Cherokee County Community Health Assessment (CHA)

December 3,

2012

Cherokee County Health Department

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NCPH
North Carolina Public Health

CHEROKEE COUNTY COMMUNITY HEALTH ASSESSMENT

December 2012

ACKNOWLEDGEMENTS

This document was developed by Cherokee County Health Department (CCHD), in partnership with Murphy Medical Center as part of a local community health assessment process. We would like to thank several agencies and individuals for their contributions and support in conducting this health assessment:

Special thanks to Heather Gates and her team for coordinating the regional effort, including but not limited to survey development, data collection, facilitating workgroup meetings, and encouraging community support.

Jim Higgins, CCHD Director	*CHA Team*
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Current Local Partners:

Cherokee County Board of Health
Cherokee County City Management
Cherokee County Commissioners
Cherokee County Health Department
Cherokee County Schools
Cherokee County Senior Services Director
Cherokee County Social Services
Coalition for Safe and Drug Free Cherokee County
Economic Development Director
Murphy Medical Center
Tri-County Community College
Town of Murphy

Current Regional Partners:

Murphy Medical Center	Buncombe County Department of Health
Angel Medical Center	Clay County Health Department
Blue Ridge Regional Hospital	Graham County Health Department
CarePartners Health Services	Haywood County Health Department
Charles George VA Medical Center	Henderson County Department of Public Health

Cherokee Indian Hospital
Highlands-Cashiers Hospital
McDowell Hospital
MedWest Health
Mission Hospital
Margaret R. Pardee Memorial Hospital
Park Ridge Health
Rutherford Regional Medical Center
St. Luke's Hospital
Transylvania Regional Hospital
Jackson County Department of Public Health
Macon County Public Health Center
Madison County Health Department
Rutherford-Polk-McDowell Health District
Swain County Health Department
Toe River Health District
Transylvania County Department of Public Health
NC Center for Health and Wellness at UNC Asheville
Western NC Partnership for Public Health
Western Carolina Medical Society
WNC Health Network

Our community health assessment process and products were also supported by technical assistance, financial support, and collaboration as part of WNC Healthy Impact, a partnership between hospitals and health departments in western North Carolina to improve community health. www.WNCHealthyImpact.com

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EXECUTIVE SUMMARY

Areas of Celebration

AREA 1: Cherokee County Health Department added mental health to their services as well as a new health center in Andrews, NC.
AREA 2: Cherokee County is a safe place to live with a low crime rate and even lower murder rates than region and state rates. There are also support resources in place for individuals and families through health education, community programs, and community coalitions with programs for diabetes, substance abuse and tobacco prevention/ cessation.
AREA 3: Cherokee County has much potential for growth and development.

Areas of Concern:

AREA 1: The top 3 issues in Cherokee County ranked as being of highest priority by the 2012 Community Health Assessment (CHA) team were:

1. Chronic Disease
2. Tobacco Use
3. Physical Activity and Nutrition

AREA 2: Important community social issues include: lack of affordable health care/insurance, underemployment/lack of well-paying jobs, and lack of quality health care providers. There will also be a substantial increase in the numbers of Cherokee County residents aged 65 and older. This rapidly aging population will have a large impact on the growth of our community and on its economic, social and healthcare infrastructure.

AREA 3: The top 2 concerns of county residents according to the WNC Healthy Impact Survey were Economy/ Unemployment and Access to Healthcare Services.

Overview of CHA Purpose and Process

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 the *process* and *document* provide a basis for prioritizing the community's health needs, and for planning to meet those needs. 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.

List of Health Priorities

Cherokee County's 2012-2016 Health Priorities

After examining the data that was generated during the Community Health Assessment (CHA) process, listening to input from community members, and considering (the goals of) Healthy North Carolina 2020, three priority areas have been chosen by the CHA Team. By focusing on these three areas during 2012-2015, Cherokee County residents and organizations will move forward toward the overarching goal of improving health.

Priority	**Data and trends that support priority**
Chronic Disease	Pg 41
Tobacco Use	Pg 37, 91-92, 127-128
Physical Inactivity and Nutrition	Pg 71-76, 82-87

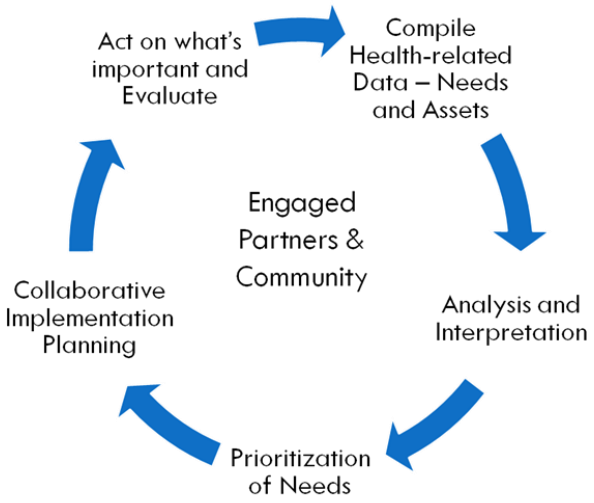
Next Steps

Cherokee County, along with partners in WNC Healthy Impact, will move forward in planning and determining how we can most effectively impact the health of our community. We will be collaborating with Murphy Medical Center and our partners on collaborative planning to create a Community Health Improvement Plan (CHIP). This phase of the process will begin early 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.



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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. Cherokee County is included in Murphy Medical Center community for the purposes of community health improvement and investment, and as such Murphy Medical Center 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

See 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, 200 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:

- Murphy Medical Center and Cherokee County Health Department took part in the development of county specific questions to be included in the WNC Health Impact Survey.
- Conducted State of the County meetings to discuss tobacco and obesity in particular and talk about forming committees for those issues.
- Had a listening session type forum for Board of Health members to discuss their perception on issues within the community.
- Constant communication between Murphy Medical Center and Cherokee County Health Department about how to possibly address these health/environmental issues.

Priority Setting

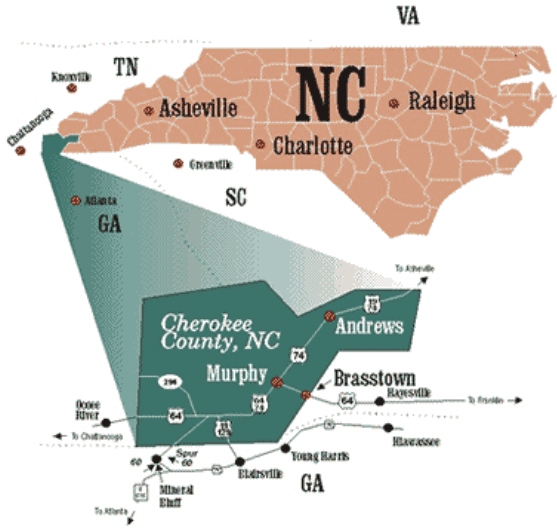
Details on our county's priority setting process and outcomes are included in Chapter 9 of this document.

CHAPTER 2 – DEMOGRAPHIC AND SOCIOECONOMIC PARAMETERS

Location and Geography

Cherokee County is located in the southwestern most corner of North Carolina and borders Graham, Clay and Macon Counties in North Carolina, Polk and Monroe Counties in Tennessee, and boarders Fannin and Union Counties in Georgia. The county is within two hours driving distance from four major metropolitan cities, Asheville, Atlanta, Knoxville and Chattanooga. There are two municipalities, Murphy and Andrews, one incorporated community, and numerous other small unincorporated communities in Cherokee County. Murphy, which is the County Seat, has a population of 1,568 within the city limits and Andrews with a population of 1,602 per most recent census. Some of the other smaller communities in Cherokee County include Aquone, Culberson, Ranger, Hiwassee Dam, Unaka, Hanging Dog, Peachtree, Marble, Martins Creek, and Topton.

Cherokee County encompasses 455 square miles or 300,100 acres. Of this total area, 92,363 acres are owned by the US Forest Service, 8,700 acres are covered by lakes, and 6,000 acres are administered by the Bureau of Indian Affairs for the Eastern Band of Cherokee Indians. Other federal land is owned by The Tennessee Valley Authority. The majority of acreage in the county is privately owned with over 1,900 farms of various sizes.



The county has a diverse landscape. Elevations range from approximately 1,000 feet to nearly 5,000 feet above sea level. There are three major river valleys in the county. The Notley River flows into the south central portion of the county from Union County, Georgia. The Hiwassee River also flows from the south into the county. The river's headwaters are in Towns County, Georgia. The river then flows through Clay County, NC, which borders Cherokee County to the east. The Hiwassee River feeds water to Lake Chatuge in Clay County and then flows to Mission Dam in Cherokee County before joining the third major river in the county. The third waterway is The Valley River. The Hiwassee and Valley Rivers converge in the city limits of Murphy. The rivers flow into the first of two major TVA impoundments located in Cherokee County. The 6090 acre Hiwassee Reservoir which offers 180 miles of shoreline was formed by the construction of what was at that time the highest overspill dam in the world, Hiwassee Dam. The Dam is 307 feet high and stretches 1376 feet across the Hiwassee River basin. The reservoir has a storage capacity of

205,590 acre-feet and is capable of generating of 185,000 kilowatts of electricity. Below this dam is a second impoundment, Appalachia reservoir. This is a deep, cool water reservoir encompassing 1,100 acres. Both of these reservoirs have very limited private shoreline development and are surrounded by the Nantahala Forest.

History

Cherokee County was formed in 1839 from a portion of Macon County following the removal of the Cherokee in 1838. The county was named in honor of the Cherokees that who were forced to leave North Carolina and marched on the "Trail of Tears" to Oklahoma. Some of the Cherokee were able to escape the Trail of Tears and hid out in the mountains of Western North Carolina. The descendents of some of the Cherokee now live on the Reservation for the Eastern Band of the Cherokee in Cherokee, North Carolina.

Fort Butler, which was an internment camp during the removal of the Cherokee Indians, was located on the Hiwassee River in what is now known as Murphy. Murphy was named in honor of Archibald Murphey, a former legislator and advocate of public education. Cherokee County was originally made up of 938 acres that were taken from the Cherokee Indians. Clay County and Graham County were both formed from portions of this land in 1861 and 1872 respectively. The census of 1840 showed a population of 3,427 citizens and the 1860 census showed 9,166 citizens including 519 slaves.

Cherokee County was very rich in natural resources and logging became the area's first industry. The rivers in the area were used to ship the logs to sawmills as well as to receive supplies from other areas. In 1887, the first railroad entered Cherokee County from the southwest into Culberson and reached Murphy in 1888 and was known as the Louisville and Nashville. Another railroad entered Cherokee County from the east in 1890 through Andrews and was known as the Southern. The railroads allowed the county's resources to be exported throughout the country and other industries to move in. The railroads also brought in tourists. Tourism remains a huge industry in Cherokee County today. Cherokee County began getting paved streets in 1917 and the first paved road from Murphy to Georgia opened in 1922.

The Depression, which hit in the 1930's, resulted in the development of the Tennessee Valley Authority (TVA). The development of the TVA led to the building of roads throughout the Appalachia region as well as hydroelectric dams. It also provided a large number of jobs for residents in this area. In 1935 the TVA began construction of the Hiwassee Dam and completed it in 1940. This created the Hiwassee Lake which covers over 6,000 acres. Cherokee Lake, a 20 acre lake was also created by the TVA in 1939 for use as a fish hatchery to stock nearby reservoirs. The lake is now operated by the U. S. Forest Service as a day-use recreation area. In the past and even today, Cherokee County residents have a strong bond with the land with the many lakes, farms, fishing streams, hiking trails and camping areas.

Population

Understanding the growth patterns and age, gender and racial/ethnic distribution of the population in Cherokee 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 Cherokee County is 27,444. In Cherokee County, as region-wide and statewide, there are a slightly higher proportion of females than males (51.4% vs. 48.6%).

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

Geography	Total Population (2010)	# Males	% Males	# Females	% Females
Cherokee County	27,444	13,341	48.6	14,103	51.4
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 Cherokee County 22.9% 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 Cherokee County is 48.1, while the regional mean median age is 44.7 years and the state median age is 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
Cherokee County	48.1	1,377	5.0	4,465	16.3	15,318	55.8	6,284	22.9
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, Cherokee County is less diverse than either WNC or NC as a whole, except for a sizeable population of Native Americans (1.3%). In Cherokee County the population is 93.6% white/Caucasian and 6.4% 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 2.5% in Cherokee County, 5.4% region-wide, and 8.4% statewide (Table 3).

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)
Cherokee County	93.6	1.3	1.3	0.5	0.0	0.8	2.5	2.5
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 Cherokee Count grew by 11.5% and the population of WNC grew by 13.0% (Table 4). The rate of growth in the county is projected to slow dramatically over the next 10 years as well as in the decade following that. These future county decadal growth rates of approximately 1.2% are much smaller than the double-digit (or near double-digit) 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
Cherokee County	11.5	1.3	1.2	15.7
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 Cherokee County, lower than the comparable mean WNC and NC rates to begin with, decreased steadily from 10.6 to 9.1 births per 1,000 persons over the five aggregate periods between 2002-2006 and 2006-2010 (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 14.2, 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
Cherokee County	10.6	10.1	9.9	9.8	9.1
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

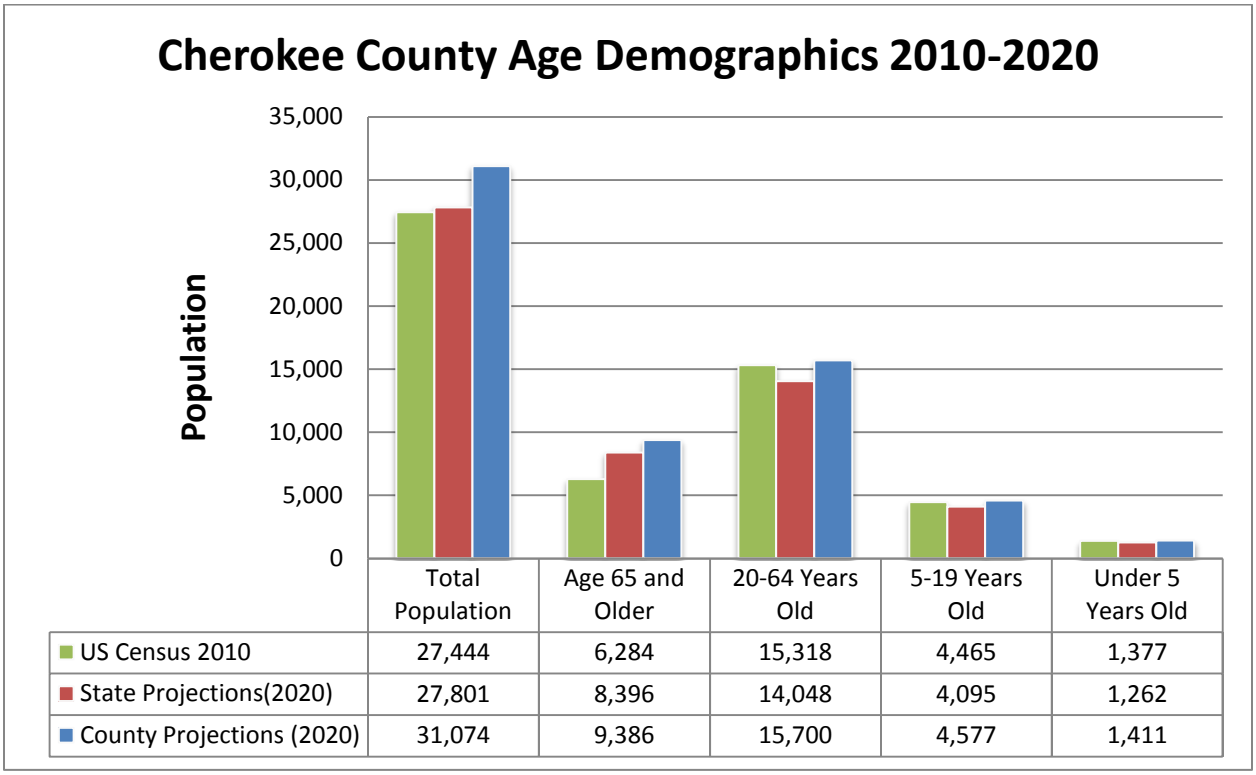
As noted previously, the age 65-and-older segment of the population represents a larger proportion of the overall population in Cherokee County and WNC than in the state as a whole. In terms of future health resource planning, it will be important to understand how this segment of the population, a group 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 Cherokee County between 2010 and 2030 is 4.3% for the 65-74 age group, 80.6% for the 75-84 age group, and 135% for the 85+ age group. In WNC as a whole, the 65-74 age groups 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+ *
Cherokee County	22.9	13.9	6.7	2.3	30.2	16.3	10.4	3.5	32.0	14.5	12.1	5.4
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

Figure 1 was composed by using data from the County Compound Growth Rate, State Center for Health Statistics, NC-Office of State Budget and Management, and the US Census. By taking the population distribution percentages from Table 2 and combining them with the projections from Table 6 we composed the State Projections (2020). The County Projections (2020) were derived from the Compound Growth Rate using past year's growth rates. This figure illustrates how the population of age 65 and older is going to increase dramatically over the coming decade. This will be crucial to take into consideration in terms of health resource planning and community planning to allow ample opportunities for this rapidly growing age group. Figure 6 also shows the two possibilities of change for the 20-64 years old age range, the state projections account for the dip in population that happened in 2011. The county projections are basing their numbers on the promise of economic development mainly a level II casino as well as an increase in tourism opportunities. This figure also depicts the plateau and slight decrease in the 0-10 years of age category, which is due to the continuing decline in the birth rate of Cherokee County.

