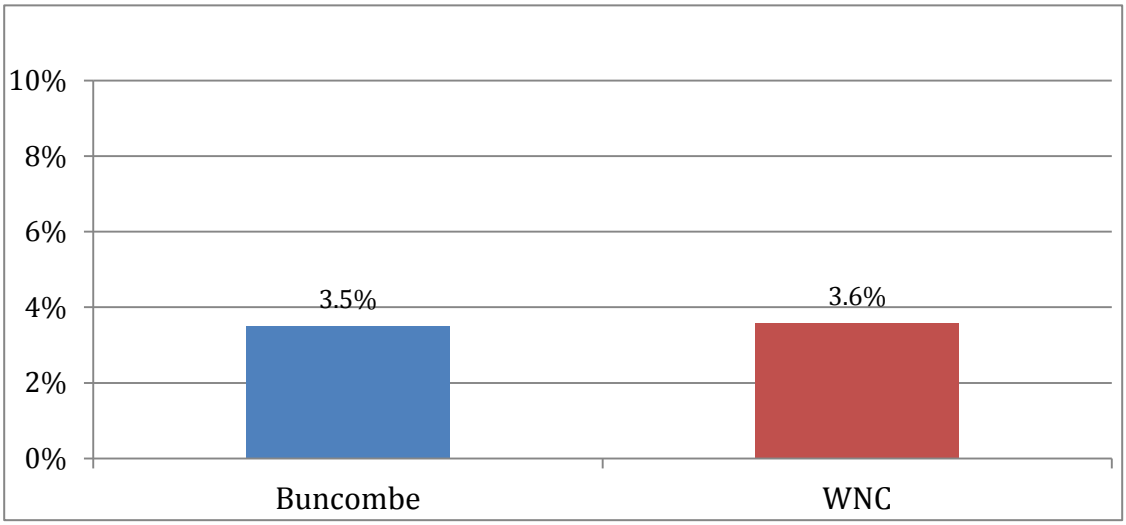


Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 64]
Notes: ● Asked of all respondent

Access to Mental Health Services

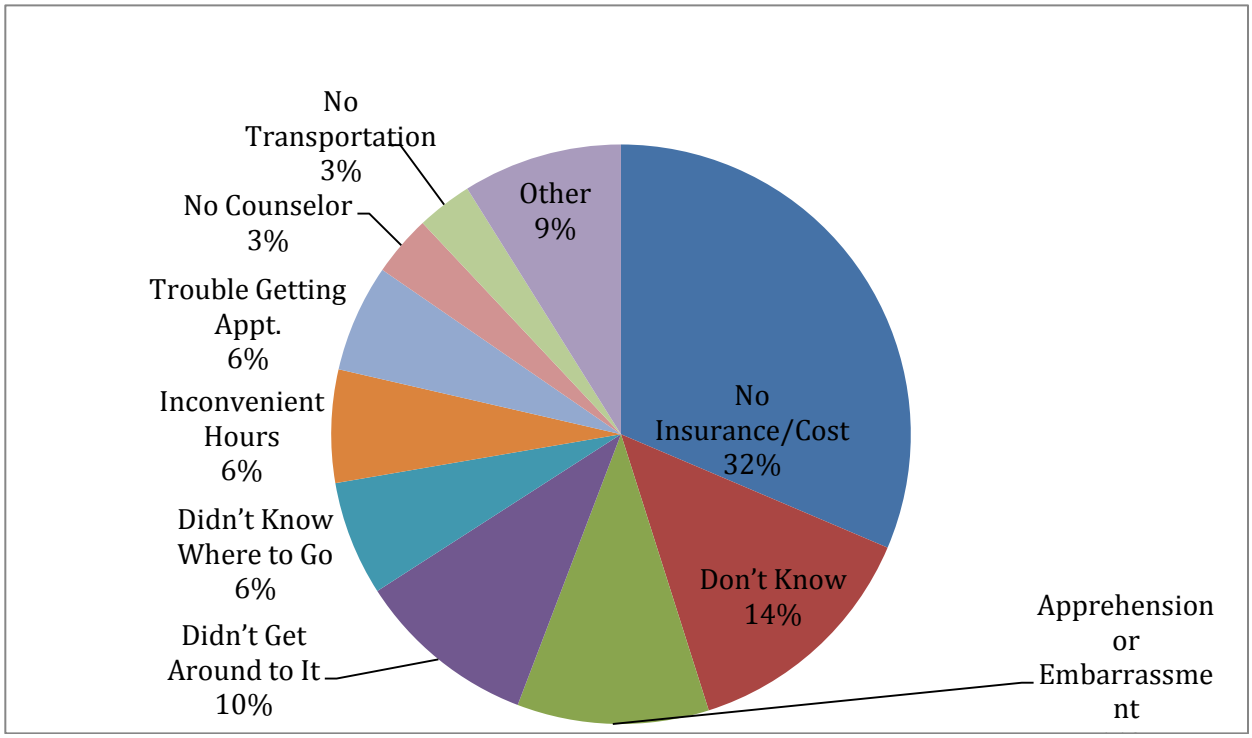
Survey respondents were asked if they had a time in the past year when they needed mental health care or counseling, but did not get it at that time. Those who responded, "yes," were asked to name the main reason they did not get mental health care or counseling. Due to small county-level sample sizes, responses to the latter question are displayed below for the region.

Figure 92. Had a Time in the Past Year When Mental Health Care or Counseling Was Needed, But Was Unable to Get It (WNC Healthy Impact Survey)



Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 65]
Notes: ● Asked of all respondents.

Figure 93. Primary Reason for Inability to Access Mental Health Services (WNC Healthy Impact Survey)
(Adults Unable to Get Needed Mental Health Care in the Past Year)
(Western North Carolina, 2012)



Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 66]
Notes: • Asked of those respondents who were unable to get needed mental health care in the past year.

Advance Directives

An Advance Directive is a set of directions given about the medical care a person wants if he/she ever loses the ability to make decisions for him/herself. Formal Advance Directives include Living Wills and Healthcare Powers of Attorney. Survey respondents were asked whether they have any completed Advance Directive documents, and if so, if they have communicated these health care decisions to their family or doctor.

Figure 94. Have Completed Advance Directive Documents (WNC Healthy Impact Survey)

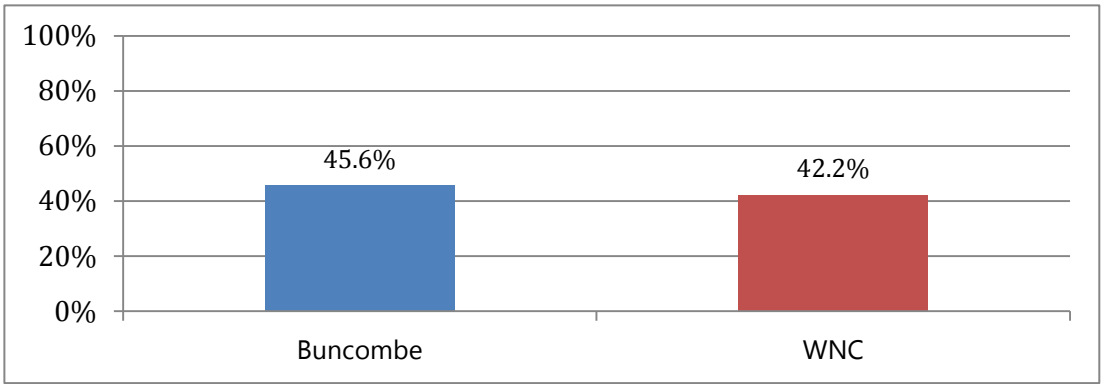
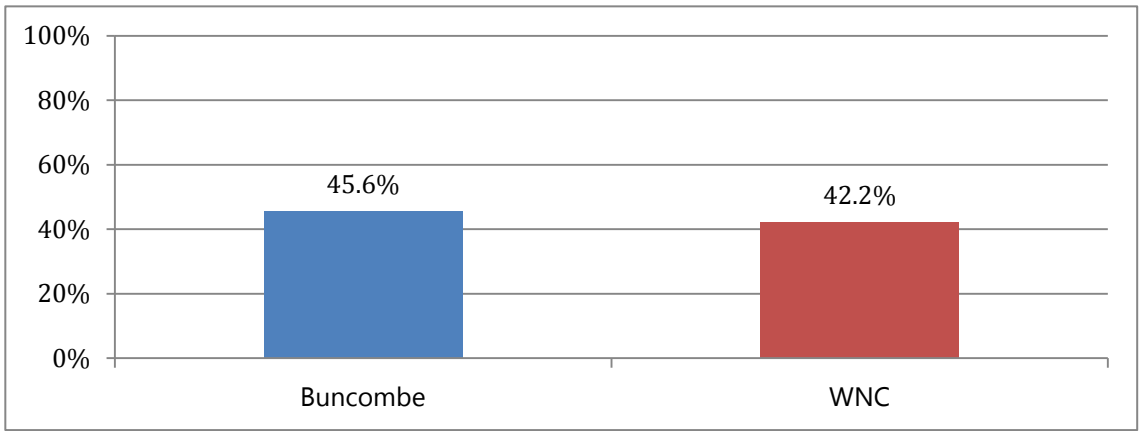


Figure 95. Have Communicated Health Care Decisions to Family or Doctor (WNC Healthy Impact Survey)

(Among Respondents with Advance Directive Documents)

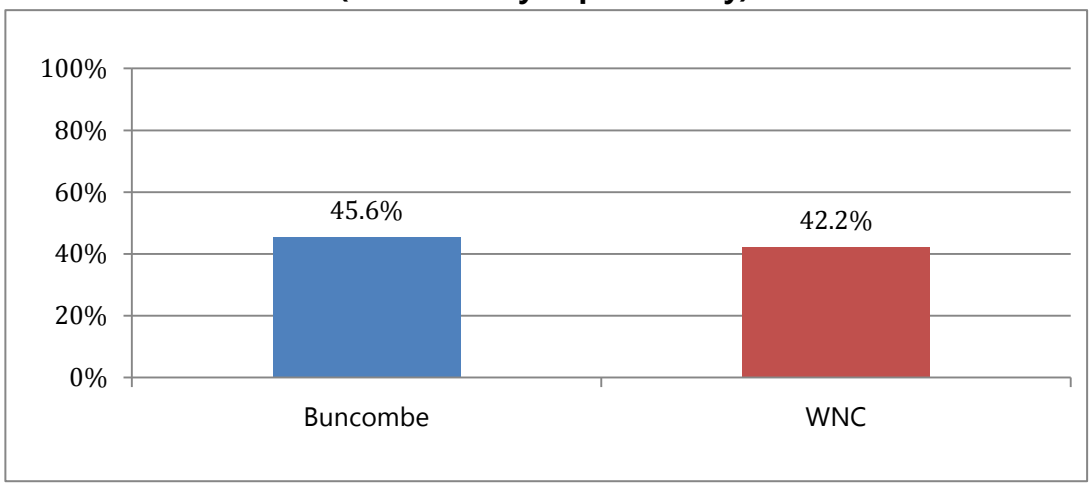


Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 35]
Notes: ● Asked of respondents with completed advance directive documents.

Care-giving

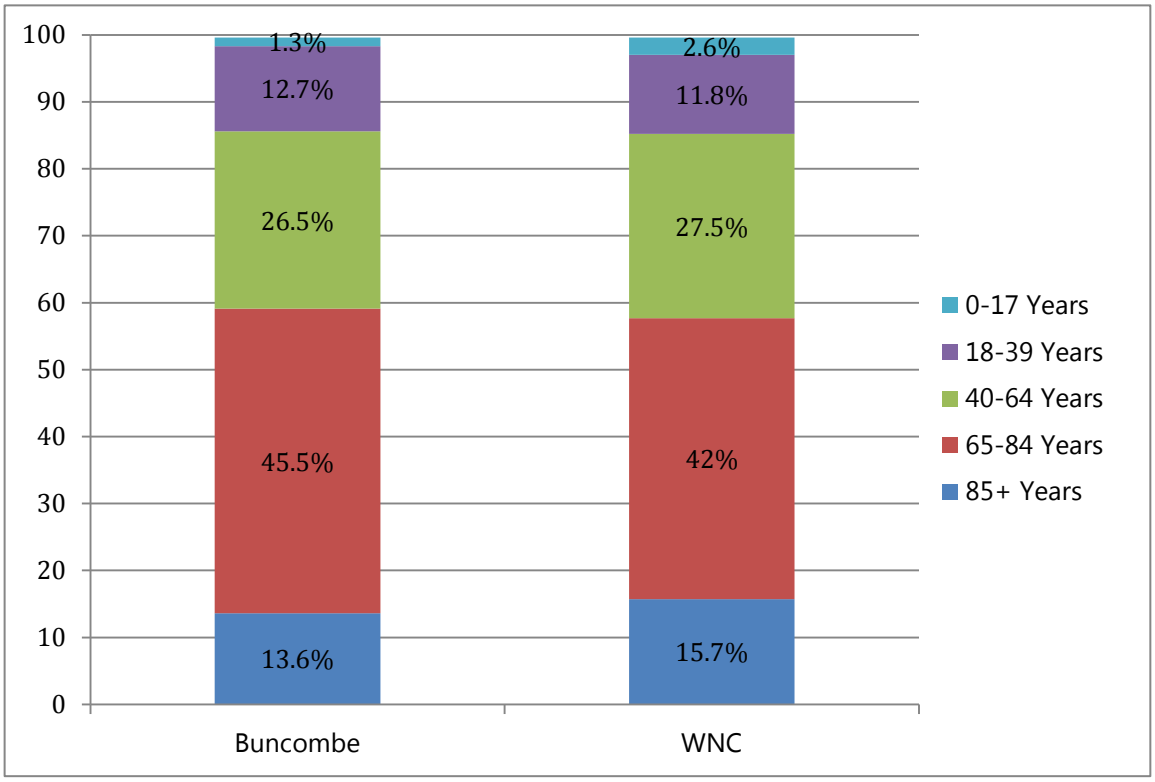
People may provide regular care or assistance to a friend or family member who has a health problem, long-term illness, or disability. Respondents were asked, "During the past month, did you provide any such care or assistance to a friend or family member?" Those who answered, "yes," were asked for the age, primary health issue, and the primary type of assistance needed by the person for whom the respondent provides care.

Figure 96. Provide Regular Care or Assistance to a Friend/Family Member Who Has a Health Problem or Disability (WNC Healthy Impact Survey)



Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 69]
Notes: ● Asked of all respondents.

Figure 97. Age of Person for Whom Respondent Provides Care
(WNC Healthy Impact Survey)
(Among Respondents Acting as a Caregiver for a Friend/Family Member)



Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 70]
Notes: ● Asked of respondents acting as a caregiver for a friend or family member.

Table 59. Primary Health Issue of Person for Whom Respondent Provides Care (WNC Healthy Impact Survey)

(Among Respondents Acting as a Caregiver for a Friend/Family Member)

	Aging	Alzheimers /Dementia	Cancer	Diabetes	Emotional/ Mental	Heart Disease	Stroke	Other (Each <4%)	Don't Know/Not Sure
Buncombe	9.8%	6.3%	11.3%	3.3%	7.0%	7.6%	5.7%	43.6%	5.4%
WNC	7.9%	8.4%	8.6%	4.3%	4.8%	7.4%	4.9%	46.3%	7.4%

Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 71]
Notes: ● Asked of respondents acting as a caregiver for a friend or family member.