Figure 1. Population and Age Demographics (2010-2020)



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 Cherokee County than in WNC (17.5% vs. 17.2%) but smaller than the comparable figure for NC as a whole (17.5% 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. #	%
Cherokee County	11,497	2,015	17.5	146	1.3	568	4.9
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 Cherokee County, 59.3% 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. #	%
Cherokee County	403	239	59.3
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 NC or the US as a whole. Calculating from figures in Table 9, veterans make up 13.5% of the civilian population in Cherokee County, compared to 12.4% in the WNC region, 10.8% statewide, and 9.9% nationally. In Cherokee County, approximately 47% 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
Cherokee 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.

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, Cherokee County had the same proportion as WNC as a whole of residents age 25 or older possessing a high school diploma or its equivalent (32%), but an approximately 14% higher proportion than NC as a whole (28.2%). On the other hand, the overall proportion of the Cherokee County population with *more* than a high school diploma or equivalency is smaller than for NC as a whole. Although the county has a 10% higher proportion of persons age 25 and older with some college than does the state (22.9% vs. 20.9%), at the bachelor's and greater level the proportional attainment in the county (15.9%) is 21% smaller than the comparable mean regional figure (20.2%) and 39% smaller than 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
Cherokee County	19,326	33.2	22.8	14.9	20310	32.1	22.9	15.9
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

For each of the last four years of the period cited in Table 11, the high school drop-out rate for Cherokee County public schools was lower than the comparable mean rate for the 17 school districts in WNC (one per county plus Asheville City Schools) and lower than the rate for all NC public schools as well.

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
Cherokee County	54	4.57	48	3.98	38	3.18	25	2.15	30	2.57
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. In Cherokee County the graduation rates for all subpopulations exceeded the mean graduation rate for the 17 school districts in WNC, as well as the comparable rates for NC as a whole. The graduation rate for the population of economically disadvantaged students in Cherokee County is 4.3 points lower than the county's overall graduation rate. At the region- and state-level the graduation rate for economically disadvantaged students is approximately 6.7 points lower than the comparable overall graduation rates.

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
Cherokee County	294	86.1	85.6	86.5	81.8	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), the median *household* income in Cherokee County was $38,144, compared to a mean WNC median household income of $37,815, a difference of $329 *more* in Cherokee County. The median household income in Cherokee County was over $7,300 lower than the comparable state average for both the periods cited in Table 13, and the gap widened by $65 from 2005-2009 to 2006-2010.

As calculated from the most recent estimate (2006-2010), the median *family* income in Cherokee County was $44,949, compared to a mean WNC median family income of $47,608, a difference of $2,659 *less* in Cherokee County. The median family income in Cherokee County was more than $11,200 *lower* than the comparable state average for both periods cited in Table 13, although the gap narrowed by $436 between 2005-2009 and 2006-2010.

Table 13. Median Household and Median Family Income
5-Year Estimates (2005-2009 and 2006-2010)

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
Cherokee County	37,708	-7,361	43,889	-11,640	38,144	-7,426	44,949	-11,204
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 individuals and families) whose 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.)

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 level, 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 Cherokee County was 14.6% in the 2005-2009 period, but fell to 13.2% in the 2006-2010 period; this change represents a decrease of 9.6% in the percent of persons living in poverty. In both periods cited, the poverty rate in Cherokee 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 Cherokee County was 40.1% in the 2005-2009 period and fell to 38.6% in the 2006-2010 period, a decrease of 3.7%. 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
Cherokee County	25,753	3,768	14.6	10,331	26,976	3,572	13.2	10,418
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 Cherokee County the 2005-2009 poverty rate for young persons (16.3%) was 11.6% higher than the overall rate (14.6%), and the 2006-2010 poverty rate for young people (14.3%) was 8.3% higher than the overall rate (13.2%). 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 Cherokee County *decreased* 12.3%, from 16.3% to 14.3%.

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
Cherokee County	5,247	853	16.3	5,343	766	14.3
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 Cherokee County, the percentage of *rental* housing units costing more than 30% of household income was 24.4% in the 2005-2009 period and 30.8% in the 2006-2010 period, an increase of 26.2%. 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 Cherokee County costing more than 30% of household income was 37.1% in 2005-2009 and 35.0% in 2006-2010, a decrease of 5.7%. 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 WNC and NC as a whole a higher proportion of renters than mortgage holders spend 30% or more of household income on housing costs. In Cherokee County, the reverse appears to be the case.

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%
Cherokee County	2,031	24.4	1,928	30.8	4,333	37.1	4,649	35.0
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.

Employment

Table 17 summarizes employment by sector. In Cherokee County the five sectors employing the greatest proportions of the workforce are, in descending order: (1) Health Care and Social Assistance (19.38%), (2) Retail Trade (16.83%), (3) Educational Services (11.34%), (4) Accommodation and Food Service (9.57%), and (5) Manufacturing (9.49%). 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	Cherokee County		WNC	NC
	Avg. No. Employed	% Total Employment in Sector**	% Total Employment in Sector**	% Total Employment in Sector**
Agriculture, Forestry, Fishing & Hunting	*	n/a	0.58	0.74
Mining	*	n/a	0.24	0.08
Utilities	48	0.62	0.36	0.35
Construction	376	4.88	4.75	4.53
Manufacturing	731	9.49	11.28	11.33
Wholesale Trade	118	1.53	2.35	4.38
Retail Trade	1,296	16.83	13.86	11.66
Transportation & Warehousing	61	0.79	2.53	3.27
Information	108	1.40	1.35	1.82
Finance & Insurance	200	2.60	2.25	3.88
Real Estate & Rental & Leasing	79	1.03	0.93	1.23
Professional, Scientific & Technical Services	514	6.68	3.32	4.96
Management of Companies & Enterprises	15	0.19	0.49	2.01
Administrative & Waste Services	267	3.47	4.90	6.53
Educational Services	873	11.34	9.19	9.58
Health Care & Social Assistance	1,492	19.38	18.52	14.45
Arts, Entertainment & Recreation	28	0.36	1.73	1.58
Accommodation & Food Services	737	9.57	11.43	8.95
Public Administration	641	8.32	7.18	6.18
Other Services	116	1.51	2.76	2.49
Unclassified	*	n/a	0.00	n/a
TOTAL ALL SECTORS	7,700	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 Cherokee County ($32,414) is $270 higher than the comparable figure for employees region-wide ($32,144) but $14,358 lower than the average annual wage statewide ($46,772).

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

Sector	Average Annual Wage per Employee		
	Cherokee County	WNC	NC
Agriculture, Forestry, Fishing & Hunting	n/a	$23,145	$28,752
Mining	n/a	41,662	45,828
Utilities	$90,115	72,196	76,552
Construction	30,948	31,190	41,316
Manufacturing	33,017	38,443	52,613
Wholesale Trade	37,644	36,182	61,194
Retail Trade	20,908	22,109	24,650
Transportation & Warehousing	42,192	39,117	43,400
Information	29,401	38,682	63,833
Finance & Insurance	40,744	42,881	75,088
Real Estate & Rental & Leasing	25,059	24,051	38,476
Professional, Scientific & Technical Services	32,764	36,584	66,951
Management of Companies & Enterprises	33,697	43,518	88,763
Administrative & Waste Services	21,660	25,753	30,258
Educational Services	32,753	32,604	39,787
Health Care & Social Assistance	33,014	32,843	42,811
Arts, Entertainment & Recreation	14,031	20,936	28,474
Accommodation & Food Services	12,701	14,424	14,877
Public Administration	32,255	33,818	43,641
Other Services	20,545	24,660	28,182
Unclassified	n/a	12,056	n/a
TOTAL ALL SECTORS	$32,414	$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 Cherokee County was significantly higher 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
Cherokee County	6.2	9.2	15.5	14.9	13.8
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 Cherokee 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.

Data in Table 20 indicate that the index crime rate in Cherokee County was higher than the mean WNC index crime rate from 2001 through 2005 and again in 2008. 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
Cherokee County	3,321.9	3,083.7	3,052.9	3,080.4	2,846.0	632.5	n/a	2,879.6	2,295.6	---[a]
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

[a] – Denotes only incomplete data available

Table 21 separates the violent crime rate from the overall index crime rate for the same period cited above. As with overall index crime, the violent crime rate in Cherokee County was higher than the comparable mean WNC rate but lower than the state rate for the period from 2001 through 2005. Violent crime statistics for the county post-2005 are erratic, due to some missing data, but the rate appears to have fallen significantly. 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, seven of them in Cherokee 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
Cherokee County	240.2	261.7	326.2	435.5	326.3	65.6	n/a	190.5	186.0	---[a]
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

[a] – Denotes only incomplete data available

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 Cherokee County were higher than the comparable 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
Cherokee County	3,081.6	2,822.0	2,726.7	2,644.9	2,519.8	566.9	n/a	2,689.1	2,109.6	---[a]
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

[a] – Denotes only incomplete data available

Sex Offenders

Cherokee County also has a higher per capita rate of Registered Sex Offenders versus the State Average according to the North Carolina Department of Justice. There are an estimated 21 Sex Offenders per 10,000 people in Cherokee County. The state average is 18 per 10,000 people and the high rate of Registered Sex Offenders in Cherokee County reflects a need for more mental health resources to provide rehabilitation services to improve this problem.

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 Cherokee 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	
Cherokee County	80	79	31	53	64	29	81

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

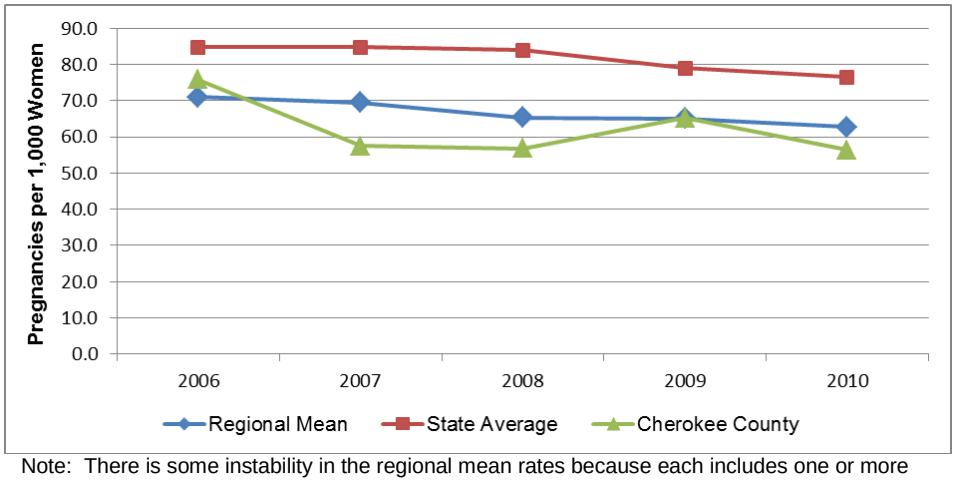
The following definitions and statistical conventions will be helpful in understanding the data on pregnancy:

- 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

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"). Figures 2 and 3 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 2 illustrate that the pregnancy rate for women ages 15-44 in Cherokee County has been lower than the comparable state rate and equal to or lower than the mean WNC rate over most of the period cited. The pregnancy rates in all three jurisdictions decreased between 2006 and 2010, by 25.6% in Cherokee County, by 11.6% in WNC, and by 9.9% in NC. The 2010 pregnancy rate was 56.4 in Cherokee County, 62.7 in WNC, and 76.4 in NC.

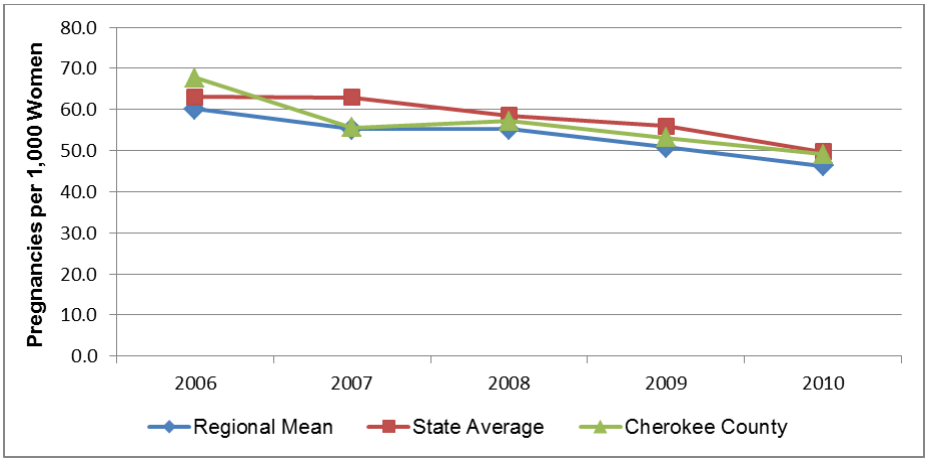
Figure 2 – Pregnancy Rate Ages 15-44, Pregnancies per 1,000 Women (Single Years, 2006-2010)



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

Data in Figure 3 illustrate that the pregnancy rate for teens (ages 15-19) in Cherokee County has been between the comparable WNC and NC rates over most of the period cited. Note that the teen pregnancy rate in all three jurisdictions decreased between 2006 and 2010, by 27.5% in Cherokee County, by 22.9% in WNC, and by 21.2% in NC. The 2010 teen pregnancy rate was 49.1 in Cherokee County, 46.3 in WNC, and 49.7 in NC.

Figure 3 – Pregnancy Rate Ages 15-19, Pregnancies per 1,000 Women (Single Years, 2006-2010)



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 25 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 Cherokee County was significantly higher than the comparable mean percentages for WNC, and 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 Cherokee County, WNC, and NC all improved over the period cited, by 5.5% in Cherokee County, by 8.0% in WNC, and by 14.7% in NC.

Table 25. 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	
	#	%	#	%	#	%	#	%	#	%
Cherokee County	410	30.8	419	30.7	410	31.1	396	30.2	382	29.1
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 26 shows data summarizing utilization of prenatal care during the first three months of pregnancy. The percent of births in Cherokee County that included early prenatal care, once higher than both the mean figure for WNC as well as the total for NC as a whole, has fallen dramatically over time, to a point well below both the WNC and NC percentages. Overall, the Cherokee County percentage fell from 89.6% in 2001-2005 to 69.0% in 2005-2009, a decrease of 77%. A dramatic shift such as this can sometimes be traced to a serious new access issue, such as a prenatal clinic closing, a provider leaving practice, or widespread lack of insurance coverage. The data source consulted for this information does not explain unusual data patterns.

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.

Table 26. 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	
	#	%	#	%	#	%	#	%	#	%
Cherokee County	1,193	89.6	1,200	87.9	1,123	85.2	1,012	77.1	907	69.0
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 27 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 Cherokee County over the time span from 2002-2006 through 2006-2010, low birth weight data demonstrated some variability, but county percentages were consistently higher than comparable figures for both the region and the state.

Table 27. Low-Weight Births (Five-Year Aggregates, 2002-2006 through 2006-2010)

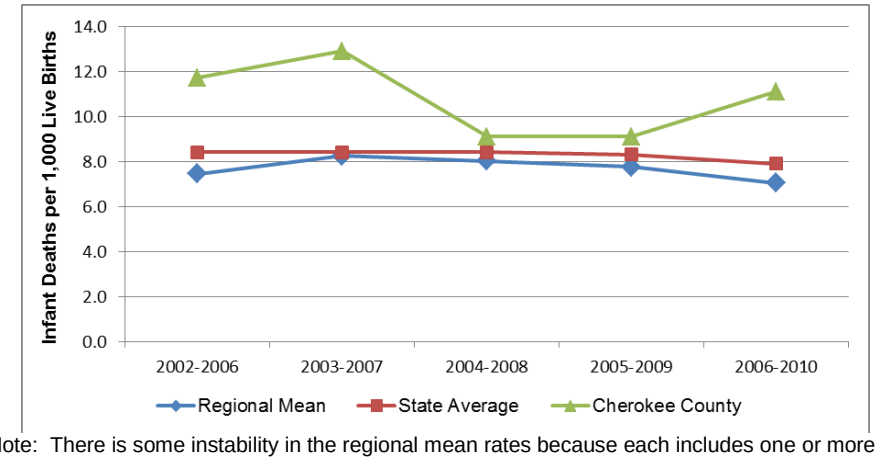
Geography	2002-2006		2003-2007		2004-2008		2005-2009		2006-2010	
	#	%	#	%	#	%	#	%	#	%
Cherokee County	142	10.4	145	11.0	138	10.5	129	9.8	130	10.3
Regional Total	3,447	8.2	3,473	8.4	3,467	8.3	3,434	8,2	3,373	8.2
State Total	54,991	9.1	56,541	9.1	57,823	9.1	58,461	9.1	58,260	9.1

Infant Mortality

Infant mortality is the number of deaths of infants under one year of age per 1,000 live births. Figure 4 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 has recently begun to decrease. After hovering near 8.5 for several years, the state's infant mortality rate in the most recent aggregate period (2006-2010) was 7.9.The mean infant mortality rate for WNC has been lower than the state rate, and appears to be trending in the right direction. While the infant mortality rate for Cherokee County plotted in Figure 4 appears higher than both the comparable WNC and NC rates, it should be noted that all five of the plotted rates are unstable due to small numbers of events (n=12-17 per aggregate period). The large changes from one period to another may be attributable to those unstable rates.

Figure 4. 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

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.

Leading Causes of Death

Table 28 compares the mean rank order of the 15 leading causes of death in Cherokee 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 Cherokee County differ in rank order from the comparable lists for WNC or NC, most notably in a higher county placement for suicide and unintentional motor vehicle injuries. In Cherokee County the mortality rate for suicide (22.0) exceeds the mean WNC rate (16.7) by 31.7%, and the mortality rate resulting from motor vehicle injuries exceeds both the WNC and NC rates (16.7) by 8.4%. Other differences in mortality statistics will be covered as each cause of death is discussed separately below. It should be noted from the onset, however, that for some causes of death (e.g., conditions ranked 14 and 15 below) there may not be stable county mortality rates, due to small numbers of deaths. Some unstable data will be presented in this document, but always accompanied by cautions regarding its use.

Table 28. Rank of Cause-Specific Mortality Rates for the Fifteen Leading Causes of Death (Five-Year Aggregate, 2006-2010)

Leading Cause of Death	Cherokee County		WNC Mean		NC	
	Rank	Rate	Rank	Rate	Rank	Rate
Heart Disease	1	220.2	1	194.4	1	184.9
Total Cancer	2	182.0	2	180.3	2	183.1
Chronic Lower Respiratory Disease	4	43.1	3	51.1	4	46.4
Cerebrovascular Disease	5	38.9	4	44.0	3	47.8
All Other Unintentional Injuries	3	47.5	5	42.9	5	28.6
Alzheimer's Disease	6	25.5	6	30.7	6	28.5
Diabetes Mellitus	9	15.6	7	19.6	7	22.5
Pneumonia and Influenza	10	15.1	8	19.1	9	18.6
Unintentional Motor Vehicle Injuries	8	18.1	9	16.7	10	16.7
Suicide	7	22.0	10	16.7	12	12.1
Nephritis, Nephrotic Syndrome & Nephrosis	13	10.7	11	16.2	8	18.9
Septicemia	12	14.0	12	13.4	11	13.7
Chronic Liver Disease & Cirrhosis	11	15.1	13	13.2	13	9.1
Homicide	14	n/a	14	n/a	14	6.6
Acquired Immune Deficiency Syndrome	15	n/a	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, in 2005-2009 and 2006-2010 the NC SCHS did not release mortality rates for some causes of death in several counties (including Cherokee) because the number of deaths fell below the Center's threshold of 20 per five-year aggregate period. The mean WNC ranking displayed in Table 29 includes only stable rates presented in the *Data Workbook*.

Each age group tends to have its own leading causes of death. Table 29 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.

In Cherokee County, deaths in the youngest age group were too highly varied by cause to yield stable rates for any cause of death; that instability is indicated by *italics*. Causes of death in the three older age groups are similar to those noted for WNC as a whole, although suicide ranks higher in the 20-39 age group in Cherokee County than in WNC.

Noteworthy findings among the age-grouped rankings of mortality in WNC compared to NC as a whole include the relatively greater regional prominence of non-motor vehicle injury in the two youngest age groups (00-19 and 20-39) and the third-place ranking of Alzheimer's disease among the leading causes of death in the oldest age group (85+).

Table 29. 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		
		Cherokee 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	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	Other unintentional injuries	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**	Diseases of the heart	Heart disease	Heart disease
	2	Cancer – all sites	Cancer – all sites	Cancer – all sites
	3	Alzheimer's disease	Alzheimer's disease	Cerebrovascular disease

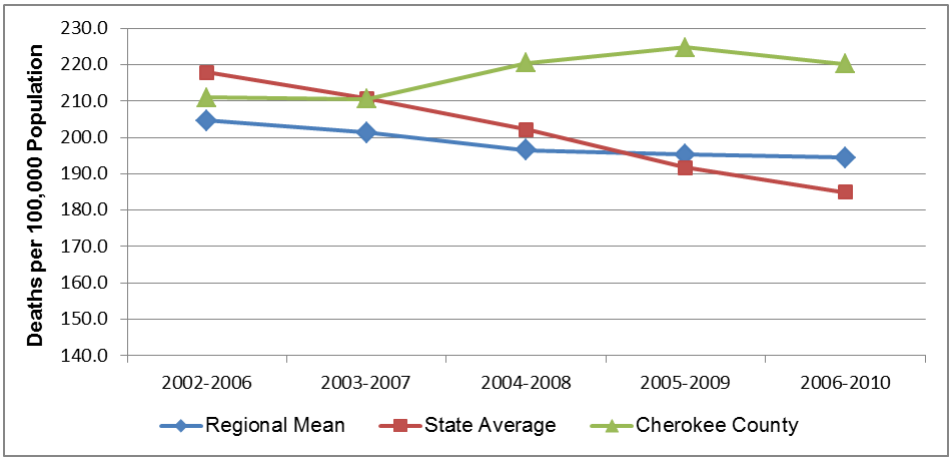
The following section examines in greater detail each of the causes of death listed in Table 29, in the order of highest mean WNC rank to lowest, beginning with heart disease.

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 US. 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).

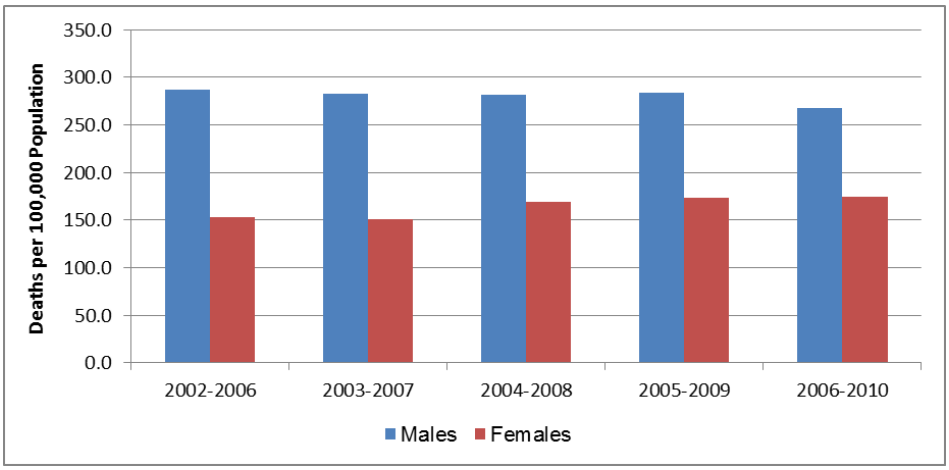
Heart disease was the leading cause of death in Cherokee County, WNC and NC in the 2006-2010 aggregate period (Table 29, cited previously). Figure 5 presents heart disease mortality trend data. This graph illustrates that the heart disease mortality rate in Cherokee County has exceeded the comparable rates for WNC and NC throughout most the period cited. The graph also illustrates that the heart disease mortality rate in Cherokee County increased from 210.9 in the 2002-2006 aggregate period to 220.2 in the 2006-2010 aggregate period, an increase of 4.4%. Over the same interval heart diseases mortality rates decreased in the other two jurisdictions. 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 5. 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 6 plots heart disease mortality rates for Cherokee County, stratified by gender. From these data it is clear that Cherokee County males have had a higher heart disease mortality rate than females for the past decade, with the difference as high as 87%. This trend data also shows, however, an apparent 6.6% decrease in the heart disease mortality rate among county males (from 286.4 to 267.4) and a corresponding 13.4% increase in the rate among county females (from 153.4 to 173.9) from the beginning of the entire period cited to the end. As a result of this shift, in the 2006-2010 aggregate period the heart disease mortality rate difference between males (267.4) and females (173.9) in the county was 54%.

Figure 6. Gender Disparities in Heart Disease Mortality, Cherokee County (Five-Year Aggregates, 2002-2006 through 2006-2010)



Total Cancer Mortality

Cancer is a term for diseases in which abnormal cells divide without control and can invade nearby tissues. Cancer cells also can spread to other parts of the body through the blood and lymph systems. If the disease remains unchecked, it can result in death (National Cancer Institute).

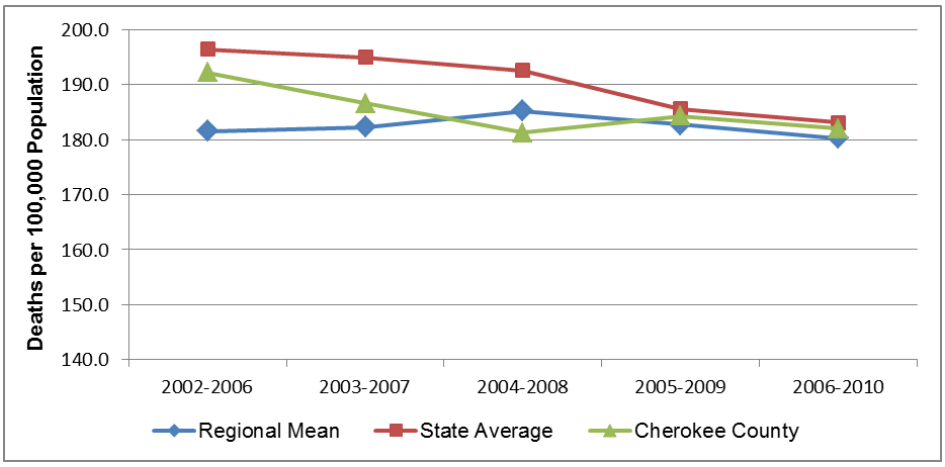
Taken together, cancers of all types compose the second leading cause of death in Cherokee County, WNC and NC in 2006-2010 (Table 28, cited previously).

Figure 7 presents mortality trend data for total cancer. This graph illustrates how over the period cited the total cancer death rate in Cherokee County has fallen, from 192.2 in the 2002-2006 aggregate period to 182.0 in the 2006-2010, a decrease of 5.3%. The total cancer mortality rate in the county has been mostly between the state and regional 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 7, although the gap has narrowed.

Figure 7. 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 8 plots mean total cancer mortality rates for Cherokee County, stratified by gender. From these data it is clear that males have continued to have a higher total cancer mortality rate than females in the past decade. Noteworthy is the suggestion that the total cancer mortality rate among Cherokee County males appears to be rising, as the comparable rate for females is falling. In the most recent aggregate period (2006-2010) the total cancer mortality rate for Cherokee County males (225.2) is 51.6% higher than the comparable rate for females (148.5).

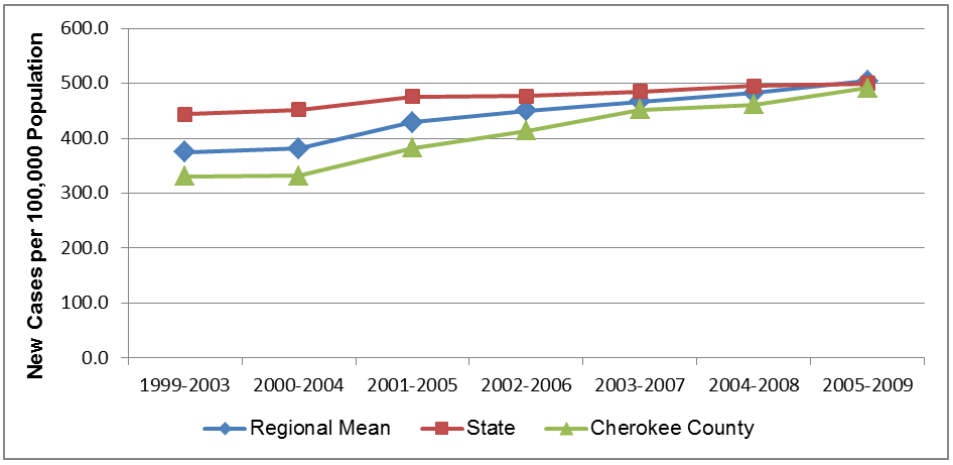
Figure 8. Gender Disparities in Total Cancer Mortality, Cherokee County (Five-Year Aggregates, 2002-2006 through 2006-2010)

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 9 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 Cherokee County, WNC and NC between 1999-2003 and 2005-2009. In Cherokee County, the total cancer incidence rate rose from 330.7 at the beginning of the period cited to 491.2 at the end, an increase of 48.7%.

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 9. 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 Cherokee 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 30 summarizes the age-adjusted mortality rates for the four site-specific cancers for the 2006-2010 aggregate period. In Cherokee County the number of deaths attributable to prostate cancer is below the threshold for calculating a stable rate. Stable county mortality rates for lung cancer (59.4) and breast cancer (30.9) both are above WNC and NC rates. The county rate for colorectal cancer mortality (14.6) is below both WNC and NC rates. In WNC, lung cancer is the site-specific cancer with the highest mortality, followed by breast cancer, prostate cancer, and colon cancer.

Table 30. 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
Cherokee County	59.4	30.9	n/a	14.6
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 31 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 Cherokee County, as in WNC, breast cancer is the site-specific cancer with the highest incidence, followed by prostate cancer, lung cancer, and colon cancer. Cherokee County incidence rates for breast, prostate and lung cancer are below the comparable incidence rates for WNC and NC. The county incidence rate for colon cancer is higher 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 31. 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
Cherokee County	145.7	108.5	72.5	49.5
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 Cherokee County in 2006-2010 (Table 30, cited above). Figure 10 plots lung cancer mortality rates for several aggregate periods. This data reveals that the lung cancer mortality rate in Cherokee County was similar to the comparable rates for WNC and NC for the period cited in the graph. The lung cancer mortality rate in Cherokee County fell from 64.6 for 2002-2006 to 59.4 for 2006-2010, a decrease of 8.0%. 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 (54.7) as at the beginning (54.2).

Figure 10. Lung Cancer Mortality Rate, Deaths per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)

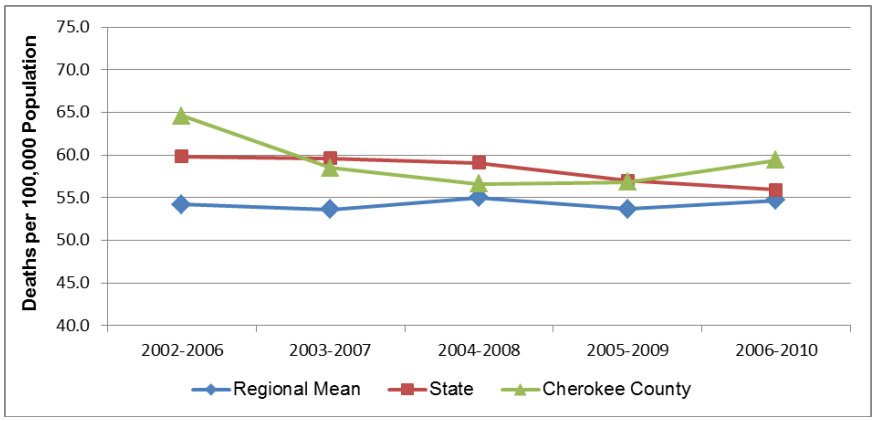


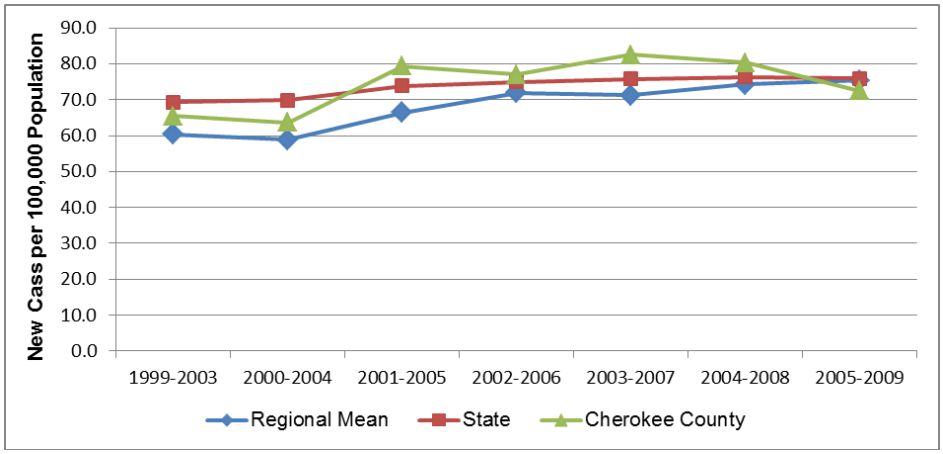
Figure 11 presents gender-stratified Cherokee County lung cancer mortality rates for several aggregate periods. From this data it is clear that males experience disproportionately higher lung cancer mortality than females, with the lung cancer mortality rate among men from 77%-104% higher than the rate among women over the period cited. Of further note is the apparent recent increase in lung cancer mortality rates among Cherokee County males, and simultaneous decrease in lung cancer mortality rates among county females.

Figure 11. Gender Disparities in Lung Cancer Mortality, Cherokee County (Five-Year Aggregates, 2002-2006 through 2006-2010)

Since lung cancer is a significant cause of mortality in Cherokee County, it is instructive to examine the trend of development of new lung cancer cases over time. Figure 12 depicts the seven-year trend of lung cancer incidence.

From this data it appears that lung cancer incidence in Cherokee County increased 10.9% (from 65.4 to 72.5) between 1999-2003 and 2005-2009. Region-wide, the mean lung cancer incidence rate has been creeping upward over the past several years, from a point well below the comparable state rate to a point barely below it. The 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.