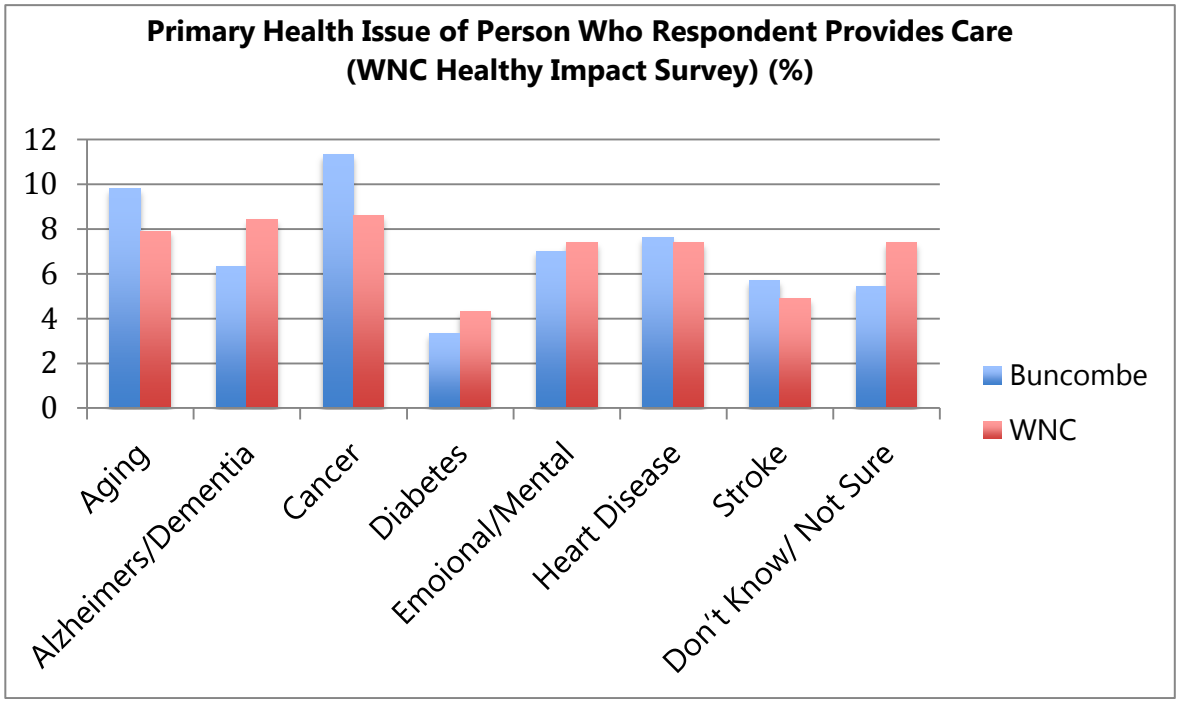
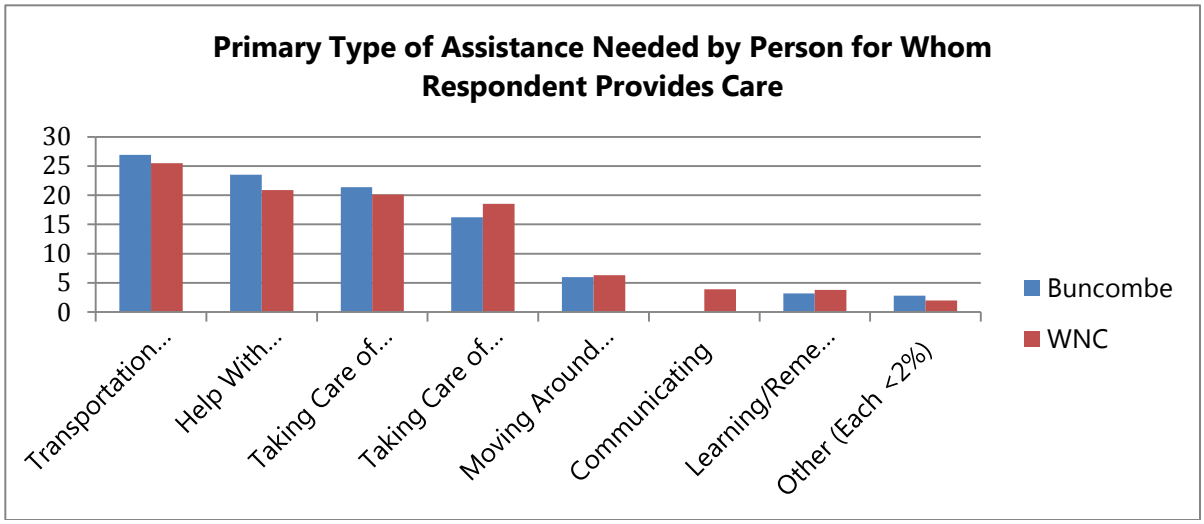


Table 60. Primary Type of Assistance Needed by Person for Whom Respondent Provides Care (WNC Healthy Impact Survey)

(Among Respondents Acting as a Caregiver for a Friend/Family Member)

	Other (Each <2%)	Learning/ Remembering	Communi-cating	Moving Around the Home	Taking Care of Living Space	Taking Care of Self	Help with Anxiety/ Depression	Transportation Outside Home
Buncombe	2.8%	3.2%	0.0%	6.0%	16.2%	21.4%	23.5%	26.9%
WNC	2.0%	3.8%	3.9%	6.3%	18.5%	20.1%	20.9%	24.5%

Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 72]
Notes: ● Asked of respondents acting as a caregiver for a friend or family member.



CHAPTER 6 – PHYSICAL ENVIRONMENT

Air Quality

Outdoor Air Quality

Why is this Important?

The negative consequences of ambient air pollution include decreased lung function, chronic bronchitis, asthma, and other adverse pulmonary effects.

Exposure to excess levels of ozone or fine particulate matter are correlated with an increase in hospital emergency room visits and hospitalizations among asthmatics and others with compromised respiratory function. Increases in these pollutants are associated with greater risk of death due to cardiopulmonary conditions and ischemic heart disease. All –cause mortality also is associated with greater concentrations of ozone and fine particulate matter.
(County Health Rankings and Roadmaps)

Nationally, outdoor air quality monitoring is the responsibility of the Environmental Protection Agency (EPA); most of the following information and data originate with that agency. In NC, the agency responsible for monitoring air quality is the Division of Air Quality (DAQ) in the NC Department of Environment and Natural Resources (NC DENR).

The EPA categorizes outdoor air pollutants as "criteria air pollutants" (CAPs) and "hazardous air pollutants" (HAPs). Criteria air pollutants (CAPS), which are covered in this report, are six chemicals that can injure human health, harm the environment, or cause property damage: carbon monoxide, lead, nitrogen oxides, particulate matter, ozone, and sulfur dioxide. The EPA has established National Ambient Air Quality

Standards (NAAQS) that define the maximum legally allowable concentration for each CAP, above which human health may suffer adverse effects (US Environmental Protection Agency, 2012).

The impact of CAPs in the environment is described on the basis of emissions, exposure, and health risks. A useful measure that combines these three parameters is the *Air Quality Index* (AQI).

The AQI is an information tool to advise the public. The AQI describes the general health effects associated with different pollution levels, and public AQI alerts (often heard as part of local weather reports) include precautionary steps that may be necessary for certain segments of the population when air pollution levels rise into the unhealthy range. The AQI measures concentrations of five of the six criteria air pollutants and converts the measures to a number on a scale of 0-500, with 100 representing the NAAQS standard. An AQI level in excess of 100 on a given day means that a pollutant is in the unhealthy range that day; an AQI level at or below 100 means a pollutant is in the "satisfactory" range (AIRNow, 2011). Table 61 defines the AQI levels.

Table 61. General Health Effects and Cautionary Statements, Air Quality Index

Index Value	Descriptor	Color Code	Meaning
Up to 50	Good	Green	Air quality is satisfactory, and air pollution poses little or no risk.
51 to 100	Moderate	Yellow	Air quality is acceptable; however, for some pollutants there may be a moderate heath concern for a very small number of people who are unusually sensitive to air pollution.
101 to 150	Unhealthy for sensitive groups	Orange	Members of sensitive groups may experience health effects. The general public is not likely to be affected.
151 to 200	Unhealthy	Red	Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effects.
201-300	Very unhealthy	Purple	Health alert: everyone may experience more serious health effects.
301-500	Hazardous	Maroon	Health warnings of emergency conditions. The entire population is more likely to be affected.

Source: AIRNow, Air Quality Index (AQI) – A Guide to Air Quality and Your Health; http://airnow.gov/index.cfm?action=aqibasics.aqi

The EPA reports AQI measures for nine of the 16 counties in the WNC region: Buncombe, Haywood, Graham, Jackson, Macon, McDowell, Mitchell, Swain and Yancey. The WNC figures presented in Tables 62 and 63 below represent the arithmetic means of the values for those nine counties. This data shows that in Buncombe County and WNC there were no days rated "very unhealthy" or "unhealthy" in 2011, and only one day in WNC was rated "unhealthy for sensitive groups". Of the 2011 mean of 275 days in WNC with an assigned AQI, 227 had "good" air

quality and 47 had "moderate" air quality. Of the 364 days monitored in Buncombe County in 2011, 310 had "good" air quality, and 54 had "moderate" air quality.

Table 62. Air Quality Index Summary, WNC (2011)

Geography	No. Days with AQI	Number of Days When Air Quality Was:				
		Good	Moderate	Unhealthy for Sensitive Groups	Unhealthy	Very Unhealthy
Buncombe County	364	310	54	0	0	0
Regional Arithmetic Mean	275	227	47	1	0	0

Table 63 lists the pollutants causing the air quality deficiencies. This data shows that in both Buncombe County and WNC in 2011 the primary air pollutants were ozone (O_3) and small particulate matter ($PM_{2.5}$).

Ozone, the major component of smog, is not usually emitted directly but rather formed through chemical reactions in the atmosphere. Peak O_3 levels typically occur during the warmer and sunnier times of the day and year. The potential health effects of ozone include damage to lung tissues, reduction of lung function and sensitization of lungs to other irritants (Scorecard, 2011).

Particulate matter is usually categorized on the basis of size, and includes dust, dirt, soot, smoke, and liquid droplets emitted directly into the air by factories, power plants, construction activity, fires and vehicles (Scorecard, 2011). Particulates in air can affect breathing, aggravate existing respiratory and cardiovascular disease, and damage lung tissue (reference).

Table 63. CAPs Causing Air Quality Problems, WNC (2011)

Geography	No. Days with AQI	Number of Days When Air Pollutant Was:					
		CO	NO_2	O_3	SO_2	$PM_{2.5}$	PM_{10}
Buncombe County	364	0	0	157	0	207	0
Regional Arithmetic Mean	275	0	0	156	0	118	0

Toxic Chemical Releases

Over 4 billion pounds of toxic chemicals are released into the nation's environment each year. The US Toxic Releases Inventory (TRI) program, created in 1986 as part of the Emergency Planning and Community Right to Know Act, is the tool the EPA uses to track these releases. Approximately 20,000 industrial facilities are required to report *estimates* of their environmental releases and waste generation annually to the TRI program office. These reports do not cover all toxic chemicals, and they omit pollution from motor vehicles and small businesses (US Environmental Protection Agency, 2012).

According to EPA data, twelve of the 16 WNC counties had measurable TRI releases in 2010. (Only Clay, Madison, Polk and Transylvania Counties did not.) In 2010, Haywood County in WNC was the eighth leading emitter of TRIs in NC in terms of tonnage of TRI chemicals released. Although not among the "top ten", Rutherford County, also in WNC, ranks just off the list, at number eleven. (No other WNC county ranks higher than 21st.) The *Data Workbook* presents detail on toxic chemical releases in all 16 WNC counties.

Table 64 presents the 2010 TRI Summary for Buncombe County, which ranks 21st among the state's 86 ranked counties. The TRI chemicals released in the greatest quantity in Buncombe County include barium compounds, vanadium compounds and zinc compounds from the Progress Energy power plant in Asheville, and toluene and zinc compounds from Day International in Arden.

Table 64. Toxic Release Inventory (TRI) Summary, Buncombe County, 2010

Total On-and Off-Site Disposal or Other Released, in Pounds	Compounds Released in Greatest Quantity	Quantity Released, in Pounds	Releasing Facility	Facility Location
872,556	Barium compounds	215,051	Progress Energy, Asheville Plant	Asheville
	Toluene	196,040	Day International	Arden
	Vanadium compounds	83,974	Progress Energy, Asheville Plant	Asheville
	Zinc compounds	77,564	Progress Energy, Asheville Plant	Asheville
			Day International	Arden
	Manganese compounds	57,303	Progress Energy, Asheville Plant	Asheville

Indoor Air Quality

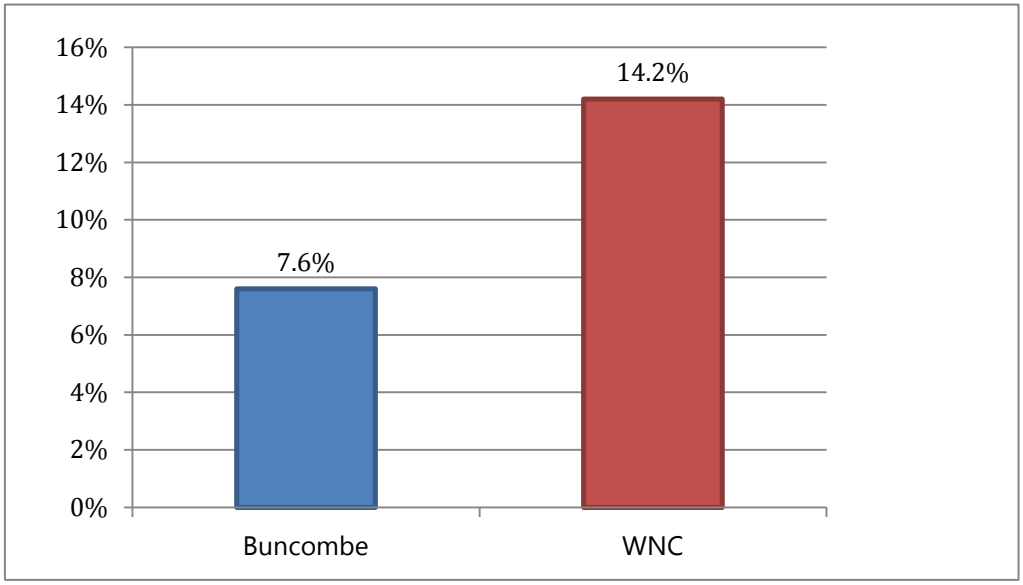
Environmental tobacco smoke

Tobacco smoking has long been recognized as a major cause of death and disease, responsible for hundreds of thousands of deaths each year in the U.S. Smoking is known to cause lung cancer in humans, and is a major risk factor for heart disease. However, it is not only active smokers who suffer the effects of tobacco smoke. In 1993, the EPA published a risk assessment on passive smoking and concluded that the widespread exposure to environmental tobacco smoke (ETS) in the U.S. had a serious and substantial public health impact (US Environmental Protection Agency, 2011).

ETS is a mixture of two forms of smoke that come from burning tobacco: sidestream smoke (smoke that comes from the end of a lighted cigarette, pipe, or cigar) and mainstream smoke (smoke that is exhaled by a smoker). When non-smokers are exposed to secondhand smoke it is called involuntary smoking or passive smoking. Non-smokers who breathe in secondhand smoke take in nicotine and other toxic chemicals just like smokers do. The more secondhand smoke that is inhaled, the higher the level of these harmful chemicals will be in the body (American Cancer Society, 2011).

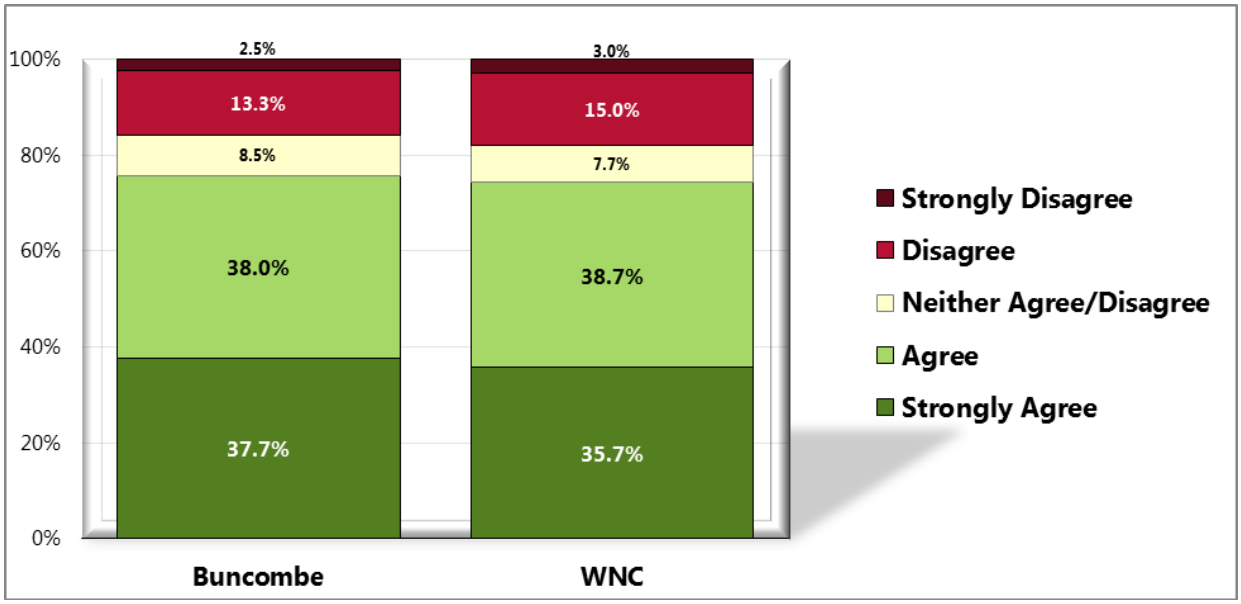
Survey respondents were asked about their second-hand smoke exposure in their workplace. Specifically, they were asked, "During how many of the past 7 days, at your workplace, did you breathe the smoke from someone who was using tobacco?" In order to evaluate community members' perceptions about environmental tobacco smoke, survey respondents were given a series of three statements regarding smoking in public places and asked whether they "strongly agree," "agree," "neither agree nor disagree," "disagree" or "strongly disagree" with each statement. The statements were: "I believe it is important for universities and colleges to be 100% tobacco-free," "I believe it is important for government buildings and grounds to be 100% tobacco-free," and, "I believe it is important for parks and public walking/biking trails to be 100% tobacco free."