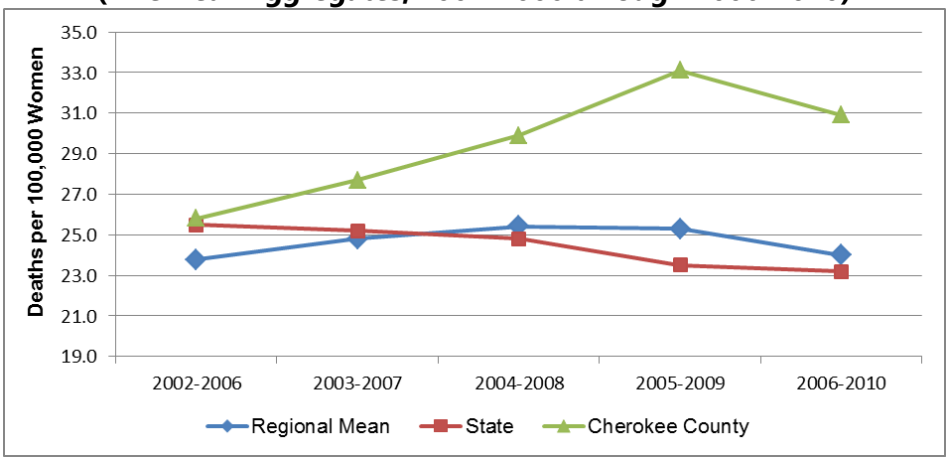
Figure 12. Lung Cancer Incidence, New Cases per 100,000 Population (Five-Year Aggregates, 1999-2003 through 2005-2009)



Breast Cancer Mortality

Breast cancer was the second leading cause of cancer death in Cherokee County in 2006-2010 (Table 30, cited previously). Data in Figure 13 demonstrate that the breast cancer mortality rate in Cherokee County, which has consistently exceeded both the WNC and NC rates, rose 19.8% from 2002-2006 through 2006-2010, increasing from 25.8 to 30.9 over the period. At the state level, the breast cancer mortality rate fell throughout 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%. In WNC, the mean breast cancer mortality rate has been more volatile, actually increasing 6.7% from 23.8 in 2002-2006 to 25.4 in 2004-2008. Since then, the regional rate has reversed to a current breast cancer death rate of 24.0. The WNC breast cancer mortality rate has exceeded the comparable state rate for the past three aggregate periods.

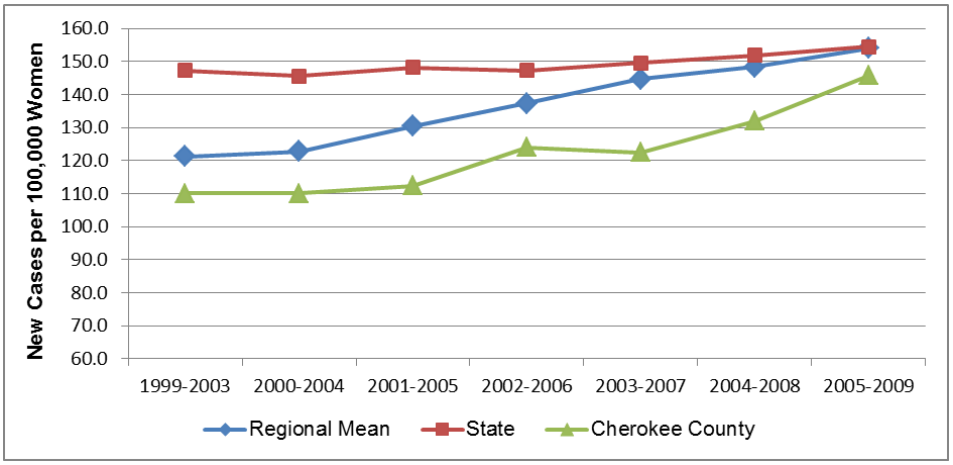
Figure 13. Breast Cancer Mortality Rate, Deaths per 100,000 Women (Five-Year Aggregates, 2002-2006 through 2006-2010)



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

Figure 14 demonstrates that the breast cancer incidence rate has been increasing in all three jurisdictions over the past several years, but at the fastest pace in Cherokee County. In Cherokee County, the breast cancer incidence rate rose from 110.1 new cases per 100,000 women in the 1999-2003 aggregate period to 145.7 in the 2005-2009 aggregate period, an increase of 32.3%. 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%.

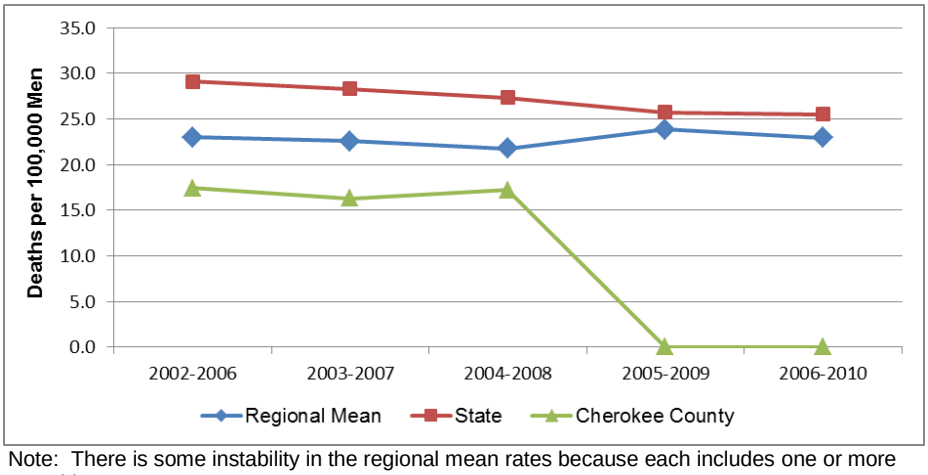
Figure 14. Breast Cancer Incidence, New Cases per 100,000 Women (Five-Year Aggregates, 1999-2003 through 2005-2009)



Prostate Cancer Mortality

Deaths attributable to prostate cancer in Cherokee County (n=12-15 per five-year aggregate period) are too few to calculate stable mortality rates, so all the county rates presented in Figure 16 are unstable. The "zero" rates plotted in the last two aggregate periods signify that the NC SCHS did not release county rates in those periods due to below-threshold numbers of deaths. Region-wide, prostate cancer was the third largest cause of cancer deaths in 2006-2010 (Table 30, cited previously). Figure 15 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). From the limited data available for Cherokee County, it appears that the prostate cancer mortality rate in the county was lower than both the mean WNC and NC rates over the first three aggregate periods.

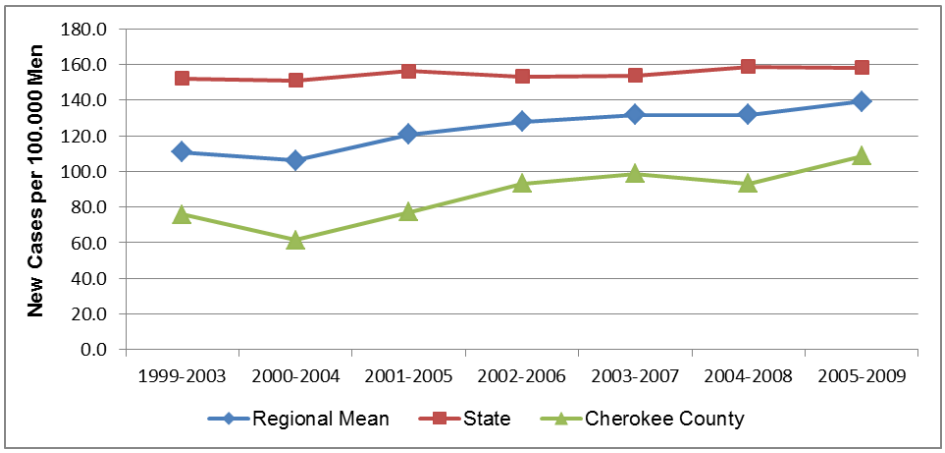
Figure 15. Prostate Cancer Mortality Rate, Deaths per 100,000 Men (Five-Year Aggregates, 2002-2006 through 2006-2010)



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

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 16). 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 percentage increase statewide. In Cherokee County, where the prostate cancer incidence rate has remained well below both WNC and NC rates, the rate rose from 75.9 to 108.5 over the same period, an overall increase of 42.9%.

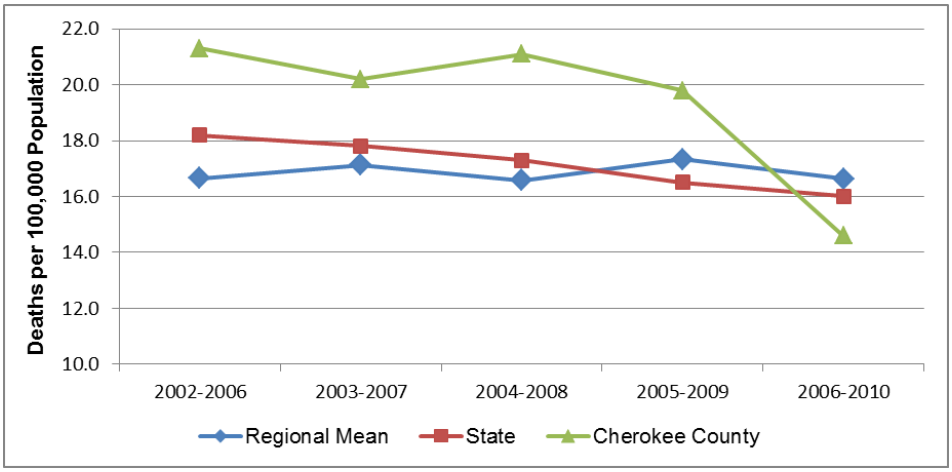
Figure 16. Prostate Cancer Incidence, New Cases per 100,000 Men (Five-Year Aggregates, 1999-2003 through 2005-2009)



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 Cherokee County, WNC and NC in 2006-2010 (Table 30, cited previously). Figure 17 plots the colorectal cancer mortality rate trend for several aggregate periods. The colorectal cancer mortality rate in Cherokee County fell dramatically from 21.3 in the 2002-2006 aggregate period to 14.6 in the 2006-2010 aggregate period, a decrease of 31.5%. 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.

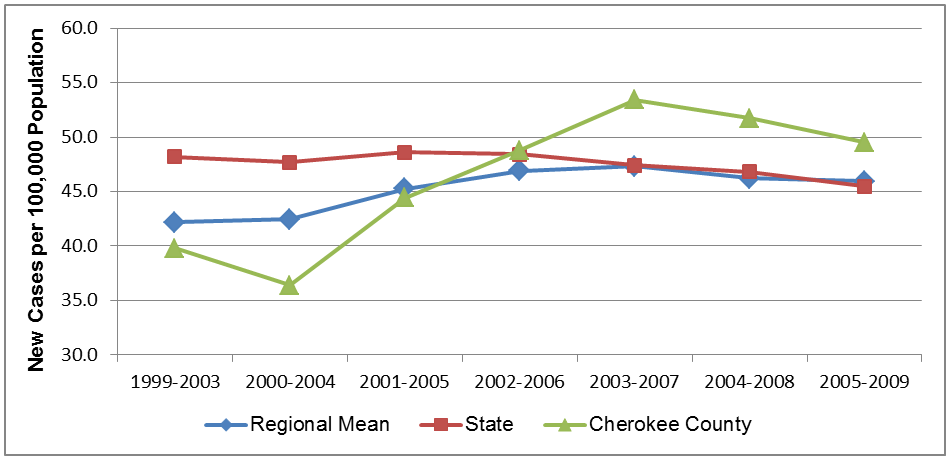
Figure 17. Colorectal Cancer Mortality Rate, Deaths per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)



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

From data in Figure 18 it is apparent that the incidence rate for colorectal cancer in Cherokee County rose over the full period cited, from 39.8 in 1999-2003 to 49.5 in 2005-2009, an increase of 24.4%, and began to exceed both the WNC and NC rates in the 2003-2007 aggregate period. 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%).

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



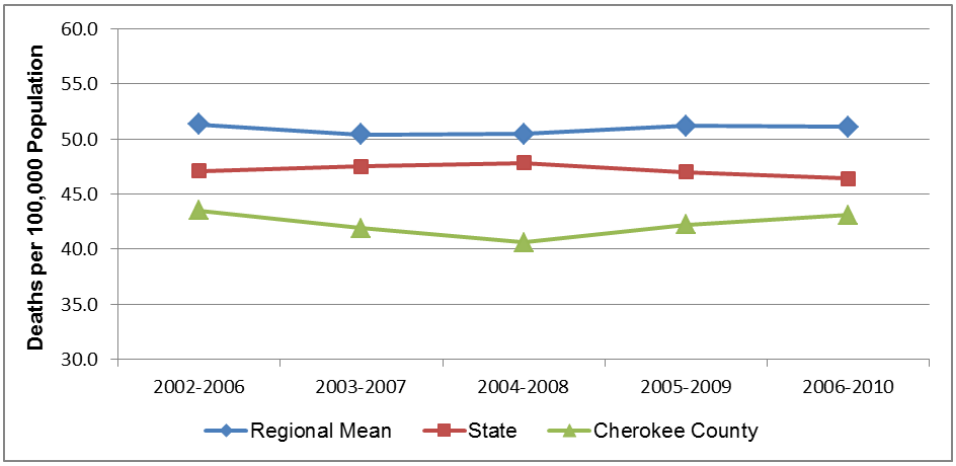
Chronic Lower Respiratory Disease (CLRD) Mortality

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 the fourth leading cause of death in Cherokee County for the 2006-2010 aggregate period (Table 28, cited previously).

Figure 19 plots CLRD mortality rates for five aggregate periods. The CLRD mortality rate was relatively stable in Cherokee County, WNC and NC for the overall period from 2002-2006 through 2006-2010. Cherokee County had the lowest CLRD mortality rate of the three jurisdictions over the entire period. The mean WNC CLRD mortality rate ranged from 5% to 10% higher than NC rate throughout the period cited in Figure 21. Neither the NC nor the mean WNC CLRD mortality rates improved significantly over the period. In 2006-2010, CLRD mortality rates were 43.1 in Cherokee County, 46.4 in NC, and 51.1 in WNC.

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



In WNC, the mean CLRD mortality rate among males exceeded the comparable rate among females from 33% to 49% over the past decade (*Data Workbook*). Gender-stratified CLRD mortality rates in Cherokee County show a strikingly different pattern (Figure 20). In the 2002-2006 aggregate period the CLRD mortality rate for males exceeded the comparable rate for females, but beginning in the next aggregate period (2003-2007) and continuing through 2006-2010, the CLRD mortality rate for Cherokee County females exceeded the comparable rate for

males. All the Cherokee County CLRD mortality rates for the periods cited are stable, so the variation is not attributable simply to small numbers of events.

Figure 20. Gender Disparities in CLRD Mortality, Cherokee County (Five-Year Aggregates, 2002-2006 through 2006-2010)

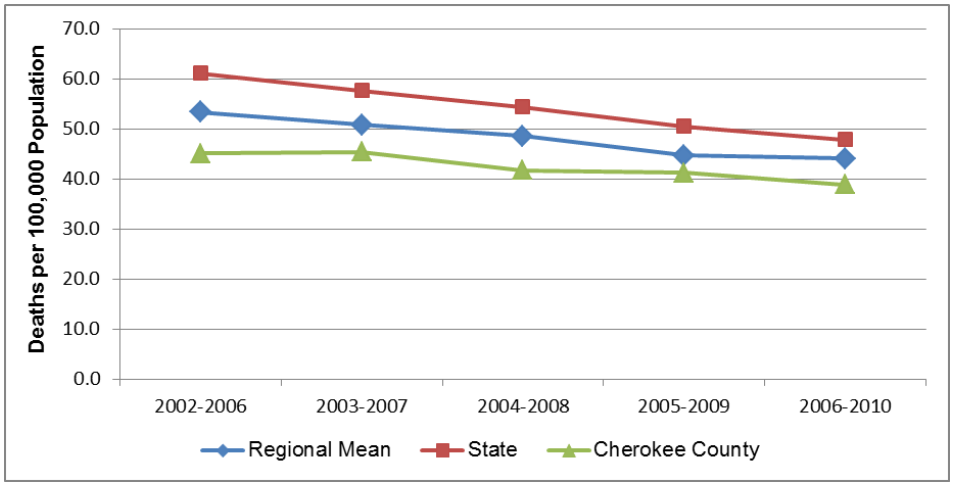
In WNC, only one of the 16 counties (Buncombe) had large enough minority populations to yield stable CLRD mortality rates for any minority group, so it is not possible to calculate a stable mean region-wide CLRD mortality rates for minorities. At the state level for the 2006-2010 aggregate period, the 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 blocks 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).

In the 2006-2010 aggregate period, cerebrovascular disease (stroke) was the fourth leading cause of death in WNC, but the fifth leading cause of death in Cherokee County (Table 28, cited previously). Figure 20 plots stroke mortality rates for several aggregate periods. The stroke mortality rates for Cherokee County, WNC and NC all decreased over the period cited in the graph. The rate fell 13.7% in Cherokee County (from 45.1 to 38.9), 17.4% in WNC (from 53.3 to 44.9) and 21.8% in NC (from 61.1 to 47.8). These data also illustrate how the stroke mortality rate for Cherokee County was consistently lower than the rates for the other two jurisdictions.

Figure 21. 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)*. The data in Figure 22, however, demonstrates that the cerebrovascular disease mortality rate in Cherokee County was from 4% to 34% higher for females than for males over the period cited. The stroke mortality rates for both men and women appear to have decreased over the same period.

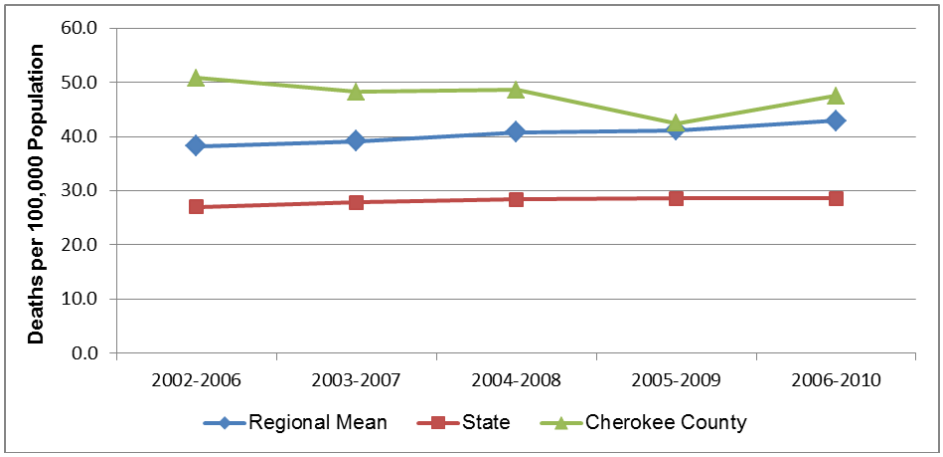
Figure 22. Gender Disparities in Cerebrovascular Disease Mortality, Cherokee County (Five-Year Aggregates, 2002-2006 through 2006-2010)

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 third leading cause of death in Cherokee County, in the 2006-2010 aggregate period (Table 28, 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.)

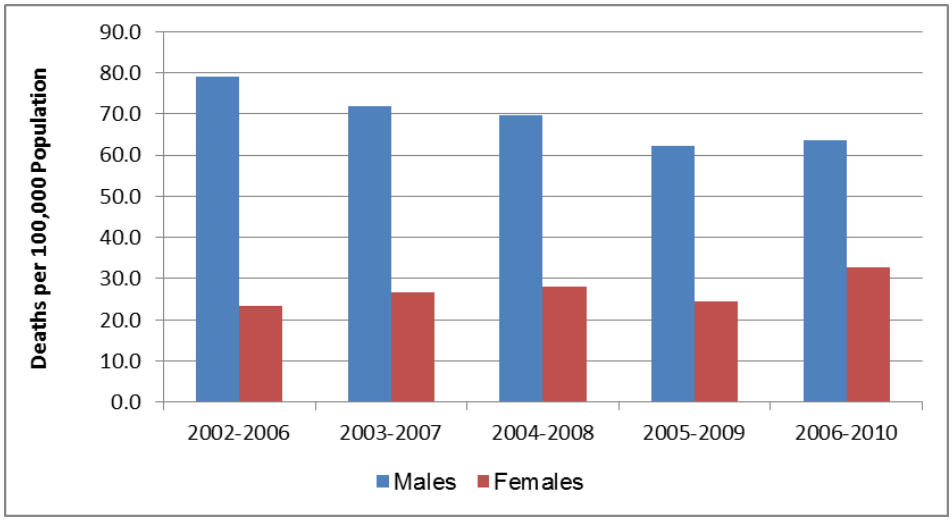
Figure 23 plots the trend in mortality due to all other injuries for five aggregate periods. Throughout the period cited, the non-motor vehicle injury mortality rate in Cherokee County exceeded the comparable mean WNC rate by from 3% to 33%., and the rate for WNC exceeded the comparable state rate by from 41% to 50%. While the state rate increased 5.9% (from 27.0 to 28.6) over the entire span cited, the WNC rate rose 12.3% from the first period (38.2) to the last (42.9). Over the same span, the comparable rate in Cherokee County fell 6.5%, from 50.8 to 47.5.

Figure 23. All Other Unintentional Injury Mortality Rate, Deaths per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)



As in other leading causes of death, non-motor vehicle injury mortality in Cherokee County demonstrates a strong gender disparity (Figure 24). In each of the periods cited, the mortality rate for all other unintentional injuries among males was from two to three times the comparable rate among females. While the non-motor vehicle injury mortality rate among women in Cherokee County appeared to be variable, the rate among men decreased overall between the 2002-2006 and 2006-2010 aggregate periods.

Figure 24. Gender Disparities in All Other Unintentional Injury Mortality, Cherokee County (Five-Year Aggregates, 2002-2006 through 2006-2010)



Alzheimer's Disease Mortality

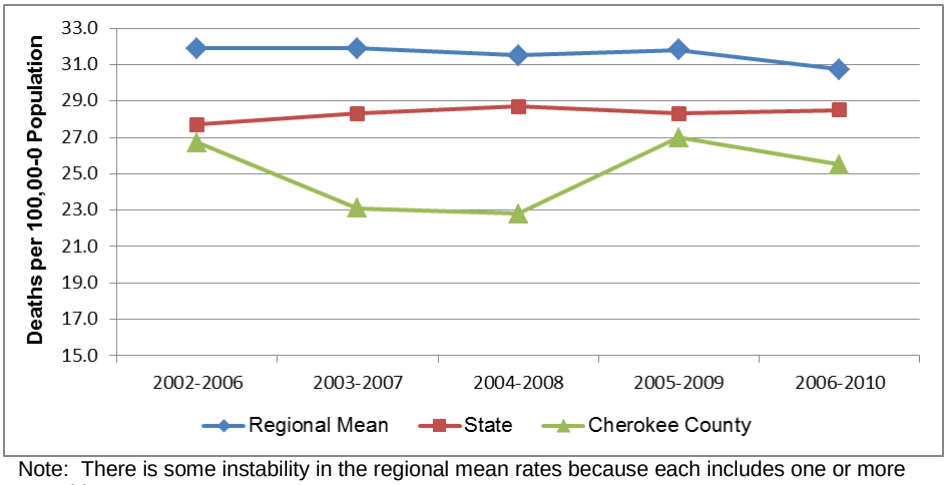
Alzheimer's disease is a progressive neurodegenerative disease affecting mental abilities including memory, cognition and language. Alzheimer's disease is characterized by memory loss and dementia. The risk of developing Alzheimer's disease increases with age (e.g., almost half of those 85 years and 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 Cherokee County and WNC for the aggregate period 2006-2010 (Table 28, cited previously).

Figure 25 plots Alzheimer's disease mortality rates over several aggregate periods. The Alzheimer's disease mortality rate in Cherokee County was below both the state and regional mortality rates for the entire period cited in the figure. Although the county rates are technically stable, they appear quite variable, likely due to relatively small numbers of events. The mean Alzheimer's disease mortality rate in WNC was higher than the comparable state rate throughout the span of time cited in Figure 25, 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 25.5 in Cherokee County, 30.7 in WNC, and 28.5 in NC.

Figure 25. 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.

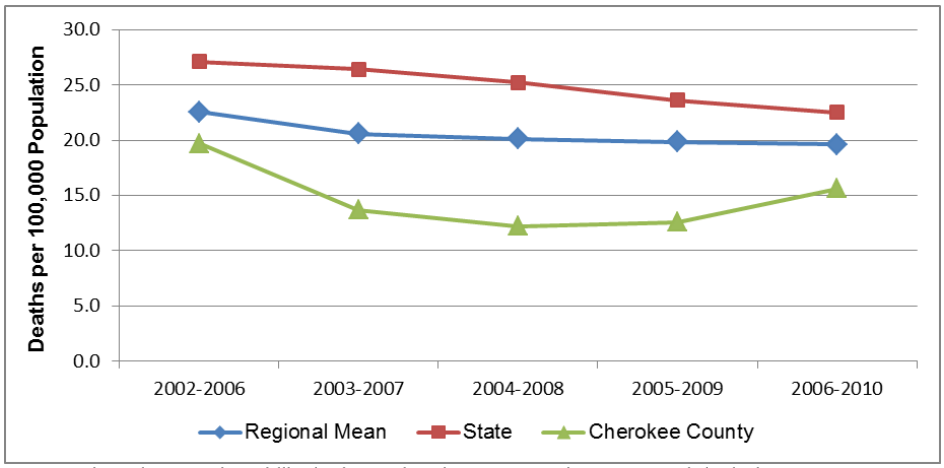
Diabetes Mellitus Mortality

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 allows glucose into 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 and the ninth leading cause of death in Cherokee County in the 2006-2010 aggregate period (Table 28, cited previously).

Figure 26 plots trend data for diabetes mortality for several aggregate periods. According to data in the figure, the diabetes mortality rate in Cherokee County was below both the WNC rate and the NC rate 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. Although the Cherokee County diabetes mortality rate demonstrates some variability likely due to small numbers of events, the overall decline from the beginning of the period cited (19.7) to the end (15.6) was 20.8%.

Figure 26. 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.

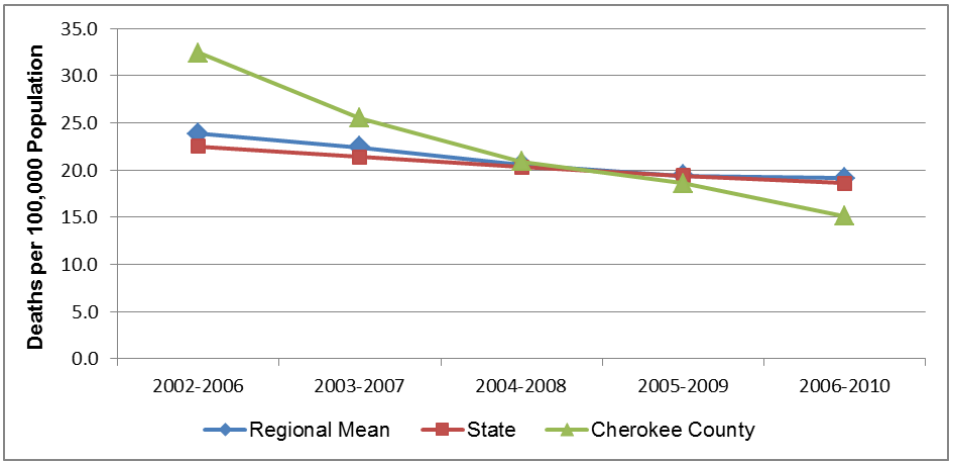
Pneumonia and Influenza Mortality

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 WNC and the tenth leading cause in Cherokee County for the period 2006-2010 (Table 28, cited previously).

Figure 27 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 Cherokee County was much more dramatic, falling 53.4% from 32.4 in 2002-2006 to 15.1 in 2006-2010. The county rate, higher at the beginning of the period cited than both the WNC and NC rates, by the end of the period was lower than both.

Figure 27. Pneumonia and Influenza Mortality Rate, Deaths per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)



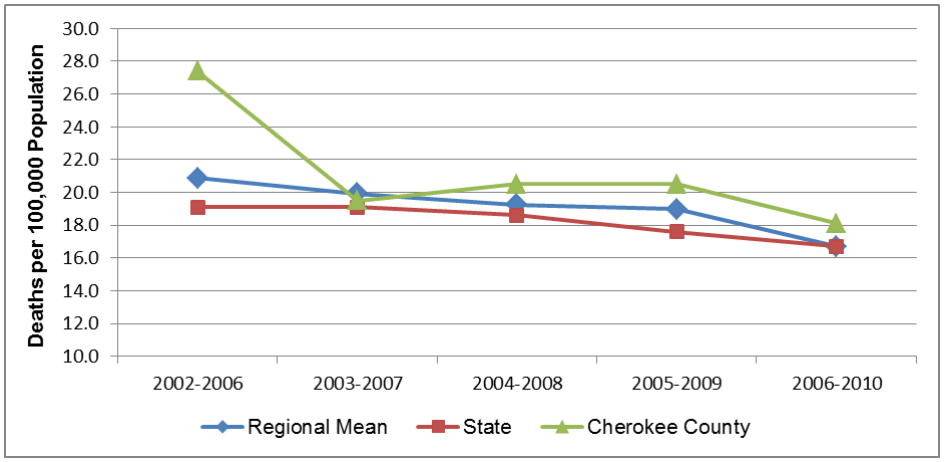
Note: There is some instability in the regional mean rates because each includes one or more unstable county rate.

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 eighth leading cause of death in Cherokee County in the 2006-2010 aggregate period (Table 28, cited previously).

Figure 28 plots UMVI mortality rates over several aggregate periods. From this data it appears that the mortality rate attributable to UMVI in Cherokee County was generally higher than the comparable rate for WNC, and that the mean WNC rate was slightly higher than the comparable state rate for most of the time span cited in the table. UMVI mortality rates fell in all three jurisdictions over the period cited in the figure. In Cherokee County the rate fell from 27.4 in the 2002-2006 aggregate period to 18.1 in the 2006-2010 aggregate period, a decrease of 33.9%. In WNC, the UMVI mortality rate fell from 20.9 to 16.7 (20.1%) and in NC the rate fell from 19.1 to 16.7 (12.5%).

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



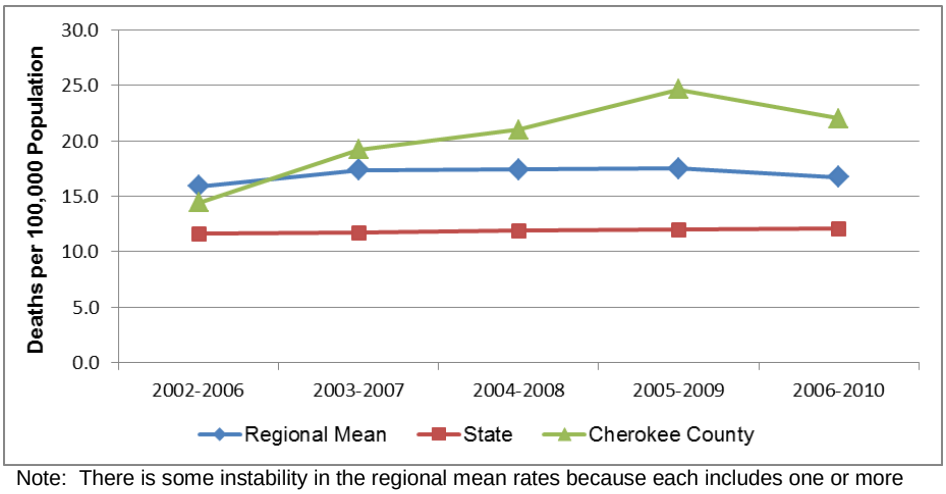
Note: There is some instability in the regional mean rates because each includes one or more unstable county rate.

Suicide Mortality

Suicide was the tenth leading cause of death in WNC and the seventh leading cause of death in Cherokee County for the 2006-2010 aggregate period (Table 28, cited previously).

Figure 29 plots suicide mortality rates for several aggregate periods. From these data it is clear that mortality due to suicide is significantly higher in Cherokee County than in WNC, and higher in WNC 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 29. While the suicide mortality rates in WNC and NC changed little over the period cited, the comparable rate in Cherokee County rose from 14.4 to 22.0, an increase of 52.8%. It should be noted that although all the Cherokee County data points except the first are technically stable, they are based on relatively small and changing numbers of events. For the 2006-2010 aggregate period the suicide mortality rate in Cherokee County was 22.0, in WNC it was 16.7 and in NC it was 12.1.

Figure 29. 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.

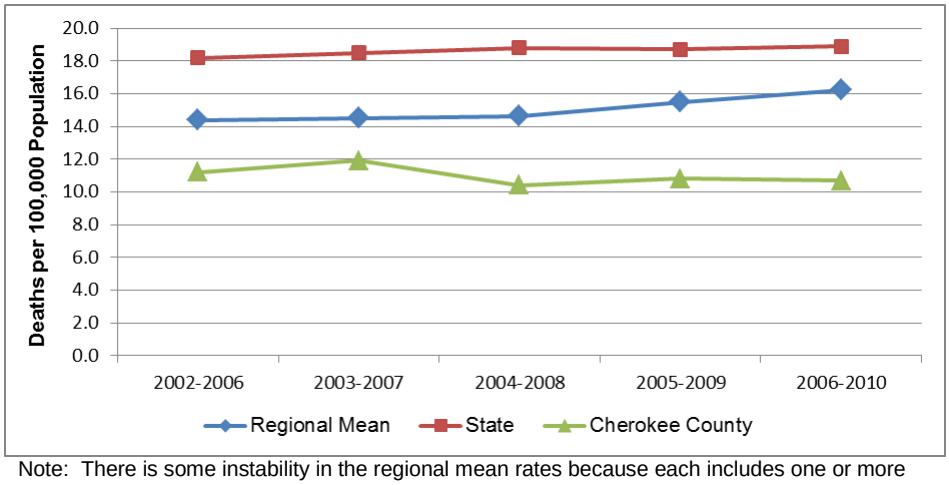
Nephritis, Nephrotic Syndrome and Nephrosis (Kidney Disease) Mortality

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).

This set of kidney disorders was the eleventh leading cause of death in WNC and the thirteenth leading cause of death in Cherokee County for the 2006-2010 aggregate period (Table 28, cited previously).

Figure 30 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 Cherokee County was below the WNC rate for the entire period cited in the figure. Between the 2002-2006 aggregate period and the 2006-2010 aggregate period the mean regional rate climbed from 14.4 to 16.2 (12.5%), and the Cherokee County rate fell from 11.2 to 10.7 (4.5%). Over the same time span the NC rate increased slightly, from 18.2 to 18.9 (3.8%).