Figure 98. Have Breathed Someone Else's Cigarette Smoke at Work in the Past Week (WNC Healthy Impact Survey)
(Among Employed Respondents)



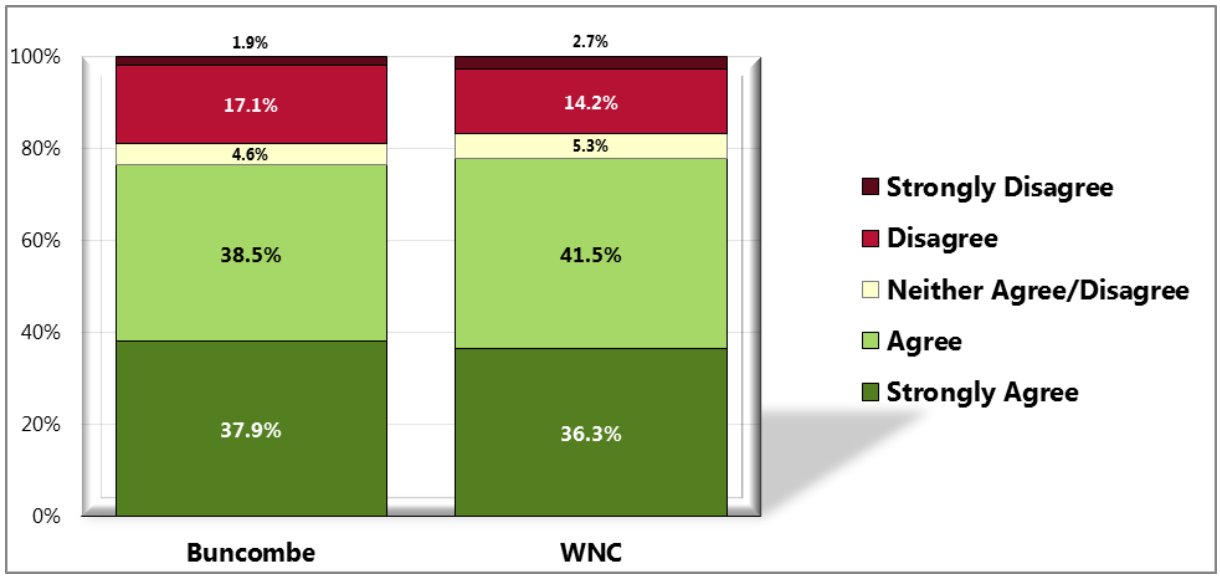
Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 44}

Figure 99. "I believe it is important for universities and colleges to be 100% tobacco-free" (WNC Healthy Impact Survey)



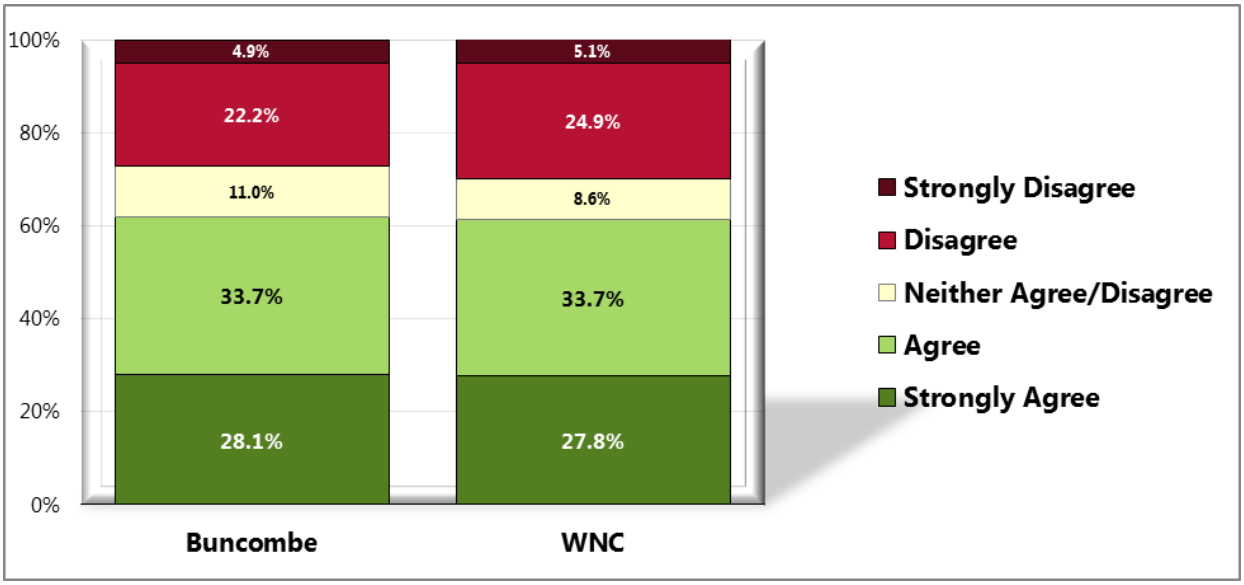
Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 45]
Notes: ● Asked of all respondents.

Figure 100. "I believe it is important for government buildings and grounds to be 100% tobacco-free (WNC Healthy Impact Survey)



Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 46]
Notes: ● Asked of all respondents.

Figure 101. "I believe it is important for parks and public walking/biking trails to be 100% tobacco-free (WNC Healthy Impact Survey)



Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 47]
Notes: • Asked of all respondents.

Drinking Water

In February 2012, a regional mean of 55% of the WNC population was being served by community water systems (*Data Workbook*). The 45% remaining presumably were being served by wells or by some other source, such as springs, creeks, rivers, lakes, ponds or cisterns.

Individual counties in WNC, however, have highly varied percentages of their populations served by community water systems; in some counties the figure is as low as 18% and in others it is as high as 65%. In Buncombe County, 154,015 of 238,318 county residents, or 64.6%, were being served by community water systems in February of 2012. Presumably the remaining 35.4% were served by wells or other sources.

Why is this important?

Adequate environmental quality in terms of good air and water quality are prerequisites for good health. Poor air or water quality can be particularly detrimental to the very young, the old, and those with chronic health conditions.

The source from which the public gets its drinking water is a health issue of considerable importance. Water from all municipal and most community water systems is treated to remove harmful microbes and many polluting chemicals, and is generally considered to be "safe" from the standpoint of public health because it is subject to required water quality standards. Municipal drinking water systems are those operated and maintained by local governmental units, usually at the city/town or county level. Community water systems are systems that serve at least 15 service connections used by year-round residents or regularly serves 25 year-round residents. (County Health Rankings and Maps)

Radon

Radon is a naturally occurring, invisible, odorless gas that comes from soil, rock and water. It is a radioactive decay product of radium, which is in turn a decay product of uranium; both radium and uranium are common elements in soil. Radon usually is harmlessly dispersed in outdoor air, but when trapped in buildings it can be harmful. Most indoor radon enters a home from the soil or rock beneath it, in the same way air and other soil gases enter: through cracks in the foundation, floors, hollow-block walls, and openings around floor drains, heating and cooling ductwork, pipes, and sump pumps. The average outdoor level of radon in the air is normally so low that it is not a problem (NC Department of Environment and Natural Resources).

Radon may also be dissolved in water as it flows over radium-rich rock formations. Dissolved radon can be a health hazard, although to a lesser extent than radon in indoor air. Homes supplied with drinking water from private wells or from community water systems that use wells as water sources generally have a greater risk of exposure to radon in water than homes receiving drinking water from municipal water treatment systems. This is because well water comes from ground water, which has much higher levels of radon than surface waters. Municipal water tends to come from surface water sources which are naturally lower in radon, and the municipal water treatment process itself tends to reduce radon levels even further (NC Department of Environment and Natural Resources).

There are no immediate symptoms to indicate exposure to radon. The primary risk of exposure to radon gas is an increased risk of lung cancer (after an estimated 5-25 years of exposure). Smokers are at higher risk of developing radon-induced lung cancer than non-smokers. There is no evidence that other respiratory diseases, such as asthma, are caused by radon exposure, nor is there evidence that children are at any greater risk of radon-induced lung cancer than are adults (NC Department of Environment and Natural Resources).

Elevated levels of radon have been found in many counties in NC, but the highest levels have been detected primarily in the upper Piedmont and mountain areas of the state where the soils contain the types of rock (gneiss, schist and granite) that have naturally higher concentrations of uranium and radium (NC Department of Environment and Natural Resources). Eight counties in NC historically have had the highest levels of radon, exceeding, on average, 4 pCi/L (pico curies per liter). These counties are Alleghany, Buncombe, Cherokee, Henderson, Mitchell, Rockingham, Transylvania and Watauga, five of which are in the WNC region. There are an additional 31 counties in the central and western Piedmont area of the state with radon levels in the 2-4 pCi/L range; the remaining 61 NC counties, mostly in the piedmont and eastern regions of the state have predicted indoor radon levels of less than 2 pCi/L (NC Department of Environment and Natural Resources).

According to one recent assessment, the regional mean indoor radon level for the 16 counties of WNC was 4.3 pCi/L, over three times the national indoor radon level of 1.3 pCi/L. According

to this same source, the level for Buncombe County was 3.6 pCi/L, almost three times the national indoor radon level (*Data Workbook*).

Built Environment

Access to Farmers' Markets and Grocery Stores

According to the US Department of Agriculture (USDA) Economic Research Service's *Your Food Environment Atlas,* there were a total of 49 farmers' markets in the 16 WNC counties in 2009. This number was reported to have grown by 5, to a total of 54, in 2011, an increase of 10%. According to this source, in Buncombe County there were 15 farmers' markets in both 2009 and 2011 (*Data Workbook*).

According to the same source, there were a total of 158 grocery stores in the 16 WNC counties in 2007. This number was reported to have shrunken by 4, to a total of 154, in 2009, a decrease of 2%. In Buncombe County there were 49 grocery stores in both 2007 and 2009 (*Data Workbook*).

Why is this Important?

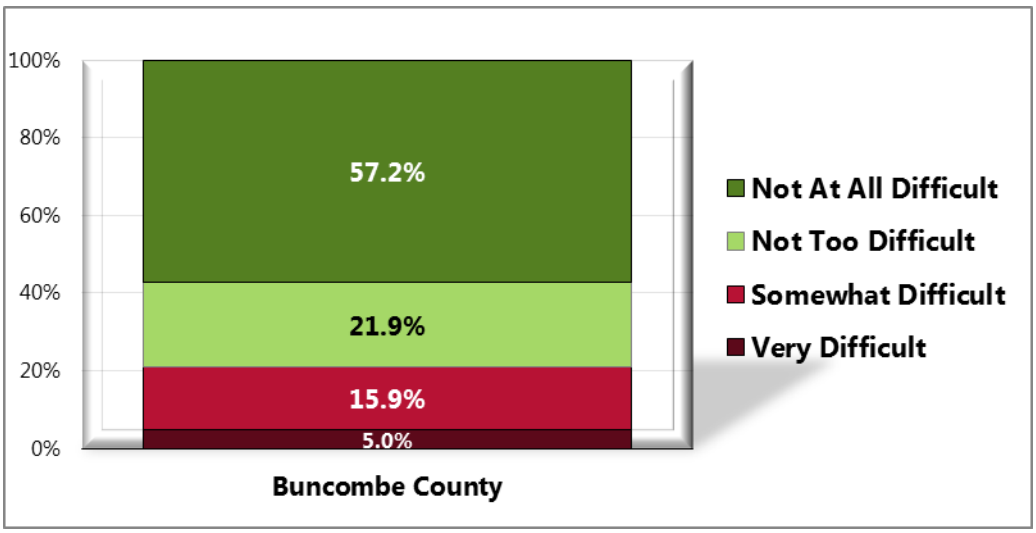
The built environment refers to human-made (versus natural) resources and infrastructure designed to support human activity, such as buildings, roads, parks, restaurants, grocery stores and other amenities. The characteristics of the built environment can affect the health of residents in multiple ways (County Health Rankings and Roadmaps)

Survey respondents were asked, "How important do you feel it is for your community to make it easier for people to access farmer's markets, including mobile farmer's markets and tailgate markets?" Survey respondents in Buncombe County were also asked about their access to food, including fresh, affordable produce.

Figure 102. Importance of Communities Making It Easier to Access Farmer's Markets, Including Mobile/Tailgate Markets (WNC Healthy Impact Survey)

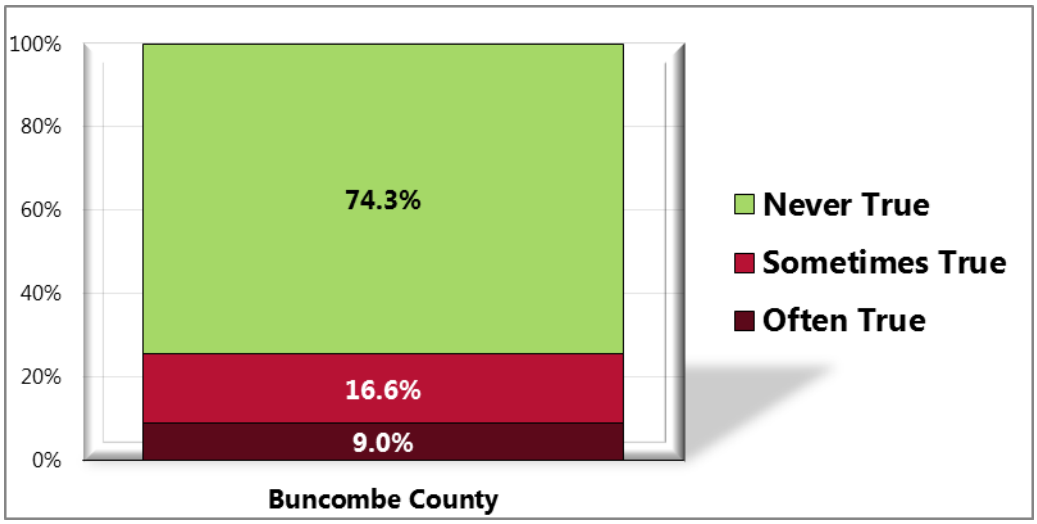
Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 55]
Notes: • Asked of all respondents.

Figure 103. Level of Difficulty Accessing Fresh Produce at an Affordable Price (WNC Healthy Impact Survey)
(Buncombe County, 2012)



Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 108]
Notes: • Asked of all respondents.

Figure 104. Have Worried in the Past Year About Food Running Out Before Having Money to Buy More (WNC Healthy Impact Survey)
(Buncombe County, 2012)



Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 113]
Notes: ● Asked of all respondents.

Access to Fast Food Restaurants

According to the same source cited above, there were a total of 526 fast food restaurants in the 16 WNC counties in 2007. This number was reported to have dropped by 21, to a total of 505, in 2009, a decrease of 4%. In Buncombe County the number of fast food restaurants fell from 200 to 190 over the same period (*Data Workbook*).

Also according to the USDA, mean per capita fast food expenditures in WNC rose 45% (from $514 to $746) between 2002 and 2007, and mean per capita restaurant expenditures in WNC also rose 45% (from $449 to $665) over the same period (*Data Workbook*).

Access to Recreational Facilities

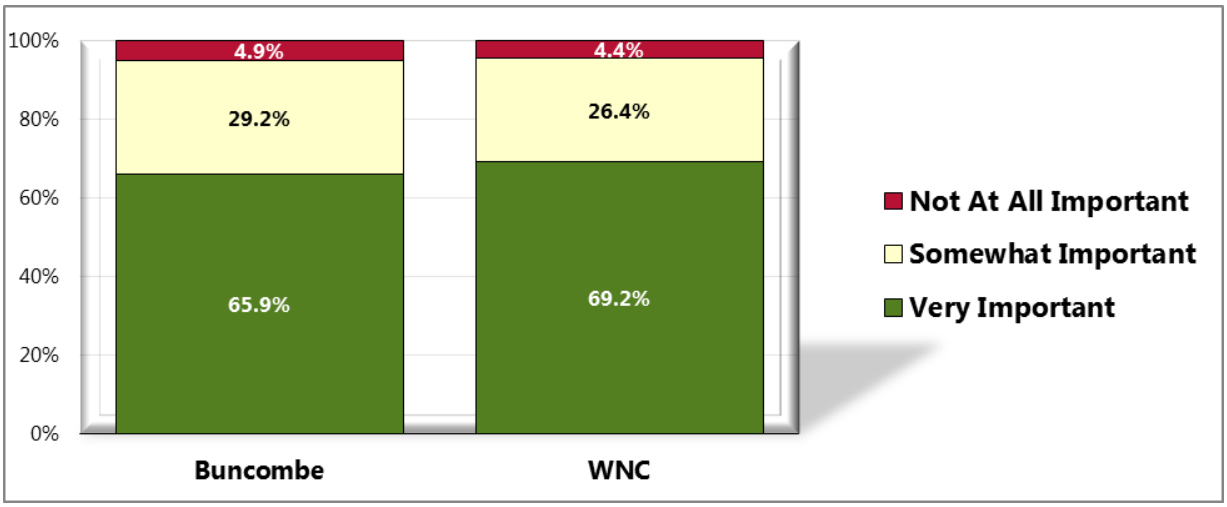
According to the same source cited above, there were a total of 81 recreation and fitness facilities in the 16 WNC counties in 2007. This number was reported to have dropped by 26, to a total of 55a total of 55, in 2009, a decrease of 32%. In Buncombe County the number of recreational and fitness facilities fell from 30 to 24 over the same period (*Data Workbook*).

Why is this Important?