Figure 30. 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.

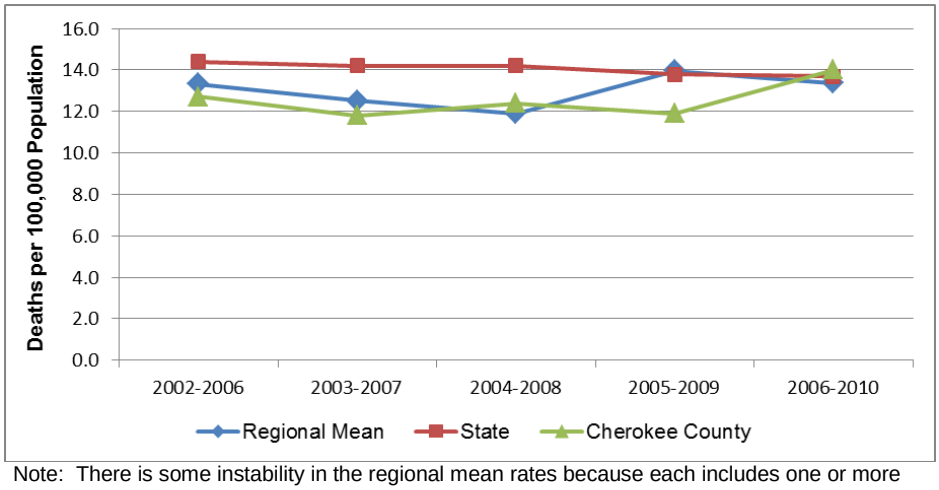
Septicemia Mortality

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 twelfth leading cause of death in Cherokee County for the aggregate period 2006-2010 (Table 28, cited previously).

Figure 31 plots septicemia morality 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 Cherokee County, the septicemia mortality rate also fluctuated, likely because it was based on small numbers of deaths (n=23-28)

Figure 31. 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.

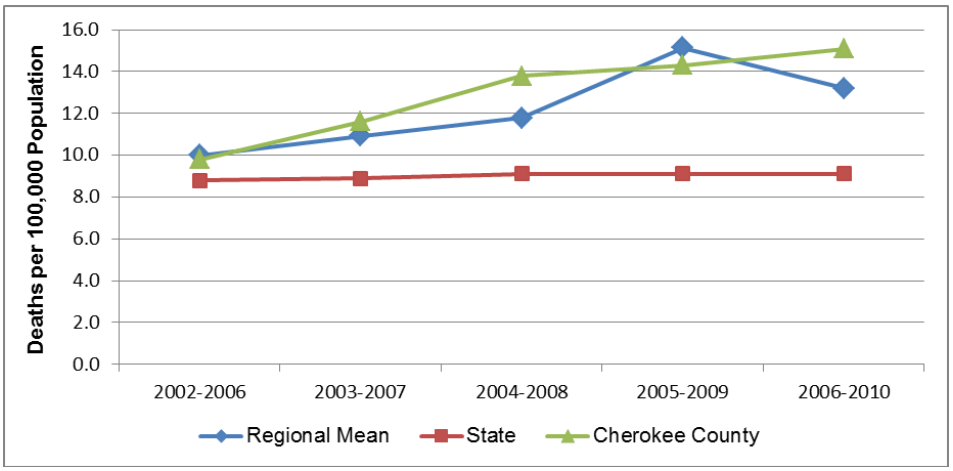
Chronic Liver Disease and Cirrhosis Mortality

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 eleventh leading cause of death in Cherokee County in the 2006-2010 aggregate period (Table 28, cited previously).

Figure 32 plots mortality data for liver disease over several aggregate periods. This data shows that the liver disease mortality rate in Cherokee County exceeded the comparable mean WNC rate and that the WNC rate exceeded the state rate throughout the period cited. It also appears that the regional and Cherokee 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 Cherokee County, the comparable rise was from 9.8 to 15.1, a 54.1% increase. Throughout this period the state rate has been stable at or near 9.1.

Figure 32. Chronic Liver Disease and Cirrhosis Mortality Rate
Deaths per 100,000 Population
(Five-Year Aggregates, 2002-2006 through 2006-2010)



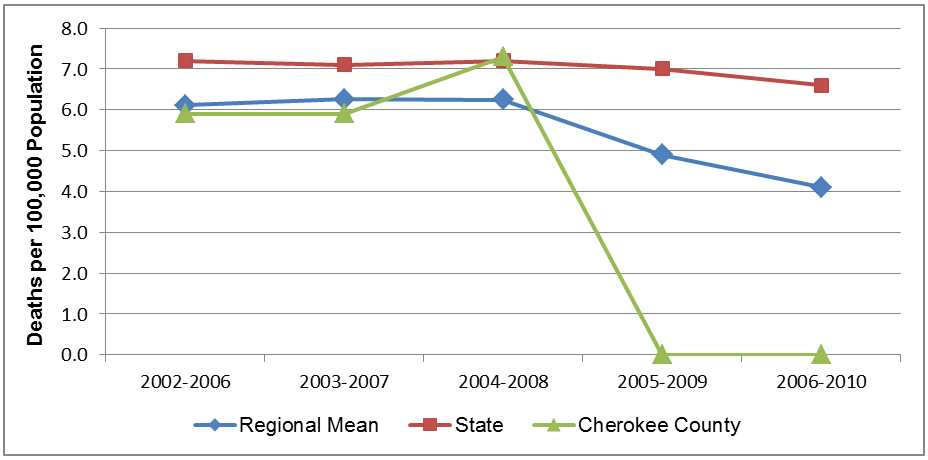
Note: There is some instability in the regional mean rates because each includes one or more unstable county rate.

Homicide Mortality

Death by homicide was the fourteenth leading cause of death in WNC and Cherokee County for the 2006-2010 aggregate period (Table 28, cited previously).

Figure 33 plots homicide mortality rate trends over several aggregate periods. In Cherokee County there were too few deaths attributable to homicide to calculate stable mortality rates, and the NC SCHS did not release county rates in the last two aggregate periods due to below-threshold numbers of deaths. From this data it is apparent that mean homicide mortality rates in WNC are lower than comparable rates for NC as a whole. This observation would appear to be in concert with earlier data reporting lower rates of violent crime in WNC than in NC. The mean homicide mortality rate in WNC for the 2006-2010 aggregate period was 4.1; the comparable rate for NC was 6.6. The apparent decrease in regional homicide mortality in recent years may be an artifact due to instability of the data attributable to small numbers of homicides. In Cherokee County the homicide mortality rate fluctuated between the state and WNC rates in the periods for which there was data.

Figure 33. 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.

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 for the aggregate period 2006-2010 (Table 28, 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.

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 32 presents a fairly recent summary of life expectancy for Cherokee County, WNC, and NC as a whole. From this data it appears that females born in Cherokee County in the period cited could expect to live 6.4 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. There is no comparable data for minorities in Cherokee County, but African Americans born in WNC at the same time could expect to live a 3.3 year shorter lifespan than their white counterparts. Life expectancy overall in Cherokee County (76.6) is only 0.4 years shorter than life expectancy in WNC (77.0 years), where life expectancy is only 0.3 years shorter than for the state as a whole (77.3 years).

Table 32. Life Expectancy at Birth (2006-2008)

Geography	Overall	Gender		Race	
		Male	Female	White	African American
Cherokee County	76.6	73.4	79.8	76.7	n/a
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

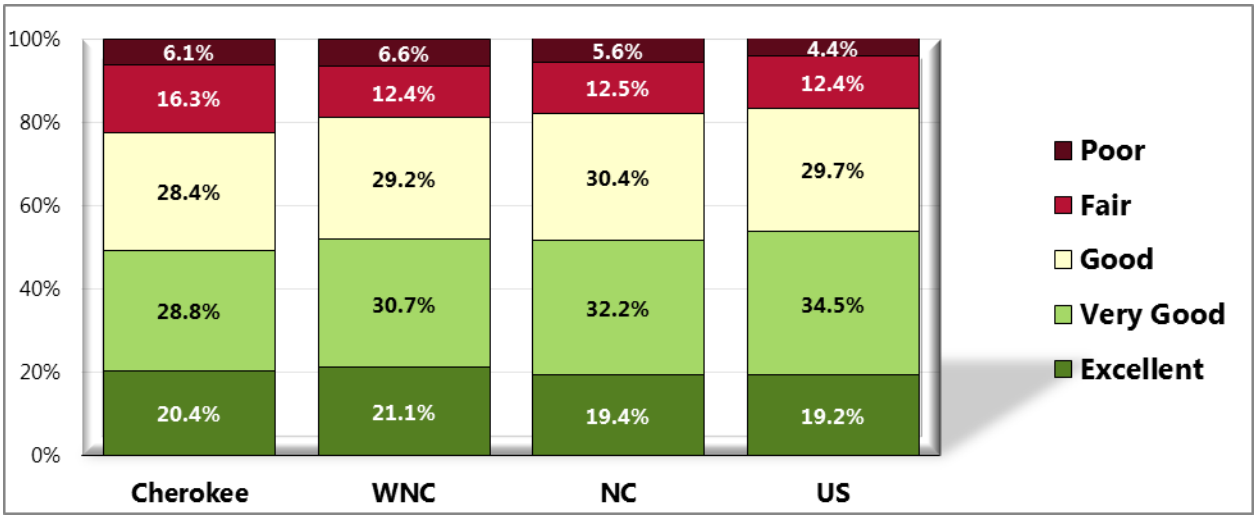
Morbidity as used in this report refers generally to the current presence of injury, sickness or disease (and sometimes the symptoms and/or disability resulting from those conditions) in the living population. In this report disability, diabetes, obesity, injury, communicable disease (including sexually-transmitted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

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 34. 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.

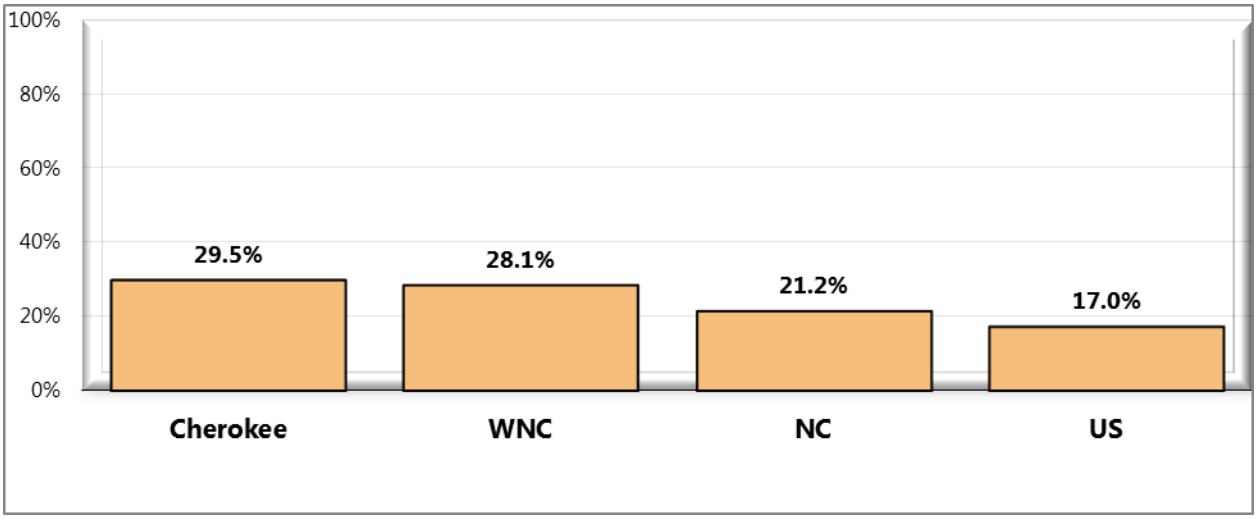
Disability and Limitations in Physical Activity

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 35. 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%)
Cherokee	7.1%	21.5%	16.2%	7.7%	0.0%	3.3%	2.3%	41.9%

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

Notes:
- Asked of those respondents reporting activity limitations.

Diabetes

Table 34 presents trend data from the US Centers for Disease Control and Prevention (CDC) on the estimated prevalence of diagnosed diabetes in Cherokee 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 Cherokee County rose from 9.2% in 2005 to 9.7% in 2009, an increase of 5.4%. In WNC the mean percent prevalence of diagnosed diabetes among adults in WNC rose from 8.5% in 2005 to 9.0% in 2009, an increase of 5.9%.

Table 34. Estimate of Diagnosed Diabetes Among Adults Age 20 and Older (2005-2009)

Geography	2005		2006		2007		2008		2009	
	#	%	#	%	#	%	#	%	#	%
Cherokee County	2,235	9.2	2,284	9.2	2,337	9.2	2,473	9.6	2,590	9.7
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 Cherokee County residents totaled 63 cases, or 2.6% 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 35 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.

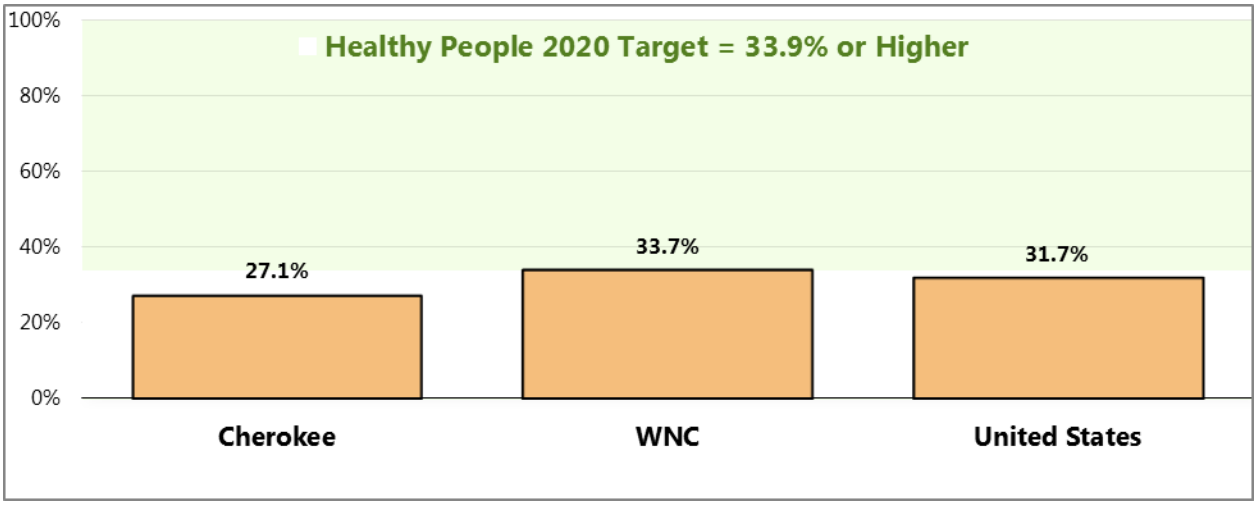
From these data it appears that the estimated prevalence of diagnosed obesity among adults in Cherokee County rose every year between 2005 and 2009; the increase from 2005 to 2009 was 13.2%. The estimated mean prevalence of adult obesity in WNC increased annually throughout the period cited. Between 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 35. Estimate of Diagnosed Obesity Among Adults Age 20 and Older (2005-2009)

Geography	2005		2006		2007		2008		2009	
	#	%	#	%	#	%	#	%	#	%
Cherokee County	4,815	24.2	4,965	24.4	5,107	25.0	5,229	25.7	5,504	27.4
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.

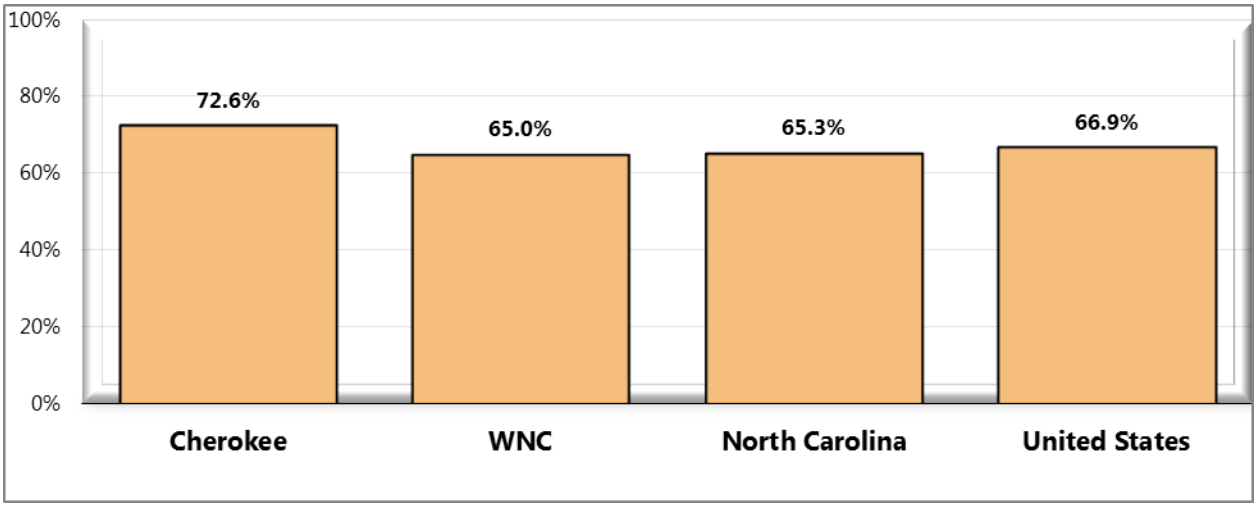
Figure 36. Healthy Weight (WNC Healthy Impact Survey)
(Percent of Adults With a Body Mass Index Between 18.5 and 24.9)



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. http://www.healthypeople.gov Objective NWS-8]
- The definition of healthy weight is having a body mass index (BMI), a ratio of weight to height (kilograms divided by meters squared), between 18.5 and 24.9.