Access to recreational facilities such as parks, sports fields and facilities, biking trails, public pools, and playgrounds can be improved by locating them closer to homes and schools, lowering costs to use the facilities, increasing hours of operation, and ensuring access to people with various ability levels and limitations. (County Health Rankings and Roadmaps)

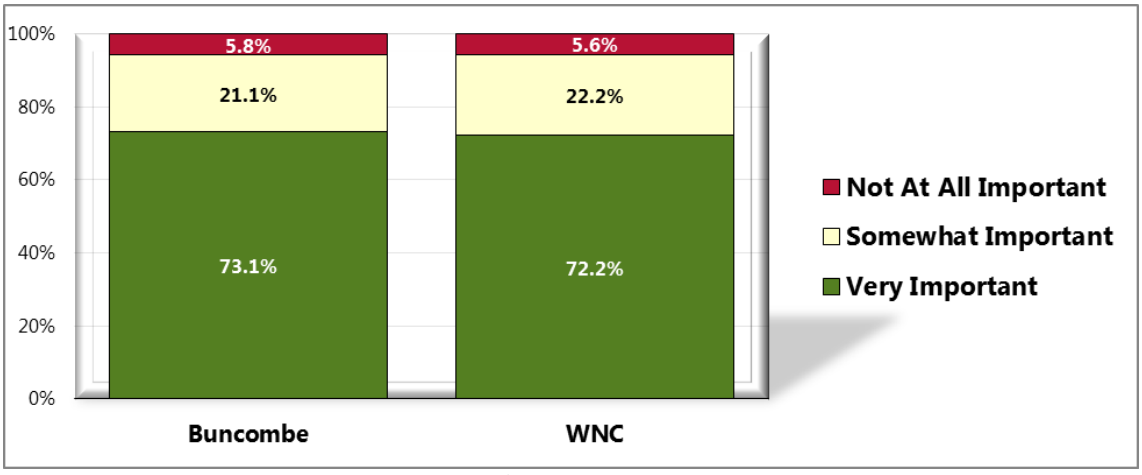
Survey respondents were asked whether they feel it is important for community organizations to explore ways to increase the public's access to physical activity spaces during off-times, as well as whether it is important for communities to improve access to trails, parks, and greenways.

Figure 105. Importance That Community Organizations Make Physical Activity Spaces Available for Public Use After Hours (WNC Healthy Impact Survey)



Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 60]
Notes: • Asked of all respondents.

Figure 106. Importance That Communities Improve Access to Trails, Parks, and Greenways (WNC Healthy Impact Survey)



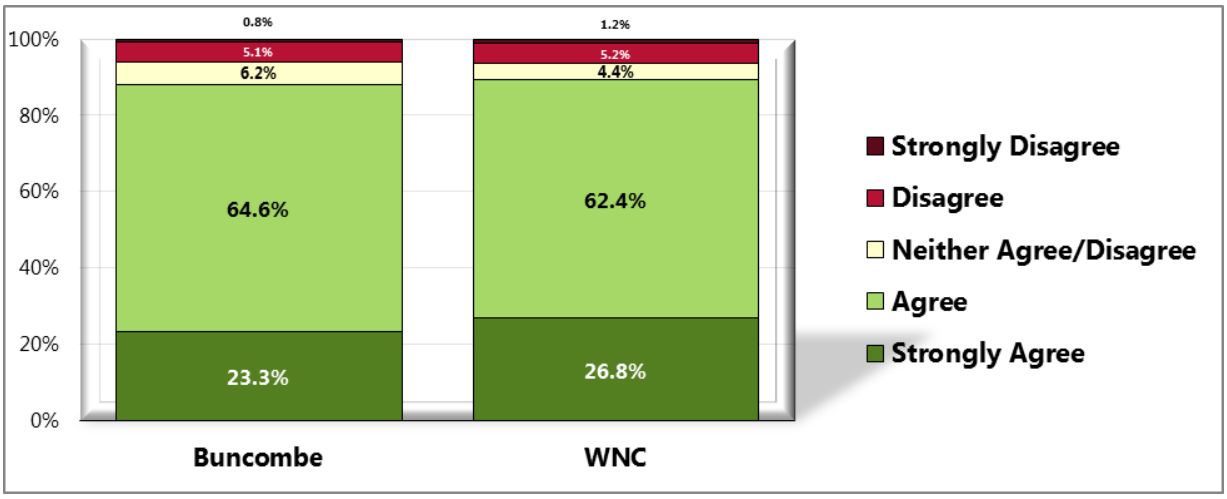
Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 61]
Notes: • Asked of all respondents.

CHAPTER 7 – QUALITY OF LIFE

Perception of County

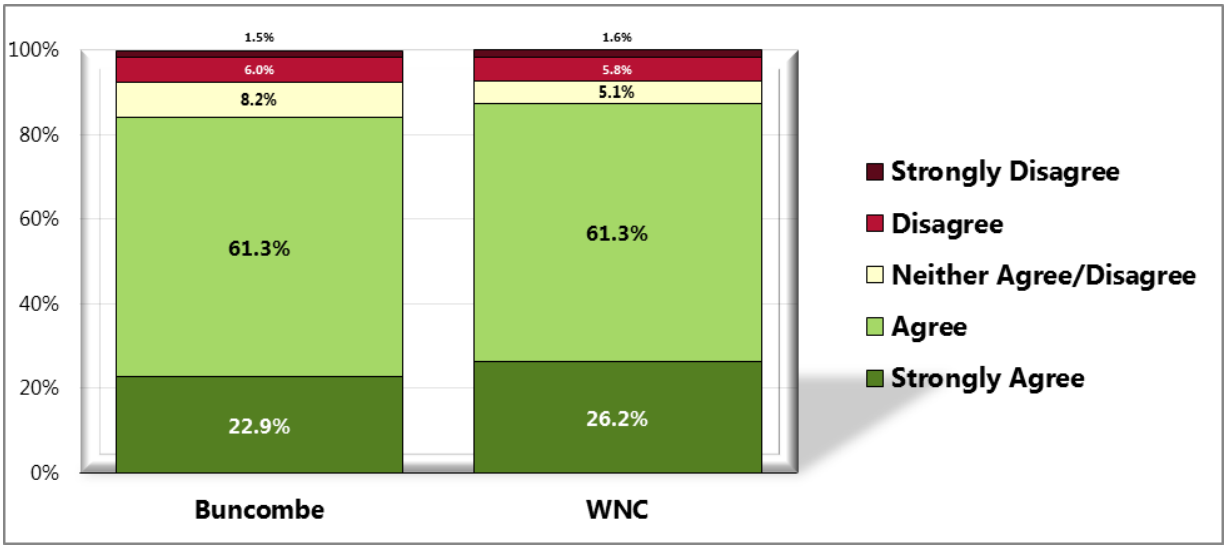
In order to evaluate community members' perceptions about the quality of life in western North Carolina (WNC), survey respondents were given a series of three statements regarding life in their county (my county is a good place to raise children, my county is a good place to grow old, and there is plenty of help for people during times of need in my county) and asked whether they "*strongly agree*," "*agree*," "*neither agree nor disagree*," "*disagree*" or "*strongly disagree*" with each statement. Survey respondents were also asked about their frequency of getting needed social and emotional support, their satisfaction with life, the one thing that needs the most improvement in their neighborhood or community, and the <u>one</u> issue which has the most negative impact on the quality of life in their county.

Figure 107. "My county is a good place to raise children"
(WNC Healthy Impact Survey)



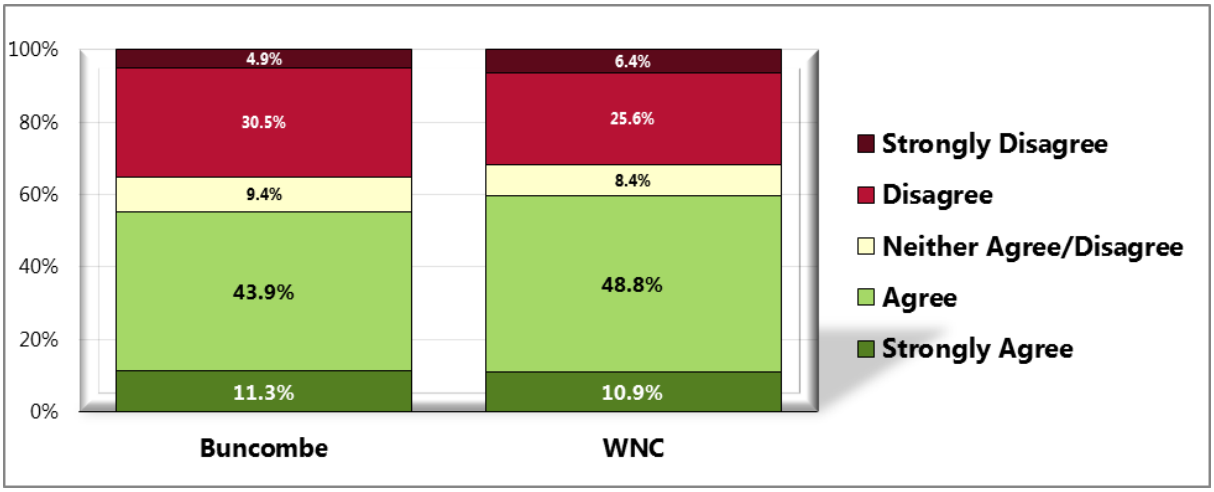
Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 5]
Notes: ● Asked of all respondents.

Figure 108. "My county is a good place to grow old."
(WNC Healthy Impact Survey)



Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 6]
Notes: ● Asked of all respondents.

Figure 109. "There is plenty of help for people during times of need in my county."
(WNC Healthy Impact Survey)



Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 8]
Notes: ● Asked of all respondents

Table 65. Top Three County Issues Perceived as Having the Most Negative Impact on Quality of Life (WNC Healthy Impact Survey)

	Economy/ Unemployment	Nothing	Don't Know	Substance Abuse	Government/ Politics	Health Care
Buncombe	✓	✓	✓			
WNC	✓	✓	✓			

Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 10]
Notes: ● Asked of all respondents.

Table 66. Top Three Neighborhood/Community Issues Perceived as in Most Need of Improvement (WNC Healthy Impact Survey)

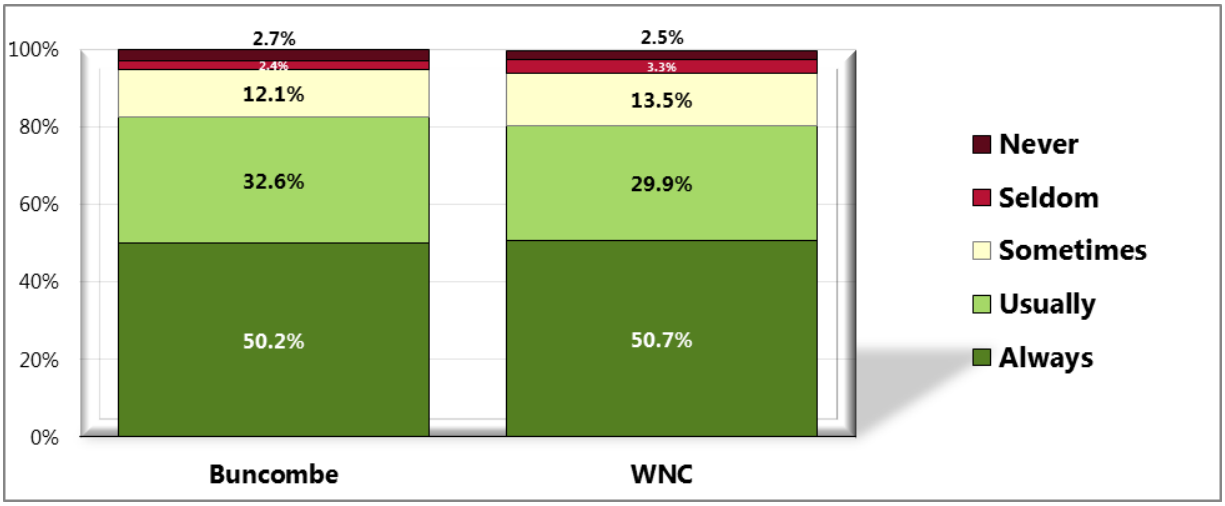
	Economy/ Unemployment	Healthcare Services	Activity/Recreation Options	Nothing
Buncombe	✓		✓	✓
WNC	✓	✓		✓

Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 9]
Notes: ● Asked of all respondents.

Social and Emotional Support

The *County Health Rankings* measure social isolation because the association between socially isolated individuals and poor health outcomes has been well-established in the literature. Socially isolated individuals typically have limited access to the types of support provided by social relationships. Understanding the percentage of socially isolated individuals in a community may provide a more complete perspective on a community's collective health profile. This is because socially isolated individuals are more likely to be concentrated in communities with poorer community networks (County Health Rankings and Roadmaps).

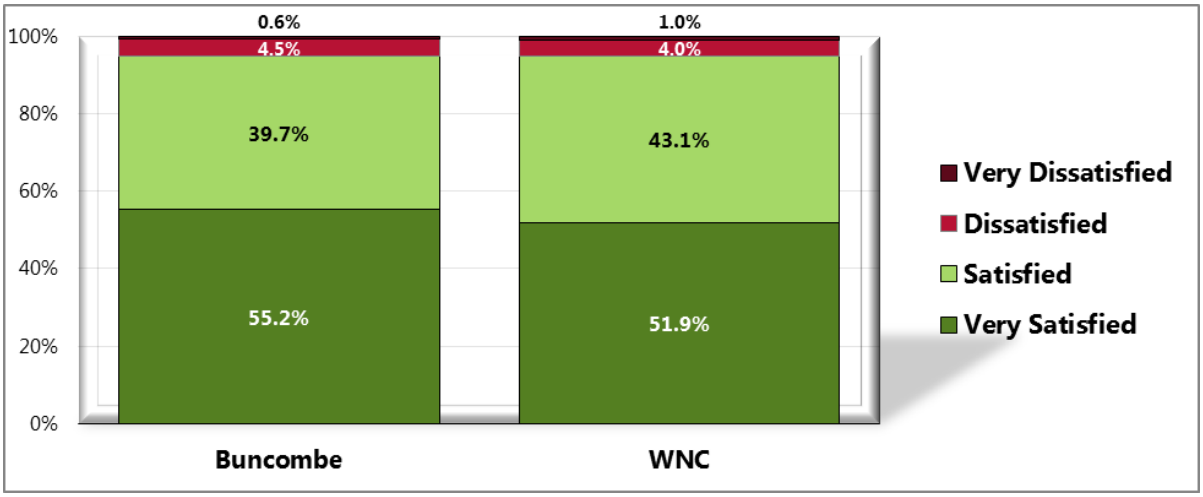
Figure 110. Frequency of Getting Needed Social/Emotional Support (WNC Healthy Impact Survey)



Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 63]
Notes: ● Asked of all respondents.

Satisfaction with Life

Figure 111. Satisfaction with Life (WNC Healthy Impact Survey)



Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 62]

CHAPTER 8 - HEALTHCARE & HEALTH PROMOTION RESOURCES

Health Resources

For additional information and data:

- WNC Healthy Impact: http://www.wnchealthyimpact.com/
- Centers for Disease Control and Prevention: http://www.cdc.gov/nchs/
- 2010 Census Data: http://2010.census.gov/2010census/
- North Carolina Youth Risk Behavior Survey (YRBS): http://www.nchealthyschools.org/data/yrbs/
- Behavioral Risk Factor Surveillance System (BRFSS): http://www.schs.state.nc.us/schs/brfss/index.html
- North Carolina Center for Health Statistics http://www.schs.state.nc.us

For more information on accessing the data please contact:
Marian Sadler Arledge, MPH
Community Health Specialist
Buncombe County Department of Health
P.O. Box 7407
Asheville, NC 28802
Desk: 828-250-5094
Cell: 828-775-4697
Main Line: 828-250-5000

See Appendix A for a description of the data collection methods use to gather this information.

See Appendix C for a summary list of the healthcare and health promotion resources and facilities available in Buncombe County to respond to the health needs of the community.

Resource Gaps

Assessment of resource gaps that can impact the health of Buncombe County residents comes from two different sources: The "Tell us What you Think!" community assessment project (Appendix A) and the 2-1-1 Caller Data from United Way's 2-1-1 of WNC that was created while accessing data for the Health Resource Inventory (Appendix C).

Gaps Identified through Community Engagement:

In the 2011 "Tell us What you Think!" community assessment project (Appendix A) community residents and service providers identified many community needs and gaps in services, some which were relevant county-wide, and others (detailed in the full report) which were community-specific (by geography, and also, specific to the Latino community). Better access to transportation and bus lines emerged as the most frequently mentioned need, as well as a prominent barrier to receiving help and support. Other needs mentioned the most across various communities were: parks and recreational activities, health and medical services (e.g., dental care, counseling for children), sidewalks, housing (for homeless, assistance with rent), better police presence, services for the elderly, and community activities. Several barriers to services were identified, and for some of these (a lack of information, rude or impersonal staff, stigma of services, compartmentalization of services, lack of childcare, schedule of services), residents and service providers provided recommendations to counter such barriers.

Gaps Identified through 2-1-1 Data:

2-1-1 is an information and referral service that links people to community health and human services. Resources are available through phone (free, confidential, 24/7) and the web.

WNC Healthy Impact requested information on most frequent types of needs expressed in calls made to 2-1-1 as well as the top *unmet* needs. This call data helps create a better understanding of the types of gaps in resources in Buncombe County, particularly as it lines up with the listening session results described above. For example, transportation was listed as both a top need in the listening sessions and on the list of "unmet needs" through 2-1-1, and transportation can be a major barrier to accessing healthcare. Note that this is a point-in-time summary list, and greater details on these services can be accessed by calling 2-1-1 to speak to a trained staff person or visiting www.NC211.org

Top 25 Needs YTD	# Calls
Utility Service Payment Assistance	2713
Food Pantries	1841
Housing Expense Assistance	1633
Community Clinics	1016
Homeless Shelter	999
Christmas Programs	916
Home Rental Listings	666
Central Intake/Assessment for Psychiatric Services	661
Food Stamps/SNAP	601
General Legal Aid	529
General Dentistry	502
Comprehensive Information and Referral	457
Social Security Disability Insurance	455
Medicaid	437
County Clerk of the Courts Offices	420
Specialized Information and Referral	408
Utility Deposit Assistance	386
Hospitals	369
Transportation Expense Assistance	361
Public Housing	355
Home Rehabilitation Programs	339
Case/Care Management	333
Section 8 Housing Choice Vouchers	316
Telephone Crisis Intervention	315
Utility Service Providers	315

Top Unmet Needs (By Call Count)	Not Met	Partially Met	Service Pending	Sum:
Utility Service Payment Assistance	216	22	68	306
Housing Expense Assistance	210	20	73	303
Transportation Expense Assistance	106	1	19	126
Food Pantries	68	3	44	115
Christmas Programs	88	1	19	108
Homeless Shelter	78	5	9	92
Home Rental Listings	30	10	26	66
Automotive Repair	62		3	65
Thanksgiving Baskets	46			46
General Legal Aid	28	5	10	43
Home Rehabilitation Programs	22	4	20	46
Sum:	954	71	291	1316

CHAPTER 9 - HEALTH PRIORITIES & NEXT STEPS

Prioritization Process & Criteria

In the Buncombe County 2010 Community Health Assessment, six priorities were chosen by a diverse group of community stakeholders who drew from data and information gathered during the Community Health Assessment to make their decisions. The priorities selected do not negate the importance of other areas of contribution. Yet, these priorities offer opportunities for dramatically improving health impact based on the data that was collected and analyzed. The Community Health Assessment Steering Committee engaged 68 community leaders throughout Buncombe County to review the evidence, listen to community members' input, and select priorities that will help us attain our community health vision. The Community Health Assessment Steering Committee created a number of guiding principles to use when analyzing data and for future groups to use when creating action plans around the defined priorities. These guiding principles provide the context or frame for data analysis so that all decisions made would incorporate a strategic focus on the following principles:

- Equity / Parity
- Access to resources
- Prevention
- Assets-based approaches
- Results, impact, and outcomes

The 2010 Community Health Assessment resulted in the following priorities:

- Improve Women's Health During Childbearing Years
- Promote Healthy Weight and Healthy Living
- Improve Children's Health Outcomes through a Focus on Family Support and Education
- Increase Readiness of all Children to Learn and Succeed in School
- Access to and Continuity of a Primary Care Home
- Access to and Continuity of a Mental Health Home

As described in the Introduction section of this document, the 2012 Community Health Assessment has not involved an extensive re-prioritization process since it is taking place after only two years of community action. For this reason, we have engaged a smaller number of community leaders to re-assess the priority areas from 2010. After reviewing changes in the data surrounding these priority areas, progress made in creating action to address these priority areas, and any changes in the overall landscape and potential capacity to address them, we have made a few small changes to the list. The main changes that have taken place to our list of priorities from 2010 to 2012 are:

- The 2010 priority area to "Improve Women's Health During Childbearing Years" is now more explicitly focused as "Women's Preconception Health"
- The 2010 priorities to "Improve Children's Health Outcomes through a Focus on Family Support and Education" and "Increase Readiness of all Children to Learn and Succeed in

School" have been combined into a narrowed focus on "Children's Health and Early Child Development"
- The 2010 priorities on "Access to and Continuity of a Primary Care Home" and "Access to and Continuity of a Mental Health Home" have been combined as "Access to Primary and Mental Health Care.

Priority Health Issues

The Buncombe County 2012 Community Health Assessment Priority Areas are:

1. Healthy Weight and Healthy Living
2. Children's Health and Early Child Development
3. Access to Primary and Mental Health Care
4. Women's Preconception Health

Next Steps

Data collection and prioritization are just the beginning. National public health organizations such as NACCHO and the CDC are confirming our belief that a Community Health Assessment should be part of a broader community health improvement planning process. A community health improvement planning process uses CHA data to develop and implement strategies for action and establishes accountability to ensure measurable health improvement. The resulting document is the Community Health Improvement Plan (CHIP).

Buncombe County, along with our partners in WNC Healthy Impact, is looking ahead to collaborative action planning and determining how we can most effectively impact the health of Western North Carolina by creating this CHIP, which will be launched early in 2013.

A CHIP is used in collaboration with community partners to coordinate action and target resources. The plan looks beyond the performance of an individual organization serving a specific segment of a community to the way in which the activities of many organizations contribute to community health improvement (NACCHO, 2012).

In order to guide coordinated actions and have measurable outcomes in community health, the national Public Health Accreditation Board dictates that nationally accredited local health departments create a CHIP that should contain:

- Goals, objectives, strategies, and related performance measures for determined priorities in the short-term and intermediate term.
- Realistic timelines for achieving goals and objectives.
- Designation of lead roles in CHIP implementation for partners, including Buncombe County Department of Health's role.
- Formal presentation of the role of relevant partners in implementing the plan and a demonstration of the organization's commitment to these roles.

- An emphasis on evidence-based strategies.
- A general plan for sustaining action (NACCHO, 2012)

Once we have worked with a wide range of community partners to develop the Community Health Improvement Plan, it will be used to complete the Action Plans that will be submitted to the state by June, 2013. The CHIP will also be widely disseminated electronically to partner organizations and used as a community roadmap to monitor and evaluate our collective efforts.

Dissemination of this CHA report and the CHIP will also include making it publicly available on the Buncombe County Department of Health website, the WNC Healthy Impact website and local libraries. A presentation will be made to the Buncombe County Health and Human Services Integrated Board and they will receive copies.

Moving forward, the CHIP report will be updated to provide the framework for the annual State of the County's Health Report, which will be submitted and made publicly available in December, 2013.

REFERENCES

AIRNow. (2011, December 9). *Air quality index (AQI) – A guide to air quality and your health.* Retrieved August 1, 2012, from: http://www.airnow.gov/index.cfm?action=aqibasics.aqi

American Cancer Society. (2011, November 14). *Secondhand smoke*. Retrieved June 15, 2012, from Learn about Cancer website: http://www.cancer.org/Cancer/CancerCauses/TobaccoCancer/secondhand-smoke

Centers for Disease Control and Prevention. (2012, June 14). Retrieved August 23, 2012, from: http://www.cdc.gov

County Health Rankings and Roadmaps. (2012) Retrieved November 7, 2012, from: http://www.countyhealthrankings.org/#app/

March of Dimes. (2012). *Prenatal care, low birthweight, smoking during pregnancy*. Retrieved July 30, 2012, from: http://www.marchofdimes.com

MedicineNet.com. (2012, March 19). *Definition of nephrosis; Definition of nephritis*. Retrieved July 10, 2012, from MedTerms Dictionary website: http://www.medterms.com/script/main/art.asp?articlekey=4534

MedicineNet.com. (2012, June 22). *Liver disease (hepatic disease)*. Retrieved July 10, 2012, from Diseases and Conditions website: http://www.medicinenet.com/liver_disease/article.htm

Merriam-Webster.com. (2012). *Definition of communicable disease*. Retrieved August 1, 2012, from Merriam-Webster Dictionary website: http://www.merriam-webster.com/medical/communicable%20disease

National Cancer Institute, National Institutes of Health. (n.d.). *Cancer*. Retrieved July 10, 2012, from NCI Dictionary of Cancer Terms website: http://www.cancer.gov/dictionary?CdrID=45333

National Institutes of Health. (2012, August). *HIV/AIDS: the basics*. Retrieved August 16, 2012, from AIDS Info website: http://aidsinfo.nih.gov/contentfiles/HIVAIDS_theBasics.pdf

National Institutes of Health. National Heart, Lung, and Blood Institute in Cooperation With The National Institute of Diabetes and Digestive and Kidney Diseases. (September 1998). *Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults: The Evidence Report*.

National Institute on Aging, Nation Institutes of Health. (2012, June 27). *Alzheimer's disease fact sheet*. Retrieved July 10, 2012, from Alzheimer's Disease Education and Referral Center website: http://www.nia.nih.gov/alzheimers/publication/alzheimers-disease-fact-sheet

NC Department of Environment and Natural Resources. (n.d.). *Facts about radon; Radon in water; Radon and geology*. Retrieved July 15, 2012, from NC Radon Program Basic Radon Information website: http://www.ncradon.org

NC Department of Environment and Natural Resources. (n.d.) *Health risks of radon*. Retrieved July 15, 2012, from NC Radon Program website: http://www.ncradiation.net/Radon/Health.htm

NC Department of Environment and Natural Resources. (n.d.). EPA radon zone map of NC. Retrieved July 15, 2012, from NC Radon Program Basic Radon Information website: http://www.ncradon.org/zone.htm

North Carolina Radon Information. (n.d.). *North Carolina counties with detailed radon information*. Retrieved on May 9, 2010, from: http://nc-radon.info/NC_counties.html

NC Department of Health and Human Services, Nutrition Services Branch. (2012, April 5). *North Carolina nutrition and physical activity surveillance system (NC-NPASS)*. Retrieved August 1, 2012 from Nutrition Services website: http://www.nutritionnc.com/nutrsurv.htm

NC Division of Mental Health, Developmental Disabilities and Substance Abuse Services. (2012, August 16). Local contacts: local management entities by county. Retrieved August 17, 2012, from For LMEs and Government website:
http://www.ncdhhs.gov/mhddsas/lmeonblue.htm

PubMed Health. (2011, September 20). *Nephrotic syndrome*. Retrieved July 10, 2012, from A.D.A.M Medical Encyclopedia website: http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0001520/

Scorecard. (2011). *Criteria air pollutant descriptions*. Retrieved July 15, 2012, from Pollution Locator website:
http://scorecard.goodguide.com/env-releases/cap/pollutant-desc.tcl

US Department of Health and Human Services. (2010 December). *Healthy People 2020*. Retrieved July 15, 2012, from Healthy People website: http://www.healthypeople.gov

US Department of Health and Human Services. (2008). *Physical Activity Guidelines for Americans*, www.health.gov/PAGuidelines

US Environmental Protection Agency. (2012, July 16). *National ambient air quality standards (NAAQS)*. Retrieved August 1, 2012, from Air and Radiation website: http://www.epa.gov/air/criteria.html

US Environmental Protection Agency. (2012, January) *Toxics release inventory (TRI) fact sheet*. Retrieved July 15, 2012, from Toxics Release Inventory (TRI) Program website:
http://www.epa.gov/tri/triprogram/TRI_Factsheet_Jan_2012.pdf

US Environmental Protection Agency. (2011, November 30). *Fact sheet: respiratory health effects of passive smoking*. Retrieved July 15, 2012, from Smoke-free Homes website:
http://www.epa.gov/smokefree/pubs/etsfs.html

US National Library of Medicine, National Institutes of Health. (n.d.). *Heart diseases*; *Cerebrovascular disease*; *Diabetes; Pneumonia; Influenza; Sepsis* Retrieved July 10, 2012, from MedLine Plus Medical Dictionary website: http://www.nlm.nih.gov/medlineplus/mplusdictionary.html

United Health Foundation. (2011). *America's Health Rankings*. Retrieved June 15, 2012, from http://www.americashealthrankings.org/mediacenter/mediacenter2.aspx

West Virginia Health Statistics Center. (2006, September 12). *Chronic lower respiratory disease, a National burden*. Retrieved July 10, 2012, from: http://www.wvdhhr.org/bph/hsc/pubs/other/clrd/national.htm

WNC Healthy Impact Regional Secondary Data Workbook: www.WNCHealthyImpact.com

APPENDICES

Appendix A – Data Collection Methods & Limitations
Appendix B – WNC Healthy Impact Survey Instrument
Appendix C – Health Resource Inventory
Appendix D – Listening Session Results
Appendix E – CHA Steering Committee Members

APPENDIX A - DATA COLLECTION METHODS & LIMITATIONS

Secondary Data

Secondary Data Methodology

In order to learn about the specific factors affecting the health and quality of life of residents of WNC, the WNC Healthy Impact data workgroup and consulting team identified and tapped numerous secondary data sources accessible in the public domain. For data on the demographic, economic and social characteristics of the region sources included: the US Census Bureau; Log Into North Carolina (LINC); NC Office of State Budget and Management; NC Department of Commerce; Employment Security Commission of NC; NC Department of Public Instruction; NC Department of Justice; NC Division of Medical Assistance; and the Cecil B. Sheps Center for Health Services Research. The WNC Healthy Impact consultant team made every effort to obtain the most current data available *at the time the report was prepared*. It was not possible to continually update the narrative past a certain date; in most cases that end-point was June 30, 2012.

The principal source of secondary health data for this report was the NC State Center for Health Statistics (NC SCHS), including its County Health Data Books, Behavioral Risk Factor Surveillance System, Vital Statistics unit, and Cancer Registry. Other health data sources included: NC Division of Public Health (DPH) Epidemiology Section; NC Division of Mental Health, Developmental Disabilities and Substance Abuse Services; National Center for Health Statistics; NC DPH Nutrition Services Branch; UNC Highway Safety Research Center; NC Department of Transportation; NC DETECT and the NC DPH Oral Health Section.

Because in any CHA it is instructive to relate local data to similar data in other jurisdictions, throughout this report representative county data is compared to like data describing the 16-county region and the state of NC as a whole. WNC Healthy Impact received approval from the NC Division of Public Health to use this regional comparison as "peer" for the purposes of our assessments (and related requirements). County data may not be available for some of the data parameters included in this report; in those cases state-level data is compared to US-level data or other standardized measures. Where appropriate and available, trend data has been used to show changes in indicators over time.

Environmental data was gathered from sources including: US Environmental Protection Agency; US Department of Agriculture, and NC Radon Program.

It is important to note that this report contains data retrieved **directly** from sources in the public domain. In some cases the data is very current; in other cases, while it may be the most current available, it may be several years old. Note also that the names of organizations, facilities, geographic places, etc. presented in the tables and graphs in this report are quoted exactly as they appear in the source data. In some cases these names may **not** be those in current or local

usage; nevertheless they are used so readers may track a particular piece of information directly back to the source.

Supplementary to this Community Health Assessment is the WNC Healthy Impact Secondary Data Workbook (Data Workbook) that contains complete county-level data from a wide range of sources, as well as the state and regional averages and totals described here. Readers can consult the Data Workbook if looking for the direct source information and links to this secondary data for all counties in the region.

This data workbook was created by WNC Healthy Impact to manage and report the large amount of secondary data collected from a variety of sources during our regional process. This process and product were part of our regional effort to improve efficiency and standardization of data collection and reporting across a sixteen county region.

Unless specifically noted otherwise, all tables, graphs and figures presented in this report were derived directly from spreadsheets in the Data Workbook or survey data reported by the survey vendor (PRC).

Data Definitions

Reports of this type customarily employ a range of technical terms, some of which may be unfamiliar to many readers. This report defines technical terms within the section where each term is first encountered.

Health data, which composes a large proportion of the information included in this report, employs a series of very specific terms which are important to interpreting the significance of the data. While these technical health data terms are defined in the report at the appropriate time, there are some data caveats that should be applied from the onset.

Error

First, readers should note that there is some error associated with every health data source. Surveillance systems for communicable diseases and cancer diagnoses, for instance, rely on reports submitted by health care facilities across the state and are likely to miss a small number of cases, and mortality statistics are dependent on the primary cause of death listed on death certificates without consideration of co-occurring conditions.

Age-adjusting

Secondly, since much of the information included in this report relies on *mortality* data, it is important to recognize that many factors can affect the risk of death, including race, gender, occupation, education and income. The most significant factor is age, because an individual's risk of death inevitably increases with age. As a population ages, its collective risk of death increases; therefore, an older population will automatically have a higher overall death rate just because of its age distribution. At any one time some communities have higher proportions of "young" people, and other communities have a higher proportion of "old" people. In order to compare mortality data from one community with the same kind of data from another, it is

necessary first to control for differences in the age composition of the communities being compared. This is accomplished by *age-adjusting* the data. Age-adjustment is a statistical manipulation usually performed by the professionals responsible for collecting and cataloging health data, such as the staff of the NC State Center for Health Statistics (NC SCHS). It is not necessary to understand the nuances of age-adjustment to use this report. Suffice it to know that age-adjusted data are preferred for comparing most health data from one population or community to another and have been used in this report whenever available.