Figure 37. Prevalence of Total Overweight (WNC Healthy Impact Survey)
(Percent of Overweight or/Obese Adults; Body Mass Index of 25.0 or Higher)

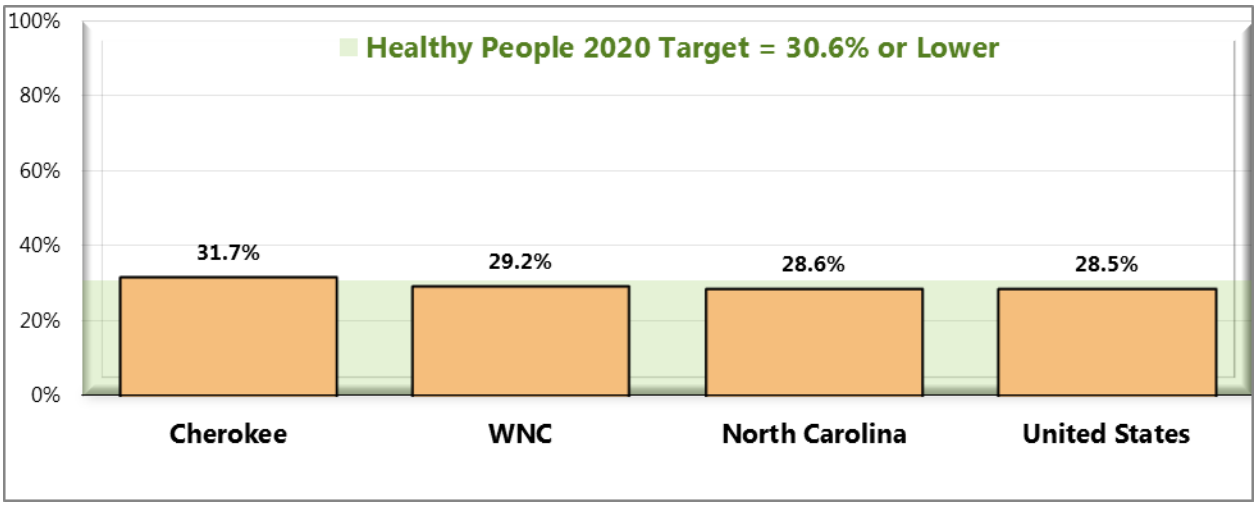


Sources:
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 85]
- 2011 PRC National Health Survey, Professional Research Consultants, Inc.
- Behavioral Risk Factor Surveillance System Survey Data. Atlanta, Georgia. United States Department of Health and Human Services, 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 38. 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").

Tables 36, 37 and 38 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 36 it appears that the prevalence of healthy weight among 2-4 year-olds in Cherokee County (66.5%) is higher than the comparable figures for either WNC (64.5%) or NC (63.5%). The prevalence of *overweight* among children ages 2-4 is lower in Cherokee County (13.6%) than the mean for WNC (17.2%) or the figure for NC as a whole (16.1%). The prevalence of *obesity* in Cherokee County 2-4 year-olds (15.0%) is higher than the mean prevalence in WNC (13.6%) but smaller 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 36. 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	
	#	#	%	#	%	#	%	#	%
Cherokee County	206	10	4.9	137	66.5	28	13.6	31	15.0
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 37 it appears that the prevalence of children ages 5-11 with healthy weight in Cherokee County (71.9%) is higher than the comparable figure for WNC (63.4%) and higher than the figure for NC (54.3%). The prevalence of *overweight* children ages 5-11 in Cherokee County (6.3%) and the prevalence of *obese* children in this age group in Cherokee County (18.8%) should be regarded as unstable, due to small numbers of children in the program. In WNC, the mean prevalence of obesity in the 5-11 age group (19.4%) is smaller than the comparable figure for NC as a whole (25.8%). 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 5 through 11 years

(2010)

Geography	Total	Underweight		Healthy Weight		Overweight		Obese	
		<5th Percentile		≥5th to <85th Percentile		≥85th to <95th Percentile		≥95th Percentile	
	#	#	%	#	%	#	%	#	%
Cherokee County	32	1	*3.1*	23	71.9	2	*6.3*	6	*18.8*
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 presented in Table 38 it appears that there are too few children ages 12-18 in the NC NPASS program in Cherokee County to calculate stable prevalence rates in any weight group. Examining instead regional data it appears that the prevalence of healthy weight children ages 12-18 is higher in WNC (56.3%) than statewide (51.9%), that the prevalence of *overweight* children ages 12-18 is higher in WNC (19.0%) than in NC as a whole (18.1%), but that the prevalence of *obesity* in this age group is smaller in WNC (23.8%) than statewide (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 38. 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	
	#	#	%	#	%	#	%	#	%
Cherokee County	3	0	n/a	2	n/a	1	n/a	0	n/a
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*.

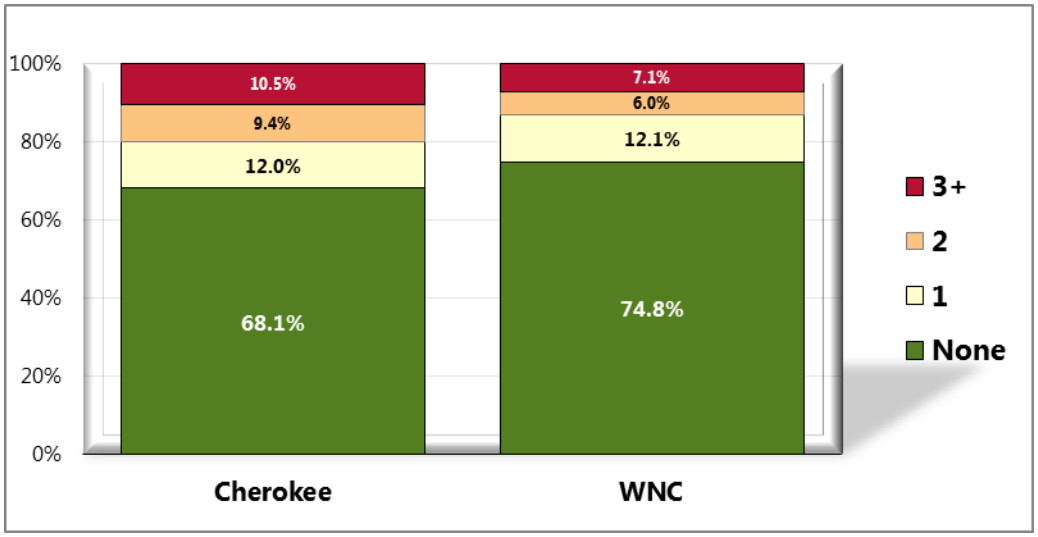
Injuries

Falls

There were 16 deaths due to falls in Cherokee County in the period 2006-2010. In 2009 alone there were three, all of them in the over-65 age group (two in the 75-84 age group, and one in the 85-and-over age group) (*Data Workbook*).

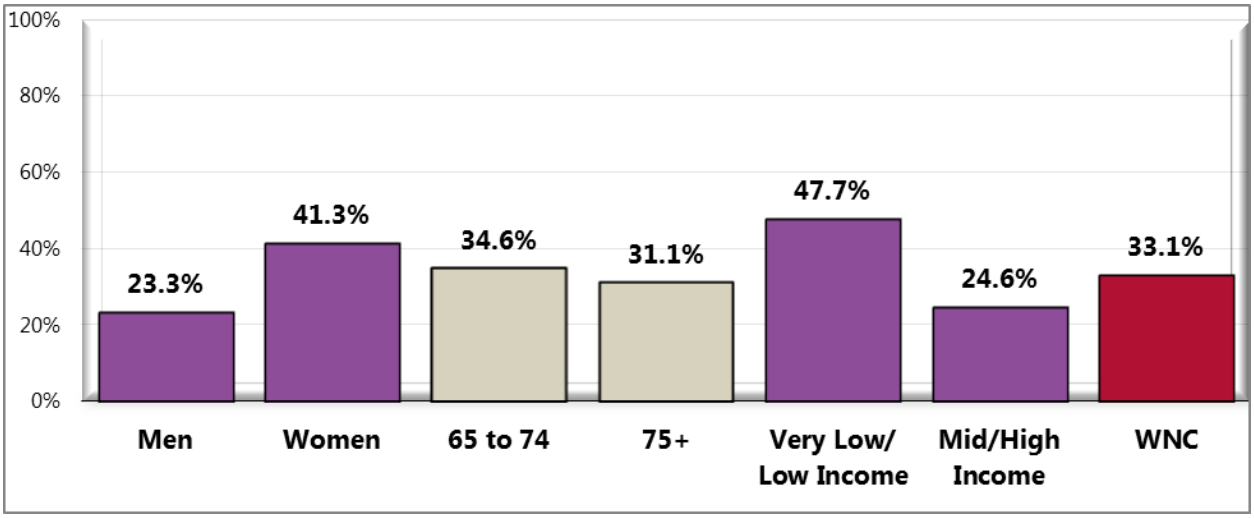
Survey respondents were also asked how many times they have fallen in the past 12 months, and how many of these falls caused an injury. Data is shown below for adults age 65 and older. Due to small county-level sample sizes, fall-related injury data is provided at the regional level.

Figure 39. 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 40. 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 39 presents trend data on vehicle crashes for the period from 2006 through 2010. The data presented for Cherokee County demonstrate high variability, with the percentage of alcohol-related crashes usually above the percentage for WNC. However the percentage of alcohol-related traffic crashes in the county were above the comparable state rate in every year cited in the table. The data in the table also shows that the percentage of alcohol-related vehicle crashes in WNC were higher than the comparable percentages for the state as a whole throughout the period cited, with the difference varying from 16% to 27% depending on the year. It also appears that the percent of crashes that are alcohol-related has decreased in Cherokee County, WNC and NC since peaking in all three jurisdictions in 2008.

Table 39. 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
Cherokee County	433	6.9	423	6.2	401	9.7	378	8.2	432	6.5
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 40 presents additional detail on the nature of vehicular crashes for a single year, 2010. In Cherokee County 6.5% of *all* crashes were alcohol-related; although the following number may be unstable since it is based on only five events, 40.0% of the *fatal* crashes (2 of 5) 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 40.

Table 40. 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
Cherokee County	432	6.5	270	5.6	157	7.0	5	*40.0*
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 Cherokee 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 Cherokee 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 30 unintentional poisoning deaths in Cherokee County, with a corresponding age-adjusted mortality rate of 29.8 per 100,000

population. The comparable mean unintentional poisoning mortality rate for WNC was 23.1 over the same period.

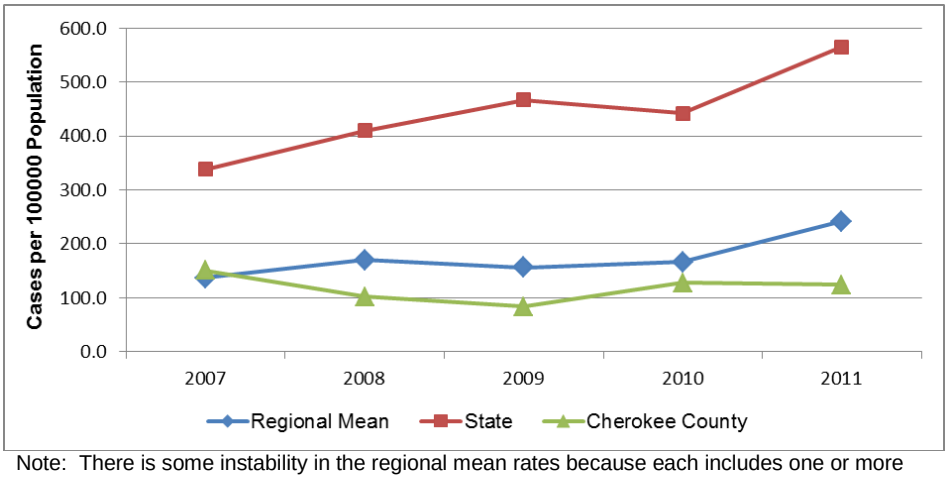
Communicable Disease

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 (CDC, 2012)

Figure 41 plots Chlamydia rates for several years. From this data it appears that Chlamydia infection is less prevalent in Cherokee County than in either WNC or NC, varying between 84 and 151 cases per 100,000 population over the period cited. In WNC the mean Chlamydia infection rate 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 mean WNC rate rose 76.4% (from 136.9 to 241.5. In Cherokee County over the same period the Chlamydia infection rate appears to have decreased 2.8%, from 127.5 to 123.9.

Figure 41. Chlamydia Rate, All Ages, Cases per 100,000 Population (Five Single Years, 2007-2011)

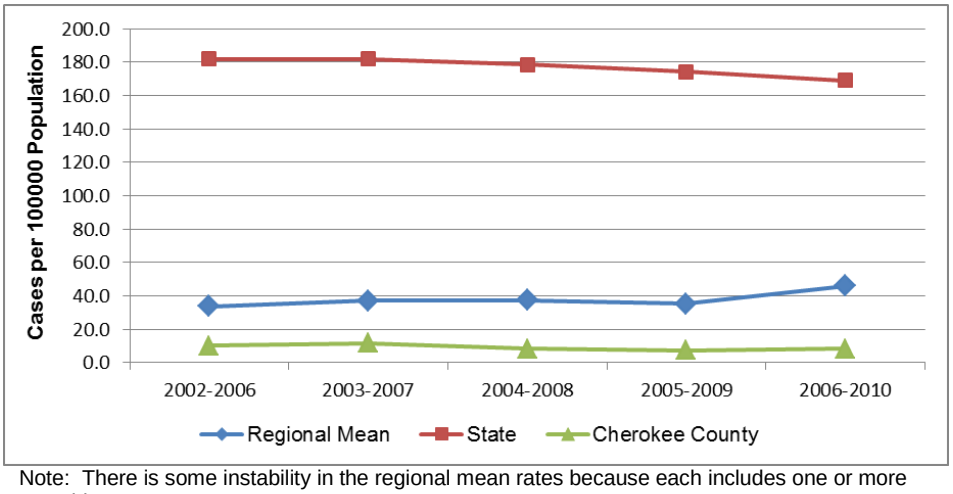


Note: There is some instability in the regional mean rates because each includes one or more unstable county rate.

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, health researchers have evidence to indicate that gonorrhea may increase the risk of getting HIV infection (CDC, 2012).

Figure 42 plots gonorrhea rates for several aggregate periods. From this data is appears that gonorrhea is far less prevalent in Cherokee County than in either WNC or NC. Note that the figures for Cherokee County likely are unstable due to small numbers of events in every aggregate period. The mean gonorrhea rate in WNC was 72% to 82% lower than the state rate for the span of aggregate periods shown in Figure 53. 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.

Figure 42. 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.

HIV infection, an important communicable disease in some regions of NC, is a rare occurrence throughout most of WNC. Only one county in the region (Buncombe) has reported enough cases in some years to calculate a stable incidence rate. The total number of HIV cases in WNC in 2008 was 58; in 2009 the total was 46, and in 2010 the total was 40 (*Data Workbook*).

CHAPTER 4 – HEALTH BEHAVIORS

Physical Activity

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.

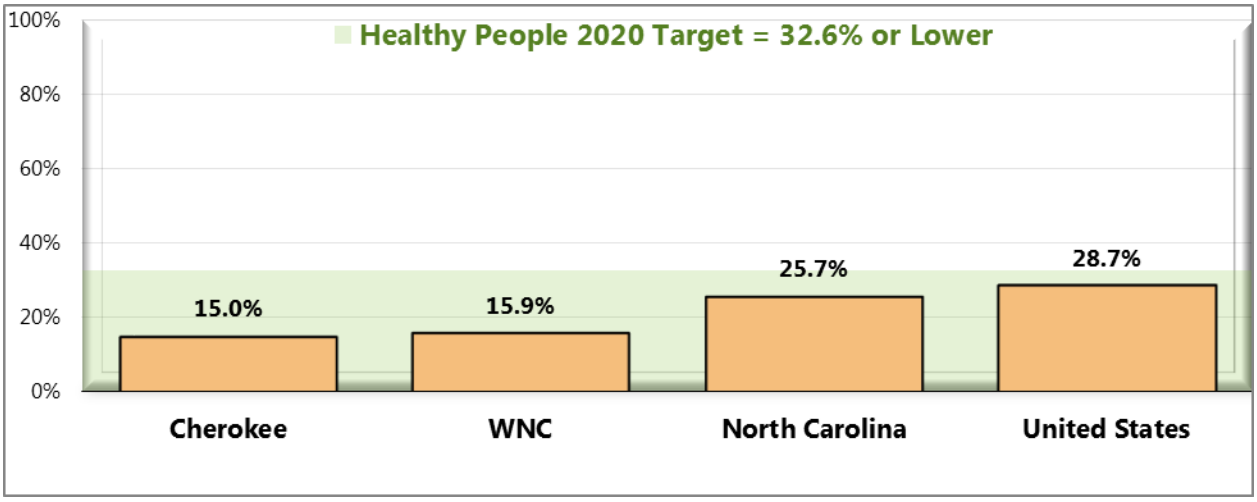
Personal, social, economic, and environmental factors all play a role in physical activity levels among youth, adults, and older adults. Factors **positively** associated with adult physical activity include: postsecondary education; higher income; enjoyment of exercise; expectation of benefits; belief 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).