Rates

Thirdly, it is most useful to use *rates* of occurrence to compare data. A rate converts a raw count of events (deaths, births, disease or accident occurrences, etc.) in a target population to a ratio representing the number of same events in a standard population, which removes the variability associated with the size of the sample. Each rate has its own standard denominator that must be specified (e.g., 1,000 women, 100,000 persons, 10,000 people in a particular age group, etc.) for that rate.

While rates help make data comparable, it should be noted that small numbers of events tend to yield rates that are highly unstable, since a small change in the raw count may translate to a large change in rate. To overcome rate instability, another convention typically used in the presentation of health statistics is *data aggregation*, which involves combining like data gathered over a multi-year period, usually three or five years. The practice of presenting data that are aggregated avoids the instability typically associated with using highly variable year-by-year data, especially for measures consisting of relatively few cases or events. The calculation is performed by dividing the sum number of cases or deaths in a population due to a particular cause over a period of years by the sum of the population size for each of the years in the same period. Health data for multiple years or multiple aggregate periods is included in this report wherever possible. Sometimes, however, even aggregating data is not sufficient, so the NC SCHS recommends that any rate based on fewer than 20 events—whether covering an aggregate period or not—be considered *unstable*. In fact, in some of its data sets the NC SCHS no longer calculates rates based on fewer than 20 events. To be sure that unstable data do not become the basis for local decision-making, this report will highlight and discuss primarily rates based on 20 or more events in a five-year aggregate period, or 10 or more events in a single year. Where exceptions occur, the text will highlight the potential instability of the rate being discussed.

Regional arithmetic mean

Fourthly, sometimes in order to develop a representative regional composite figure from 16 separate county measures the consultants calculated a *regional arithmetic mean* by summing the available individual county measures and dividing by the number of counties providing those measures. It must be noted that when regional arithmetic means are calculated from *rates* the mean is not the same as a true average rate but rather an approximation of it. This is because most rates used in this report are age-adjusted, and the regional mean cannot be properly age-adjusted.

Describing difference and change

Fifthly, in describing differences in data of the same type from two populations or locations, or changes over time in the same kind of data from one population or location—both of which appear frequently in this report—it is useful to apply the concept of *percent* difference or change. While it is always possible to describe difference or change by the simple subtraction of a smaller number from a larger number, the result often is inadequate for describing and understanding the *scope* or *significance* of the difference or change. Converting the amount of difference or change to a percent takes into account the relative size of the numbers that are changing in a way that simple subtraction does not, and makes it easier to grasp the meaning of the change. For example, there may be a rate of for a type of event (e.g., death) that is one number one year and another number five years later. Suppose the earlier figure is 12.0 and the latter figure is 18.0. The simple mathematical difference between these rates is 6.0. Suppose also there is another set of rates that are 212.0 in one year and 218.0 five years later. The simple mathematical difference between these rates also is 6.0. But are these same simple numerical differences really of the same significance in both instances? In the first example, converting the 6 point difference to a percent yields a relative change factor of 50%; that is, the smaller number increased by half, a large fraction. In the second example, converting the 6 point difference to a percent yields a relative change factor of 2.8%; that is, the smaller number increased by a relatively small fraction. In these examples the application of percent makes it very clear that the difference in the first example is of far greater degree than the difference in the second example. This document uses percentage almost exclusively to describe and highlight degrees of difference and change, both positive (e.g., increase, larger than, etc.) and negative (e.g., decrease, smaller than, etc.)

Data limitations

Some data that is used in this report may have inherent limitations, due to the sample size, its geographic focus, or its being out-of-date, for example, but it is used nevertheless because there is no better alternative. Whenever this kind of data is used, it will be accompanied by a warning about its limitations.

Gaps in Available Information

There are a variety of data that would be useful in assessing the health of Buncombe County but are unavailable - for example, data on use of active transportation, additional information on children's health, and accurate assessments of breastfeeding behaviors, to name a few. Currently, a concerning gap in available information is due to limited ability to stratify within our primary and secondary data sections in order to better determine disparities. For now, data on health disparities within other geographic area (region, state, or nation) is often included when a regional stratification is not available. WNC Healthy Impact will be exploring new sources of data, additional survey questions, and ways of better analyzing disparity data in the future.

WNC Healthy Impact Survey (Primary Data)

Survey Methodology

Survey Instrument

To supplement the secondary core dataset, meet additional stakeholder data needs, and hear from community members about their concerns and priorities, a community survey, *2012 WNC Healthy Impact Survey* (a.k.a. 2012 PRC Community Health Survey), was developed and implemented in 16 counties across western North Carolina. The survey instrument was developed by WNC Healthy Impact's data workgroup, consulting team, and local partners, with assistance from Professional Research Consultants, Inc. (PRC). Many of the questions are derived from the Centers for Disease Control and Prevention (CDC) Behavioral Risk Factor Surveillance System (BRFSS), as well as other public health surveys; other questions were developed specifically for WNC Healthy Impact to address particular issues of interest to communities in western North Carolina. Each county was given the opportunity to include three additional questions of particular interest to their county, which were asked of their county's residents.

The geographic area for the regional survey effort included 16 counties: Buncombe, Cherokee, Clay, Graham, Haywood, Henderson, Jackson, Macon, Madison, McDowell, Mitchell, Polk, Rutherford, Swain, Transylvania and Yancey counties.

Sample Approach & Design

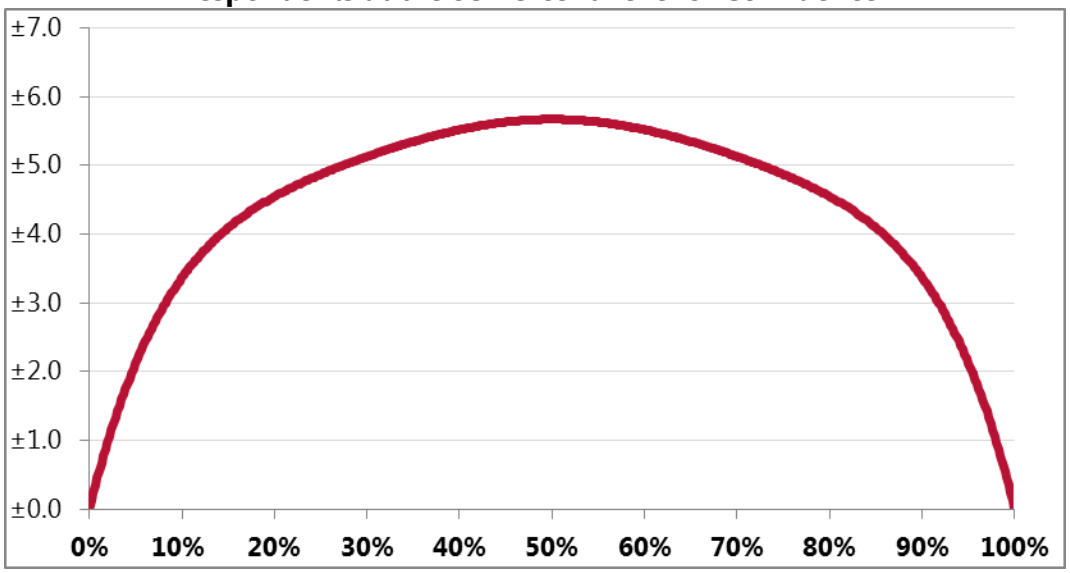
To ensure the best representation of the population surveyed, a telephone interview methodology (one that incorporates both landline and cell phone interviews) was employed. The primary advantages of telephone interviewing are timeliness, efficiency and random-selection capabilities.

The sample design used for this regional effort consisted of a stratified random sample of 3,300 individuals age 18 and older in Western North Carolina. Our county's sample size was 300. All administration of the surveys, data collection and data analysis was conducted by Professional Research Consultants, Inc. (PRC). The interviews were conducted in either English or Spanish, as preferred by respondents.

Sampling Error

For our county-level findings, the maximum error rate is ±6.9%.

Expected Error Ranges for a Sample of 300 Respondents at the 95 Percent Level of Confidence



Note: ● The "response rate" (the percentage of a population giving a particular response) determines the error rate associated with that response. A "95 percent level of confidence" indicates that responses would fall within the expected error range on 95 out of 100 trials.

Examples:

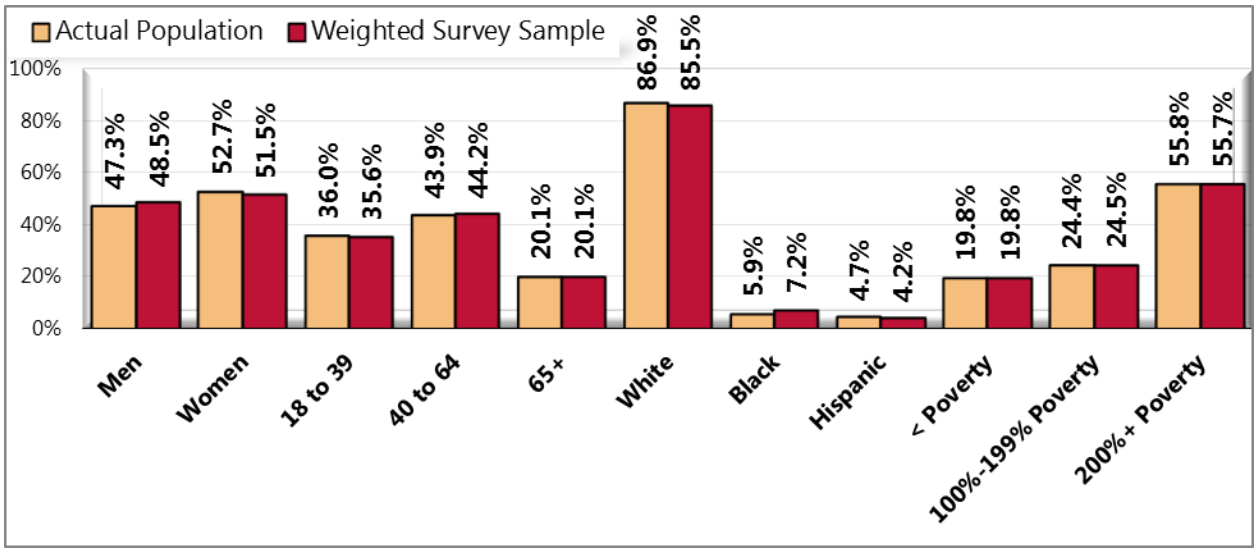
- If 10% of the sample of 300 respondents answered a certain question with a "yes," it can be asserted that between 6.6% and 13.4% (10% ± 3.4%) of the total population would offer this response.
- If 50% of respondents said "yes," one could be certain with a 95 percent level of confidence that between 44.4% and 55.6% (50% ± 5.6%) of the total population would respond "yes" if asked this question.

Sample Characteristics

To accurately represent the population studied, PRC worked to minimize bias through application of a proven telephone methodology and random-selection techniques. And, while this random sampling of the population produces a highly representative sample, it is a common and preferred practice to "weight" the raw data to improve this representativeness even further. This is accomplished by adjusting the results of a random sample to match the geographic distribution and demographic characteristics of the population surveyed (poststratification), so as to eliminate any naturally occurring bias. Specifically, once the raw data are gathered, respondents are examined by key demographic characteristics (namely gender, age, race, ethnicity, and poverty status) and a statistical application package applies weighting variables that produce a sample which more closely matches the population for these characteristics. Thus, while the integrity of each individual's responses is maintained, one respondent's responses may contribute to the whole the same weight as, for example, 1.1 respondents. Another respondent, whose demographic characteristics may have been slightly oversampled, may contribute the same weight as 0.9 respondents. In order to determine WNC regional estimates, county responses were weighted in proportion to the actual population distribution so as to appropriately represent Western North Carolina as a whole.

The following chart outlines the characteristics of the survey sample for our county by key demographic variables, compared to actual population characteristics revealed in census data. Note that the sample consisted solely of area residents age 18 and older.

Population & Sample Characteristics
(Buncombe County, 2012)



Sources:
- Census 2010, Summary File 3 (SF 3). U.S. Census Bureau.
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc.

Notes:
- Hispanics can be of any race. Other race categories are non-Hispanic categorizations (e.g., "White" reflects non-Hispanic White respondents).

Poverty descriptions and segmentation used in this report are based on administrative poverty thresholds determined by the US Department of Health & Human Services. These guidelines define poverty status by household income level and number of persons in the household *(e.g., the 2012 guidelines place the poverty threshold for a family of four at $23,050 annual household income or lower)*. In sample segmentation: "very low income" refers to community members living in a household with defined poverty status; "low income" refers to households with incomes just above the poverty level, earning up to twice the poverty threshold; and "mid/high income" refers to those households living on incomes which are twice or more the federal poverty level.

The sample design and the quality control procedures used in the data collection ensure that the sample is representative. Thus, the findings may be generalized to the total population of community members in the defined area with a high degree of confidence.

Benchmark Data

North Carolina Risk Factor Data

Statewide risk factor data are provided where available as an additional benchmark against which to compare local survey findings; these data are reported in the most recent *BRFSS (Behavioral Risk Factor Surveillance System) Prevalence and Trend Data* published by the Centers for Disease Control and Prevention and the US Department of Health & Human Services.

Nationwide Risk Factor Data

Nationwide risk factor data, which are also provided in comparison charts where available, are taken from the *2011 PRC National Health Survey*; the methodological approach for the national study is identical to that employed in this assessment, and these data may be generalized to the US population with a high degree of confidence.

Healthy People 2020

Healthy People provides science-based, 10-year national objectives for improving the health of all Americans. The Healthy People initiative is grounded in the principle that setting national objectives and monitoring progress can motivate action. For three decades, Healthy People has established benchmarks and monitored progress over time in order to:

- Encourage collaborations across sectors.
- Guide individuals toward making informed health decisions.
- Measure the impact of prevention activities.

Healthy People 2020 is the product of an extensive stakeholder feedback process that is unparalleled in government and health. It integrates input from public health and prevention experts, a wide range of federal, state and local government officials, a consortium of more than 2,000 organizations, and perhaps most importantly, the public. More than 8,000 comments were considered in drafting a comprehensive set of Healthy People 2020 objectives.

Survey Administration

Pilot Testing & Quality Assurance

Before going into the field in the latter half of May, PRC piloted 30 interviews across the region with the finalized survey instrument. After this phase, PRC corrected any process errors that were found, and discussed with the consulting team any substantive issues that needed to be resolved before full implementation.

PRC's methods and survey administration comply with current research methods and industry standards. To maximize the reliability of research results and to minimize bias, PRC follows a number of clearly defined quality control protocols. PRC uses a telephone methodology for its

community interviews, in which the respondent completes the questionnaire with a trained interviewer, not through an automated touch-tone process.

With more than 700 full- and part-time interviewers who work exclusively with healthcare and health assessment projects, PRC uses a state-of-the-art, automated CATI interviewing system that assures consistency in the research process. Furthermore, PRC maintains the resources to conduct all aspects of this project in-house from its headquarters in Omaha, Nebraska, assuring the highest level of quality control.

Random-Digit Dialing

PRC employs the latest CATI (computer-aided telephone interviewing) system technology in its interviewing facilities. The system PRC uses is a hybrid variation of a commercial application enhanced with internally developed software applications designed to specifically meet the needs of its health care client base. Since 1998 PRC has maintained, refined and developed proficiency in using this CATI system.

The CATI system automatically generates the daily sample for data collection using a random-digit dialing technique, retaining each telephone number until the Rules of Replacement (see description, below) are met. Up to five call attempts are made on different days and at different times to reach telephone numbers for which there is no answer. Systematic, unobtrusive electronic monitoring is conducted regularly by supervisors throughout the data collection phase of the project.

Rules of Replacement

Replacement means that no further attempts are made to connect to a particular number, and that a replacement number is drawn from the sample. To retain the randomness of the sample, telephone numbers drawn for the sample are not discarded and replaced except under very specific conditions.

Minimizing Potential Error

In any survey, there exists some degree of potential error. This may be characterized as sampling error (because the survey results are not based on a complete census of all potential respondents within the population) or non-sampling error (e.g., question wording, question sequencing, or through errors in data processing). Throughout the research effort, Professional Research Consultants makes every effort to minimize both sampling and non-sampling errors in order to assure the accuracy and generalizability of the results reported.

Noncoverage Error. One way to minimize any effects of underrepresentation of persons without telephones is through poststratification. In poststratification, the survey findings are weighted to key demographic characteristics, including gender, age, race/ethnicity and income.

Sampling Error. Sampling error occurs because estimates are based on only a sample of the population rather than on the entire population. Generating a random sample that is representative and of adequate size can help minimize sampling error. Sampling error, in this

instance, is further minimized through the strict application of administration protocols. Poststratification, as mentioned above, is another means of minimizing sampling error.

Measurement Error. Measurement error occurs when responses to questions are unduly influenced by one or more factors. These may include question wording or order, or the interviewer's tone of voice or objectivity. Using a tested survey instrument minimizes errors associated with the questionnaire. Thorough and specific interviews also reduce possible errors. The automated CATI system is designed to lessen the risk of human error in the coding and data entry of responses.

Information Gaps

While this assessment is quite comprehensive, it cannot measure all possible aspects of health in the community, nor can it adequately represent all possible populations of interest. It must be recognized that these information gaps might in some ways limit the ability to assess all of the community's health needs.

For example, certain population groups (such as the homeless, institutionalized persons, or those who only speak a language other than English or Spanish) are not represented in the survey data. Other population groups (for example, pregnant women, lesbian/gay/bisexual/transgender residents, undocumented residents, and members of certain racial/ethnic or immigrant groups) might not be identifiable or might not be represented in numbers sufficient for independent analyses.

In terms of content, this assessment was designed to provide a comprehensive and broad picture of the health of the overall community. However, there are certainly a great number of medical conditions that are not specifically addressed.

Listening Sessions (Primary Data)

In 2011, Buncombe County Health & Human Services (HHS) expressed their commitment to conduct a community-driven assessment to: 1) gather information from Buncombe County residents about the strengths and needs of their communities that could be used to inform county-level decisions and improve accessibility of services, and 2) builds trust and enhance the relationship between the county's Health and Human Services departments and the communities they serve. To this end, HHS hired two outside consulting groups (Sparrow Research Group and Searchlight Consulting) to engage community residents in a Community Listening Project to "Tell us what you think!" The collaborative team hired seven Community Partners (CPs) to serve as community liaisons, using their expertise about their local communities to help shape and facilitate the primary data collection process.

To collect data that would be both in-depth, and engage a large number of community residents, three primary data collection methods were used: 1) six 90-minute community listening sessions, with 45 participants total, conducted throughout Buncombe County, 2) 297

brief community resident surveys collected by CPs, and 3) four telephone interviews with service providers, conducted by Mars Hill students. The purpose of the data collection was to identify: community strengths, existing services and support systems, information sources, community needs and gaps in services, and suggestions for strengthening the county-wide system of help and support. Key insights and recommendations by topic area are outlined in Appendix D.

Health Resource Inventory

2-1-1 is an information and referral service that links people to community health and human services. Resources are available through phone (free, confidential, 24/7) and the web. WNC Healthy Impact requested information on health-specific resources currently listed in the 2-1-1 database for Buncombe County, as 2-1-1 maintains a comprehensive database of community resources. Note that this is a point-in-time summary list, and greater details on these services can be accessed by calling 2-1-1 to speak to a trained staff person or visiting www.NC211.org. The complete Health Resource Inventory can be found in Appendix C.

APPENDIX B - COMMUNITY HEALTH SURVEY INSTRUMENT

Double-click on the survey coversheet below to access the complete survey instrument. If you cannot access this, please contact your local health department for a copy.

Date _____
Interviewed by _____ ID# __ __ __ __

2012-0615-02

WESTERN NORTH CAROLINA
2012 Community Health Needs Assessment MASTER
Asheville, North Carolina

Hello, this is _____ with Professional Research Consultants. We are conducting a survey to study ways to improve the health of your community.

(IF NECESSARY, READ:) Your number has been chosen randomly to be included in the study, and we'd like to ask some questions about things people do which may affect their health. Your answers will be kept completely confidential.

(IF Respondent seems suspicious, READ:) Some people we call want to know more before they answer the survey. If you would like more information regarding this research study, you can call '+chaname+' at '+chanumb+' during regular business hours.

Note that this survey is for processing & reports only. It is not to be used for interviewing in its current form. The notes in this survey do not have supporting logic, and this survey did not receive the review that the individual child surveys received from quality assurance.

Version:(1.0) 6/14/2012 1

APPENDIX C - HEALTH RESOURCE INVENTORY

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The following is a list of the names and types of health-specific resources that 2-1-1 has provided for the Buncombe County 2012 Health Resource Inventory. Please note that 2-1-1 can provide additional details by request and include other types of resources that can also impact health in Buncombe County.

Health-Related Directory Information

Provider	Provider Website Address	Service Code Description
Adolescent Pregnancy Prevention, YWCA of Asheville and WNC	www.ywcaofasheville.org	Teen Pregnancy Prevention
Adult and Youth Education, American Cancer Society - Western North Carolina	www.cancer.org	Disease/Disability Information
Adult Day Activity Center, Irene Wortham Center	www.iwcnc.org	Developmental Disabilities Day Habilitation Programs
Advanced Home Care - Western North Carolina	www.advhomecare.org	Medical Equipment/Supplies CVP Lines Intravenous Medication
Ambulatory Care, Charles George Veterans Affairs Medical Center	www.asheville.va.gov	Hospitals
American Cancer Society - Asheville	www.cancer.org	Health Care Referrals Disease/Disability Information
Apheresis/Platelets Donations, American Red Cross - Buncombe County	www.redcrosswnc.org	Blood Supply Services
Arts Expression, Goodwill Industries of Northwest NC - WNC	www.goodwillnwnc.org	Developmental Disabilities Day Habilitation Programs
Asheville-Buncombe Institute of Parity Achievement(10390)	www.abipa.org	Blood Pressure Screening BMI/Body Composition Screening Cancer Detection Diabetes Screening
Asheville Lions Eye Clinic		Glaucoma Screening Glasses/Contact Lenses Vision Screening

Asheville Pregnancy Support Services	www.preginfo.org	Diagnostic Imaging/Radiology Pro-Life Counseling Pregnancy Testing
Asheville TEACCH Center Western Region	www.teacch.com	Autism Therapy
Blood Donations, American Red Cross - Buncombe County	www.redcrosswnc.org	Blood Supply Services
Blood Pressure Screening, American Red Cross - Buncombe County	www.redcrosswnc.org	Blood Pressure Screening
Blue Ridge Group Homes	www.blueridgegrouphomes.org	Developmental Disabilities Day Habilitation Programs
Bone Density Screening for Women, Mission Hospitals	www.cancer.mission-health.org/events/detail/bone-density-screening	Bone Mineral Density Tests
Breast and Cervical Cancer Control Program, Buncombe County Department of Health	www.buncombecounty.org/governing/depts/health	Cancer Detection
Burton Street Recreational Center, Asheville Parks Recreation and Cultural Arts Department	www.ashevillenc.gov/Departments/ParksRecreation.aspx	Therapeutic Exercise
Cancer Connection, Mission Hospitals	www.cancer.mission-health.org	Disease/Disability Information
Cancer Response System, American Cancer Society - Western North Carolina	www.cancer.org	Disease/Disability Information
CarePartners Home Health Services, CarePartners Health Services	www.carepartners.org	Occupational Therapy Physical Therapy Speech and Language Pathology Home Nursing
CarePartners Hospice and Palliative Care, CarePartners Health Services	www.carepartners.org	Hospice Care Palliative Care
CarePartners Orthotics and Prosthetics, CarePartners Health Services	www.carepartners.org	Mobility Aids Amputee Rehabilitation
CarePartners Outpatient Rehabilitation Services, CarePartners Health Services	www.carepartners.org	Occupational Therapy Physical Therapy Speech and Language Pathology Therapeutic Exercise
CarePartners Private Duty Services, CarePartners Health Services	www.carepartners.org	Home Health Aide Services
CarePartners Rehabilitation Hospital, CarePartners Health services	www.carepartners.org	Amputee Rehabilitation Spinal Cord Rehabilitation Stroke Rehabilitation Inpatient Rehabilitation Occupational Therapy Physical Therapy Speech and Language Pathology Incontinence Management Programs Spasticity Management Clinics

CarePartners Work Smart Program, CarePartners Health Services	www.carepartners.org	Ergonomic Evaluations
Center for Disordered Eating, Treatment, Healing, and Education Center for Disordered Eating	www.thecenternc.org	Physician Referrals Disease/Disability Information
Children's Developmental Services - Buncombe County	www.beearly.nc.gov	Developmental Assessment Early Intervention for Children with Disabilities/Delays
Community Alternatives Program for Children, Families Together	www.familiestogether.net	Long Term Home Health Care
Community Alternatives Program for Disabled Adults, Families Together	www.familiestogether.net	Long Term Home Health Care
Community Living Center, Charles George Veterans Affairs Medical Center	www.asheville.va.gov	Hospitals Home Nursing
Community Residential Care, Charles George Veterans Affairs Medical Center	www.asheville.va.gov	Hospitals
CRC, DisAbility Partners - Western North Carolina	http://www.crclandofsky.org/	Aging and Disability Resource Centers Long Term Care Options Counseling
CRC, Western Highlands Network	www.crclandofsky.org	Aging and Disability Resource Centers Long Term Care Options Counseling
Deaf/Blind Services Program, NC Division of Services for the Blind - Asheville	www.dhhs.state.nc.us/dsb	Independent Living Skills Instruction
Dental Clinic, Western North Carolina Community Health Services	www.wncchs.org	General Dentistry Pediatric Dentistry
Dental Extraction Clinic, Asheville-Buncombe Community Christian Ministry (ABCCM)	www.abccm.org	General Dentistry
Dental Health Center, Mountain Area Health Education Center	www.mahec.net	Dental Hygiene General Dentistry
Dental Programs, Asheville-Buncombe Technical Community College	www.abtech.edu	Dental Hygiene General Dentistry
Diabetes Center, Mission Hospitals	www.mission-health.org/centers-and-services/support-services/chronic-medical-conditions/my-healthy-life-diabetes-management	Disease/Disability Information Diabetes Management Clinics
Diabetes Wellness Program, YWCA of Asheville and WNC	www.ywcaofasheville.org	Wellness Programs
Disability Partners - Sylva	www.disabilitypartners.org	Independent Living Skills Instruction
Discount Drug Cards, Buncombe County Government	www.coast2coastrx.com/buncombenc/	Prescription Medication Services
Driver Evaluation, CarePartners Health Services	www.carepartners.org	Driving Evaluation

East Buncombe, Saint Vincent de Paul Society - Buncombe County	www.financialhelpresources.com/details/saint_vincent_de_paul_society_buncombe_county.html	Medical Care Expense Assistance
Easter Seals UCP - Western North Carolina	www.nc.eastersealsucp.com	Developmental Disabilities Day Habilitation Programs
Eliada Academy Day Treatment, Eliada Homes	www.eliada.org	Developmental Disabilities Day Habilitation Programs
Emergency Assistance, Salvation Army - Buncombe County	http://www.salvationarmycarolinas.org/commands/asheville	Prescription Expense Assistance
Emergency Department, Charles George Veterans Medical Center	www.asheville.va.gov	Hospitals
Emergency Department, Mission Hospital	www.mission-health.org/contact/maps-directions/main-campuses-services/emergency-department	Emergency Room Care
Expanded Food and Nutrition Program, NC Cooperative Extension - Buncombe County	http://buncombe.ces.ncsu.edu/	Nutrition Education
Family Planning, Buncombe County Department of Health	www.buncombecounty.org/governing/depts/health/family.htm	Birth Control Pregnancy Testing
Flu Hotline, Buncombe County Department of Health	www.buncombecounty.org	Disease/Disability Information
Fullerton Genetics Center, Mission Hospitals	www.mission-health.org/centers-and-services/programs-service/genetics/fullerton-genetics-center	Developmental Assessment Genetic Counseling
Geriatric Programs, Mission Hospital	www.mission-health.org/centers-and-services/support-services/senior-services/geriatric-specialists	Geriatric Medicine
Geriatrics and Extended Care, Charles George Veterans Affairs Medical Center	www.va.gov/geriatrics/guide/LongTermCare/Medical_Foster_Homes.asp	Hospitals
Health and Safety Services, American Red Cross - Buncombe County	www.redcrosswnc.org	Disease/Disability Information First Aid Instruction
Health Check Coordination, Community Care of Western North Carolina	www.communitycarewnc.org	Health Insurance/Dental Coverage
Health Education, YWCA of Asheville and WNC	www.ywcaofasheville.org	Disease/Disability Information
Health Initiatives, One Youth at a Time		General Sexuality/Reproductive Health Education
HealthNet, Community Care of Western North Carolina	www.communitycarewnc.org	Prescription Expense Assistance
Health Promotion, Buncombe County Department of Health	www.buncombecounty.org/Governing/Depts/Health/HealthPromotion.aspx	General Health Education Programs
Healthy Living Program, Women's Wellbeing and Development Foundation	www.wwd-f.org	Nutrition Education
Heart Path, Mission Hospitals	http://heart.mission-health.org/heart-programs/heart-path-rehabilitation	Cardiac Rehabilitation Pulmonary Rehabilitation

Helios Warriors	www.helioswarriors.org	Alternative Medicine
HIV/AIDS and Hepatitis C Outreach/Educational Services, Western North Carolina AIDS Project	www.wncap.org	AIDS/HIV Prevention Counseling
HIV Specialty Care, Western North Carolina Community Health Services	www.wncchs.org	HIV Testing AIDS/HIV Clinics
Home Based Primary Care, Charles George Veterans Affairs Medical Center	www.va.gov/GERIATRICS/Guide/LongTermCare/Home_and_Community_Based_Services.asp	Home Health Aide Services
Hospitalization, Charles George Veterans Affairs Medical Center	www.asheville.va.gov	Hospitals
Immunization Clinic, Buncombe County Department of Health	www.buncombecounty.org/governing/depts/health	Adolescent/Adult Immunizations Childhood Immunizations Flu Vaccines
Independent Living Program, NC Division of Services for the Blind - Asheville	www.dhhs.state.nc.us/dsb	Independent Living Skills Instruction
Independent Living Skills Training, DisAbility Partners - Western North Carolina	www.disabilitypartners.org	Independent Living Skills Instruction
In-Home Aide Services, The Council on Aging of Buncombe County	www.coabc.org	Home Health Aide Services
Laboratory Services, Buncombe County Department of Health	www.buncombecounty.org/governing/depts/health	General Laboratory Tests
La Leche League of Asheville, La Leche League International	www.lllofnc.org	Breastfeeding Support Programs
Lewis Rathbun Center	www.rathbuncenter.org	Patient/Family Housing
Licensed Nursing Homes and Adult Care Homes Guide, Land-of-Sky Area Agency on Aging	www.landofsky.org/aging/a_ltcdir.html	Nursing Facilities
Lifeshare of the Carolinas	www.lifesharecarolinas.org	Organ and Tissue Banks Organ/Tissue Transplant Education Programs
Living Healthy Chronic Disease Self Management Program, Land-of-Sky Regional Council	www.ncdhhs.gov/aging/livinghealthy/livinghealthy.htm	Chronic Disease Self Management Programs
Loan/Gift Items, American Cancer Society - Western North Carolina	www.cancer.org	Medical Equipment/Supplies
Look Good...Feel Better, American Cancer Society - Western North Carolina	www.cancer.org	Appearance Enhancement Consultation Programs
Low Vision Center, Mission Hospitals	www.mission-health.org/centers-and-services/support-services/rehabilitation-therapy/occupational-therapy/low-vision-services	Eye Care

Main Ministry, Swannanoa Valley Christian Ministry	www.svcministry.org	Medical Care Expense Assistance Prescription Expense Assistance
MANNA Packs for Kids Program, MANNA FoodBank	www.mannafoodbank.org	Nutrition Education
March of Dimes-Pisgah Division	www.marchofdimes.com	Disease/Disability Information
Medical Assistance Counseling, Mission Hospitals	www.mission-health.org/patients-and-visitors/when-you-get-home/financial-assistance	Health Insurance Information/Counseling Medical Care Expense Assistance
Medical Assistance for Children, Eblen Charities	www.eblencharities.org	Medical Equipment/Supplies Medical Care Expense Assistance Prescription Expense Assistance
Medical Assistance/Illness or Disability, Eblen-Kimmel Charities	www.eblencharities.org	Vision Screening Glasses/Contact Lenses Medical Equipment/Supplies Medical Care Expense Assistance Prescription Expense Assistance
Medical Equipment Closet, Asheville-Buncombe Community Christian Ministry (ABCCM)	www.abccm.org	Medical Equipment/Supplies
Medical Equipment Loan Closet, American Red Cross - Buncombe County	www.redcrosswnc.org	Medical Equipment/Supplies
Medical Eye Care Program - NC Division of Services for the Blind - Western Regional	www.dhhs.state.nc.us/dsb	Medical Care Expense Assistance Prescription Expense Assistance
Medical Ministry, Asheville-Buncombe Community Christian Ministry (ABCCM)	www.abccm.org	Prescription Expense Assistance General Pharmacies Prescription Medication Services Community Clinics
Medicare Hotline, Social Security Administration - Buncombe County	www.ssa.gov	Health Insurance Information/Counseling
Medication Assistance Program, Mission Hospitals	www.mission-health.org/careers/staff-pharmacists/pharmacy-residency-programs/pgy1-program-ambulatory-care-setting/medication-assistance-program-map	Prescription Expense Assistance Prescription Medication Services
MemoryCare Services, MemoryCare	www.memorycare.org	Memory Screening Dementia Management Geriatric Medicine Neuropsychiatry/ Neuropsychology

Memory Loss Education, MemoryCare	www.memorycare.org	Disease/Disability Information
Mission Children's Hospital, Mission Hospitals	www.missionchildrens.org	Hospitals
Mountain Area Family Health Center, Mountain Area Health Education Center	www.mahec.net	Well Baby Care Pregnancy Testing Postpartum Care Prenatal Care Community Clinics Family and Community Medicine Geriatric Medicine General Obstetrics Adolescent Medicine Ambulatory Pediatrics
Mountain Area Women's Center, Mountain Area Health Education Center	www.mahec.net	Pregnancy Testing Midwifery Postpartum Care Prenatal Care Teen Pregnancy Prevention Women's Health Centers General Obstetrics Gynecology Services Maternal and Fetal Medicine
NC Department of Insurance Western Regional Office	www.ncdoi.com	Health Insurance Information/Counseling
North Carolina Pregnancy Exposure Risk Line, Mission Hospital	http://womens.mission-health.org/maternity-services	Disease/Disability Information Teratogenic Counseling
Nurse Family Partnership - Buncombe	www.buncombecounty.org/Governing/Depts/Health/nfp.aspx	Neonatal Care Postpartum Care Prenatal Care
Nutrition/Food/Wellness Education, NC Cooperative Extension - Buncombe County	http://buncombe.ces.ncsu.edu/	Nutrition Education
Nutrition Program/ WIC Program, Buncombe County Department of Health	http://www.buncombecounty.org/Governing/Depts/Health/Nutrition.aspx	Breastfeeding Support Programs Nutrition Education
Nutrition Therapy Services, Mission Hospitals	www.missionhospitals.org	Nutrition Assessment Services Weight Management
Outpatient Care, Charles George Veterans Affairs Medical Center	www.asheville.va.gov	Hospitals
Outpatient Clinic East, CarePartners Health Services	www.carepartners.org	Occupational Therapy Physical Therapy Speech and Language Pathology
Outpatient Clinic North, CarePartners Health Services	www.carepartners.org	Occupational Therapy Physical Therapy Speech and Language Pathology

Outpatient Clinic South, CarePartners Health Services	www.carepartners.org	Occupational Therapy Physical Therapy Speech and Language Pathology
Outpatient Clinic West, CarePartners Health Services	www.carepartners.org	Occupational Therapy Physical Therapy Speech and Language Pathology
Peer Counseling and Advocacy, DisAbility Partners - Western North Carolina	www.disabilitypartners.org	Independent Living Skills Instruction
Pharmacy, Buncombe County Department of Health	www.buncombecounty.org/governing/depts/health	General Pharmacies
Pharmacy, Western North Carolina Community Health Services	www.wncchs.org	Prescription Medication Services Flu Vaccines
Pisgah Wellness Center	www.pisgahvalley.org	Wellness Programs
Planned Parenthood - Western North Carolina	www.pphsinc.org	HIV Testing STD Screening Abortion Referrals Birth Control Pro-Choice Counseling Pregnancy Testing General Sexuality/Reproductive Health Education Gynecology Services
Pregnancy Care and Counseling, Bethany Christian Services - Buncombe County	www.bethany.org	Pro-Life Counseling
Pregnancy Resource Center of Stanly County	www.prcstanly.com	Pro-Choice Counseling Pregnancy Testing
Pregnancy Support, Catholic Social Services - Buncombe County	www.cssnc.org	Pro-Life Counseling
Prenatal Education Series, Mission Hospitals	www.womens.mission-health.org/classes-programs/additional-birth-classes	Childbirth Education
Prescription Assistance, Buncombe County Department of Social Services	www.buncombecounty.org	Prescription Expense Assistance
Primary Medical Care, Western North Carolina Community Health Services	www.wncchs.org	General Physical Examinations Birth Control Pregnancy Testing Postpartum Care Prenatal Care Community Clinics Urgent Care Centers Family and Community Medicine
Project Access, Western Carolina Medical Society	www.projectaccessonline.org	Health Insurance/Dental Coverage
Project EMPOWER, Mount Zion Community Development	www.mtzionasheville.org	Teen Pregnancy Prevention
Project NAF, Mount Zion Community Development	www.mtzionasheville.org	Postpartum Care Prenatal Care

Rainbow in My Tummy, Mountain Area Child and Family Center	www.rainbowinmytummy.com	Nutrition Education
Regional OB/GYN Specialists, Mountain Area Health Education Center	www.mahec.net	Cancer Detection Infertility Treatment Midwifery Prenatal Care Women's Health Centers Breast Care Centers General Obstetrics Gynecology Services Maternal and Fetal Medicine Reproductive Endocrinology
Rehabilitation, Physical Therapy and Sports Medicine, Mission Hospitals	www.missionhospitals.org	Physical Therapy Therapeutic Exercise
Reverse Mortgage Counseling, OnTrack Financial Education and Counseling	www.ontrackwnc.org	Reverse Mortgage Programs
Safe Surrender, Buncombe County Department of Social Services	www.buncombecounty.org	Safe Havens for Abandoned Newborns
Seniors Safe at Home, The Council on Aging of Buncombe County	www.coabc.org	Health Insurance Information/Counseling
Sleep Center, Mission Hospitals	www.mission-health.org/centers-and-services/programs-service/sleep-center	Sleep Disorders Clinics
STD/HIV Clinic, Buncombe County Department of Health	http://www.buncombecounty.org/Governing/Depts/Health/ClinicalServices.aspx#std	HIV Testing STD Screening AIDS/HIV Prevention Counseling
Support Care Teams, CarePartners Health Services	www.carepartners.org	Medical Social Work
Swannanoa Welcome Table, Life Ministries	www.givensestates.org/lifeministries.htm	Medical Equipment/Supplies
Switchboard/Operator, Mission Hospitals	www.mission-health.org	Hospitals
Take Off Pounds Sensibly - Buncombe County	www.tops.org	Weight Management
Telecommunication Equipment, NC Division of Services for the Deaf and Hard of Hearing - Buncombe County	http://www.ncdhhs.gov/dsdhh/	Hearing Augmentation Aids
Three Streams Family Health Center	www.threestreamshealth.org	General Physical Examinations Community Clinics
Tuberculosis Control, Buncombe County Department of Health	www.buncombecounty.org/Governing/Depts/Health/ClinicalServices.aspx#std	Tuberculosis Screening
United Medical Supply	www.umedsupply.com	Medical Equipment/Supplies
Urgent Care North, Sisters of Mercy Urgent Care	www.urgentcares.org	Urgent Care Centers
Urgent Care South, Sisters of Mercy Urgent Care	www.urgentcares.org	Urgent Care Centers

Urgent Care West, Sisters of Mercy Urgent Care	www.urgentcares.org	Urgent Care Centers
Wellness Resource Center, Mission Hospitals	www.mission-health.org/health-and-wellness/preventive-programs-education/mission-wellness-resource-centers	Women's Health Centers
Wheelchair/Seating Clinic, CarePartners Health Services	www.carepartners.org	Mobility Aids
WNC Breastfeeding Center, Mission Hospitals	http://www.missionchildrens.org/hospital-services/breastfeeding-center	Breastfeeding Support Programs
WNC Fall Prevention Coalition, Land-of-Sky Area Agency on Aging	www.landofsky.org/aging.html	Balance Screening
Wound Therapy Center, Mission Hospitals	www.mission-health.org/centers-and-services/programs-service/wound-healing-hyperbarics	Wound Clinics
Youth Fit for Life, YMCA of WNC	www.ymcawnc.org	Wellness Programs

APPENDIX D – LISTENING SESSION RESULTS

In 2011, Buncombe County Health & Human Services (HHS) expressed their commitment to conduct a community-driven assessment to: 1) gather information from Buncombe County residents about the strengths and needs of their communities that could be used to inform county-level decisions and improve accessibility of services, and 2) builds trust and enhance the relationship between the county's Health and Human Services departments and the communities they serve. To this end, HHS hired two outside consulting groups (Sparrow Research Group and Searchlight Consulting) to engage community residents in a Community Listening Project to "Tell us what you think!" The collaborative team hired seven Community Partners (CPs) to serve as community liaisons, using their expertise about their local communities to help shape and facilitate the primary data collection process.

To collect data that would be both in-depth, and engage a large number of community residents, three primary data collection methods were used: 1) six 90-minute community listening sessions, with 45 participants total, conducted throughout Buncombe County, 2) 297 brief community resident surveys collected by CPs, and 3) four telephone interviews with service providers, conducted by Mars Hill students. The purpose of the data collection was to identify: community strengths, existing services and support systems, information sources, community needs and gaps in services, and suggestions for strengthening the county-wide system of help and support. Key insights and recommendations by topic area are outlined below. Of note, while common themes emerged, there was considerable variability in opinions and suggestions between groups including by region, income, and age; such differences are detailed in the report.

Community Strengths.

Learning what residents view as their community's strengths highlights the values and positive attributes that should be built upon, strengthened, and reinforced. When asked for the greatest strength in their neighborhood, residents most commonly said: convenience (to transportation, stores), that their neighborhood is calm and peaceful, social support (neighbors know and watch out for each other), safety, the school system, and churches. Of note, considerable variability among communities was highlighted (e.g., people in South Buncombe, where the Airport Road shopping is located, chose "close to stores" as their top strength; in contrast, "close to stores" was ranked 10th in a region with fewer stores). Information like this can be used to tailor support and outreach to individual communities.

Existing Services and Support Systems.

Learning where residents are already receiving services and support sheds light on where information may be shared, and services and resources provided. Community residents seek help and support from a wide range of people and organizations. For most types of support including financial and emotional support, people most often turn to friends and family. However, for some types of support, especially tangible support (e.g., financial assistance, food, help with bills), people seek help from local non-profit organizations, as well as churches. Of note, when people need help getting access to care for a health issue, they often look for help from government services. While people would prefer to get assistance in their neighborhood, it is necessary for many to seek help outside their community. While some get assistance from certain organizations due to necessity and convenience, many choose to seek help from organizations whose staff are especially helpful, do not judge, are positive, and speak their language (e.g., Spanish). This emphasizes the importance of the relationship between clients and staff, a point highlighted throughout the full report. Residents were also asked where they spend their time outside of home and work. Many spend time at the home of friends or relatives, shopping, at church, and at parks – providing insight into some other possible venues for information sharing or service provision. In specific communities, particular places (e.g., stores) were named, which helps provide starting points for more community-specific efforts.

Information.

Lack of information was identified as a key barrier to receiving services, underscoring the importance – and the difficulty – of conveying information. Residents obtain information about help or support through a variety of venues – most often, word of mouth (usually from friends and family), community organizations, church, and media (including the internet, radio, television, and newspapers); residents also obtain information from 211, from bulletin boards in stores, and in libraries and schools. In the survey, residents said they would find information especially useful if it came via mail (a letter/ flyer or welcome pack) or through a local television announcement, on a website or newspaper ad, or in church (of note, the list did not include "word of mouth" or "community organization.") Residents suggested that the best ways to let them know about places, organizations, services, and people in their neighborhood that could help meet their needs were: 1) a "one stop shop", centralized directory of available services (online and in print), 2) strengthened coordination, communication, and cross-referencing between and among different organizations and agencies, 3) strengthened coordination and

communication within agencies (e.g., HHS), 4) for organizations to convey information through trusted community organizations, and 5) to provide information in Spanish.

Community needs/ gaps in services.
Community residents and service providers identified many community needs and gaps in services, some which were relevant county-wide, and others (detailed in the full report) which were community-specific (by geography, and also, specific to the Latino community). Better access to transportation and bus lines emerged as the most frequently mentioned need, as well as a prominent barrier to receiving help and support. Other needs mentioned the most across various communities were: parks and recreational activities, health and medical services (e.g., dental care, counseling for children), sidewalks, housing (for homeless, assistance with rent), better police presence, services for the elderly, and community activities. Several barriers to services were identified, and for some of these (a lack of information, rude or impersonal staff, stigma of services, compartmentalization of services, lack of childcare, schedule of services), residents and service providers provided recommendations to counter such barriers.
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Suggestions for improving health and human services:
Community residents and service providers provided important recommendations to improve the county-wide system of help and support. Suggestions for HHS and other community-based entities that provide health and human services were grouped into five main categories and include:
• Improve service provision:
1) invest in staff training,
2) strengthen service coordination,
3) provide additional programs and more specialized assistance for seniors.
• Facilitate eligibility determination. 1) create multiple access points to eligibility determination and other services that do not require face-to-face contact, 2) locate kiosks within DSS and throughout the community, 3) use online and telephone eligibility screening.
• Improve access to services. 1) improve transportation to services, 2) improve access to preventative services, mental health care services, and prescriptions for those who fall in the "insurance gap", 3) extend hours, shorten wait times, and provide Spanish translation and interpretation.
• Locate services near communities: 1) create Social Services outbranch, satellite, "hub" stations with direct assistance and eligibility determination, 2) partner with existing nonprofit organizations, 3) provide better health care closer to communities.
• Strengthen information dissemination: 1) get more information out to residents about services and resources, 2) provide information about other services when people do not qualify, 3) make information sources more user-friendly.

APPENDIX E - COMMUNITY HEALTH ASSESSMENT STEERING COMMITTEE MEMBERS

2012 WNC Healthy Impact Steering Committee:

Allison Grindstaff	Blue Ridge Regional Hospital
Becky Barr	Macon County Health Department
Carmine Rocco	Haywood County Health Department
Craig James	Highlands-Cashiers Hospital
Dave Gardner	NC Center for Health and Wellness at UNC Asheville
Deana Stephens	Madison County Health Department
Gaylen Ehrlichman	Buncombe County Health Department
Gibbie Harris	Buncombe County Health Department
Graham Fields	Park Ridge Health
Jan Shepard	Madison County Health Department
Janice Lato	WNC Health Network
Janice Patterson	Clay County Health Department
Jim Bruckner	Macon County Health Department
Linda Charping	Henderson County Health Department
Marian Arledge	Buncombe County Health Department
Jimmy Hines	RPM Health District - McDowell
Megan Geiger	Mission Hospital
Miriam Schwarz	Western Carolina Medical Society
Paula Carden	Jackson County Health Department
Steffie Duginske	Haywood County Health Department
Stephanie Kiser	Mission Hospital
Teresa Reynolds	MedWest
Teri Morris	Cherokee Indian Hospital
Tom Bridges	Henderson County Health Department
Tricia Stauffer	Henderson County Health Department

2010 CHA Steering Committee Members:

Tony Baldwin – Buncombe County Schools
Ron Bradford – Smart Start of Buncombe County
Tom Britton – Neil Dobins Center
Joan Brown – community resident
Debbie Bryant – Buncombe County School Health Education Coordinator
Tracey Buchanan – Care Partners
Ron Curran – WNCAP
Steve Duckett – NC Cooperative Extension
Hank Dunn – AB Tech Community College
Lance Edwards – United Way of Buncombe County
Don Farrow – Black Mountain Health Initiative
Carolyn Fryberger – Town of Black Mountain
Donita Flemming – Mission Hospital
Mike Goodson – Buncombe County Board of Health
Belinda Grant – Mt. Zion Community Development Center
Wanda Greene – Buncombe County Government - County Manager
Nelle Gregory – BC Dept of Health, School Health Advisory Council (co-Chair)
John Hayes – NAACP
Linda Hemstreet – Mission Hospital
Connie Jackson – Buncombe County Schools
Allen Johnson – Asheville City Schools
Tim Johnston – Sisters of Mercy Services Corporation
Holly Jones – YWCA, Buncombe County Commissioner
Allison Jordan – Children First
Stephanie Kiser – Mission Hospital
Christine Laucher – Youth Empowered Solutions & Question Y
Michael Leahey – Asheville HUB
Doris Loomis – Biltmore Forest Commissioner
Rick Lutovsky – Asheville Area Chamber of Commerce
Joesph Martinez – First, Inc.
David McClain – Buncombe County Board of Health
Bill McElrath – Buncombe County Board of Health
Joe McKinney – Land of Sky Regional Council
Mike Meyer – Black Mountain resident
Susan Mims – Mission Children's Hospital
Linda Morgan – Buncombe County Board of Health
Bill Murdock – Eblen Charities
Molly Nicholie – Asheville Sustainable Agriculture Project (ASAP)
Claudia Nix – Liberty Bikes
Stephanie Novack – Wellness Council of America
Keith Ogden – Hill Street Baptist Church
Richard Oliver – Chair, Buncombe County Board of Health

Beth Palien – Asheville City Schools
Scott Parker – WNC Community Health Services
Teck Penland – MAHEC
Carol Peterson – Buncombe County Board of Health, County Commissioner
Jim Pitts – National Association for Mental Illness
Keith Ray – NC Center for Health & Wellness
L.C. Ray – One Youth at a Time
Elaine Robinson – Asheville Buncombe Institute of Parity Achievement (ABIPA)
2010 Buncombe County Community Health Assessment
Scott Rogers – Asheville Buncombe Community Christian Ministries
Kitty Schaller – MANNA FoodBank
Charlie Schoenheit – Western Highlands Network
Miriam Schwarz – Buncombe County Medical Society
Dottie Sherrill – Town of Weaverville
Mandy Stone – Buncombe County Government, Asst County Manager & DSS Director
Mary Bett Stoud – Town of Weaverville
Susan Sutherland – Mission Hospital
Susanne Swanger – Buncombe County Board of Health
Fran Thigpen – Buncombe County Government, Child Care Services, Parks & Rec
Jennifer Tyner – Access II Care
Jerry Vehaun – Woodfin Mayor, Buncombe County Emergency Services
Paul Vest – YMCA
Nancy Walker – City of Asheville
Jennifer Wehe – Access II Care
John Whitner – Board of Health
Jason Young – Town of Woodfin
Winnie Ziegler – Board of Health