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.

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).

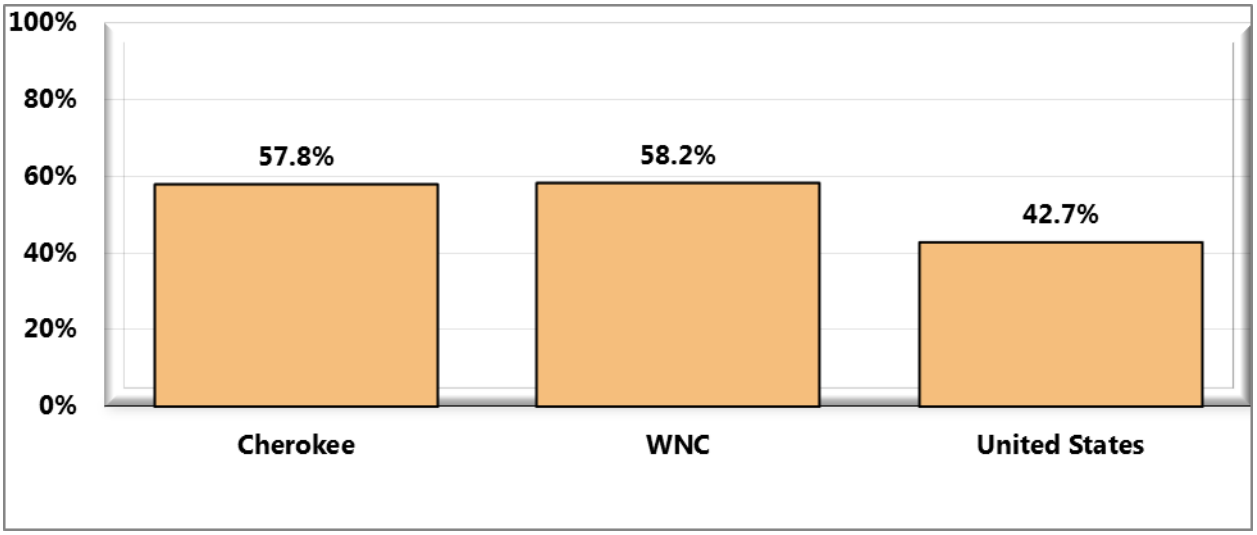
Figure 43. No Leisure-Time Physical Activity in the Past Month (WNC Healthy Impact Survey)



. 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.

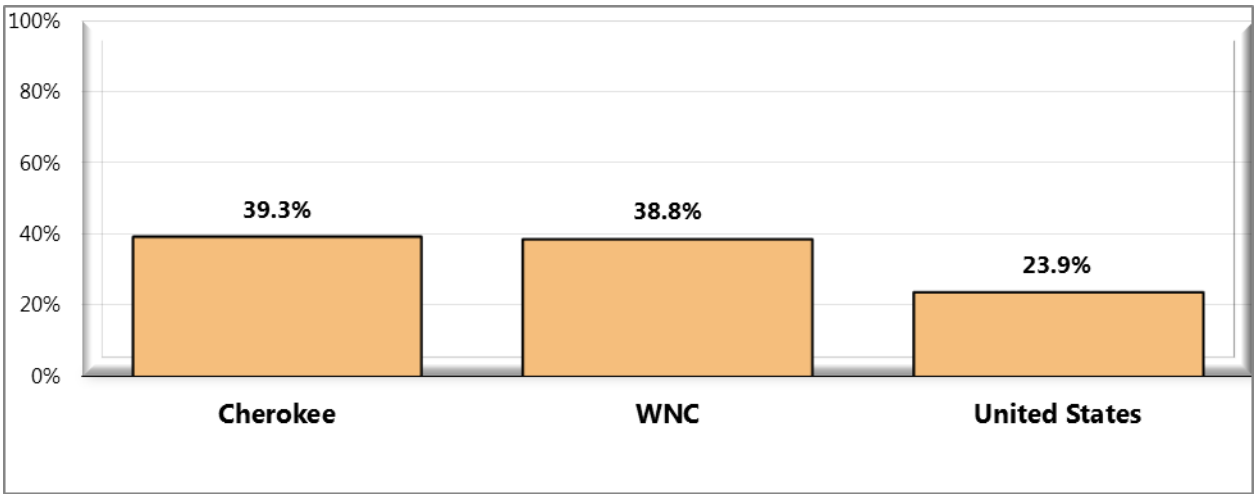
Figure 44. Meets Physical Activity Recommendations (WNC Healthy Impact Survey)



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.

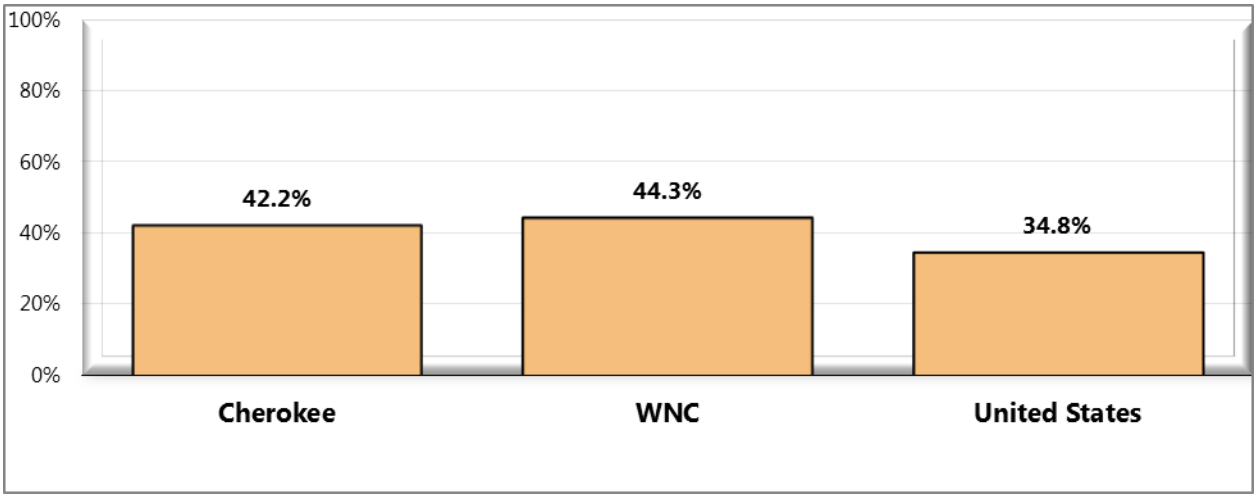
Figure 45. Moderate Physical Activity (WNC Healthy Impact Survey)



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.

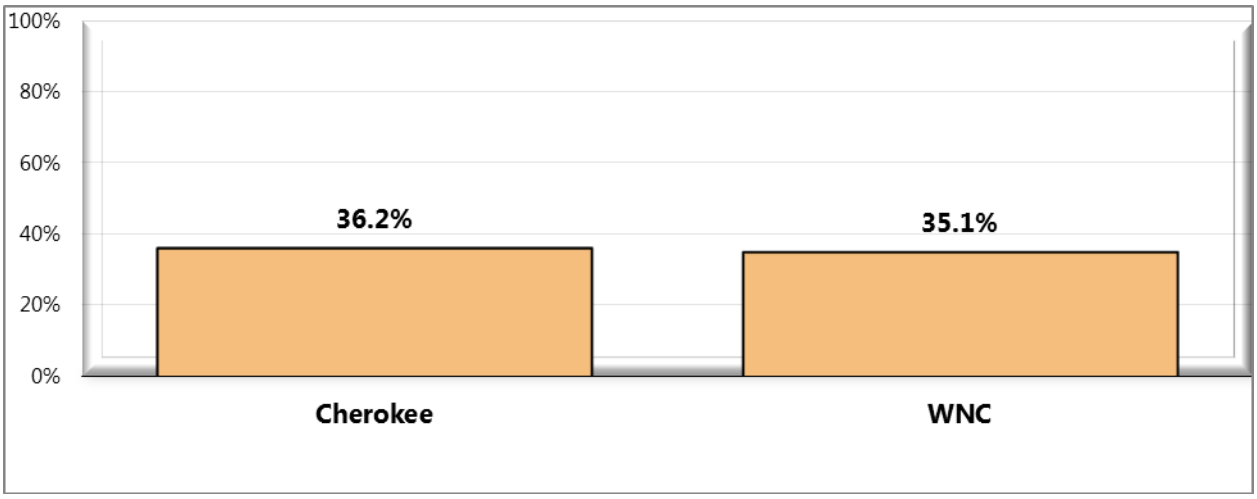
Figure 46. Vigorous Physical Activity (WNC Healthy Impact Survey)



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 47. 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

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.

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

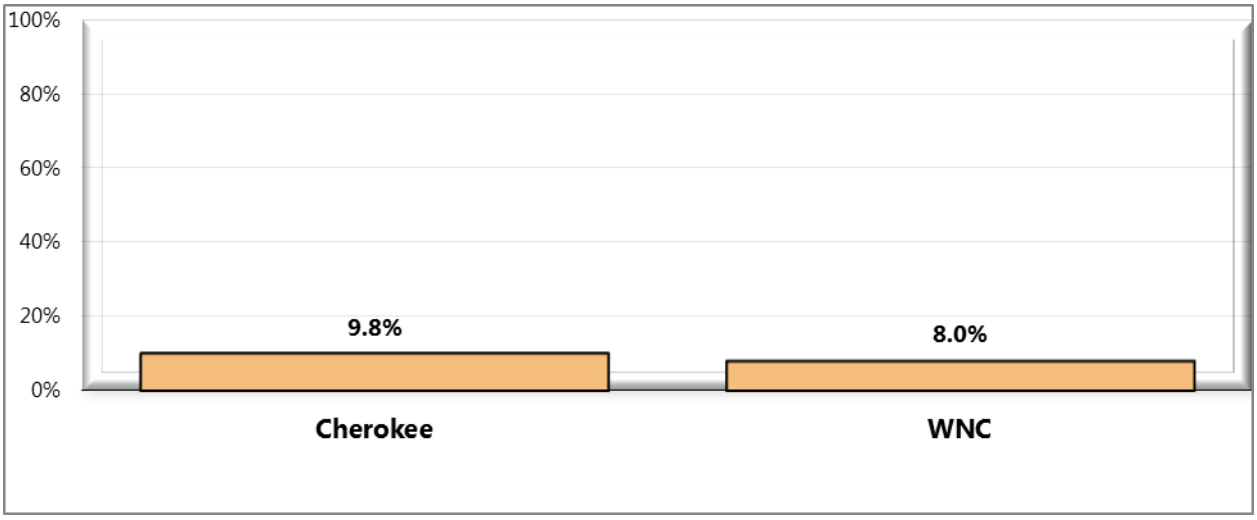
Physical Determinants of Diet.

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.

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.

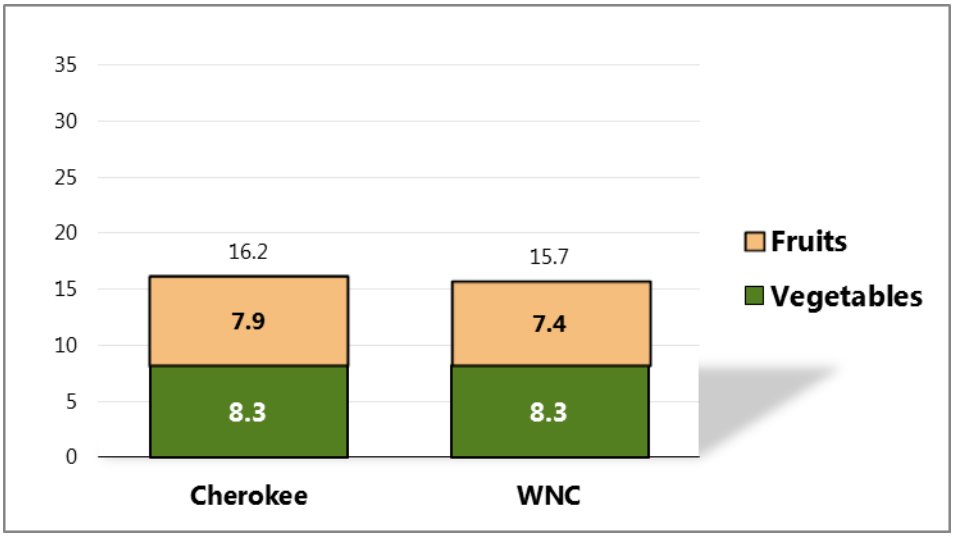
Figure 48. Had an Average of Five or More Servings of Fruits/Vegetables per Day in the Past Week (WNC Healthy Impact Survey)



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 49. 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

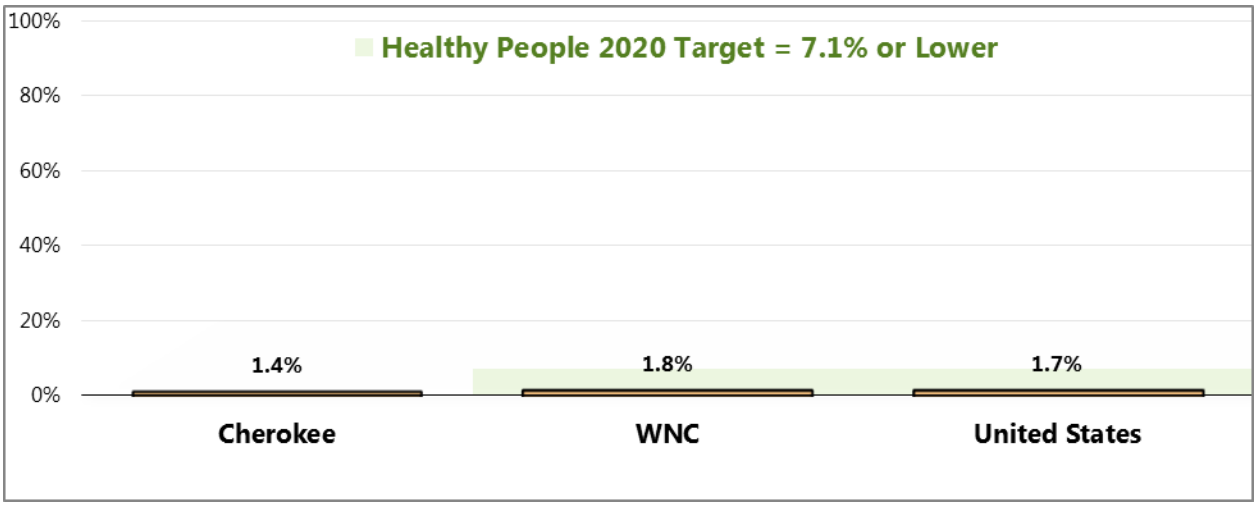
Substance abuse refers to a set of related conditions associated with the consumption of mind- and behavior-altering substances that have negative behavioral and health outcomes. Social attitudes and political and legal responses to the consumption of alcohol and illicit drugs make substance abuse one 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).

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 50. 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.

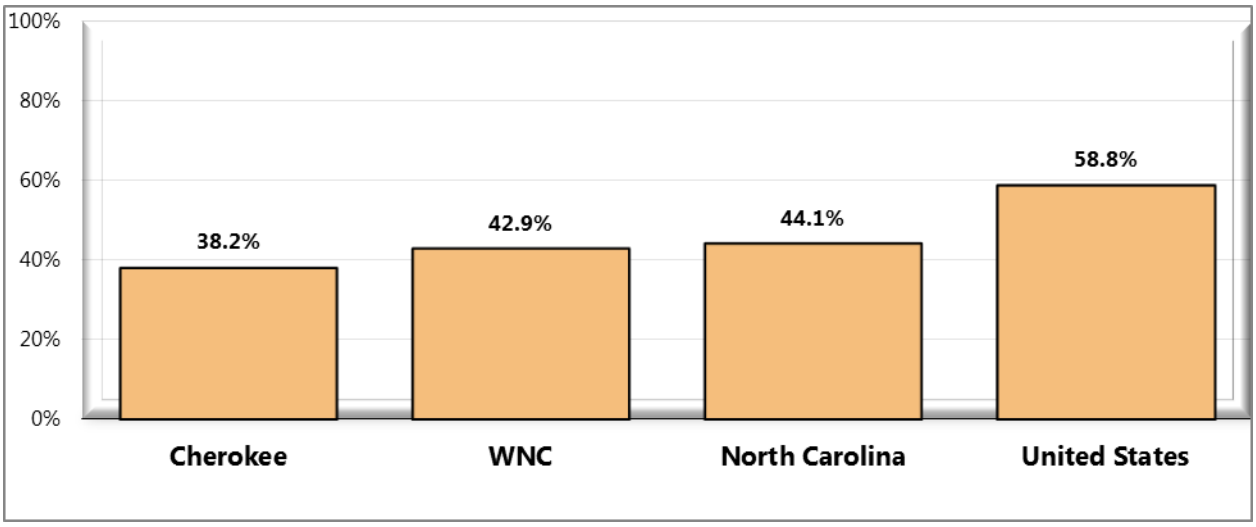
See Appendix D for the counties PRIDE Survey Results of 5th,7th, 9th, and 11th graders for more information on drug and substance abuse among adolescence.

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.

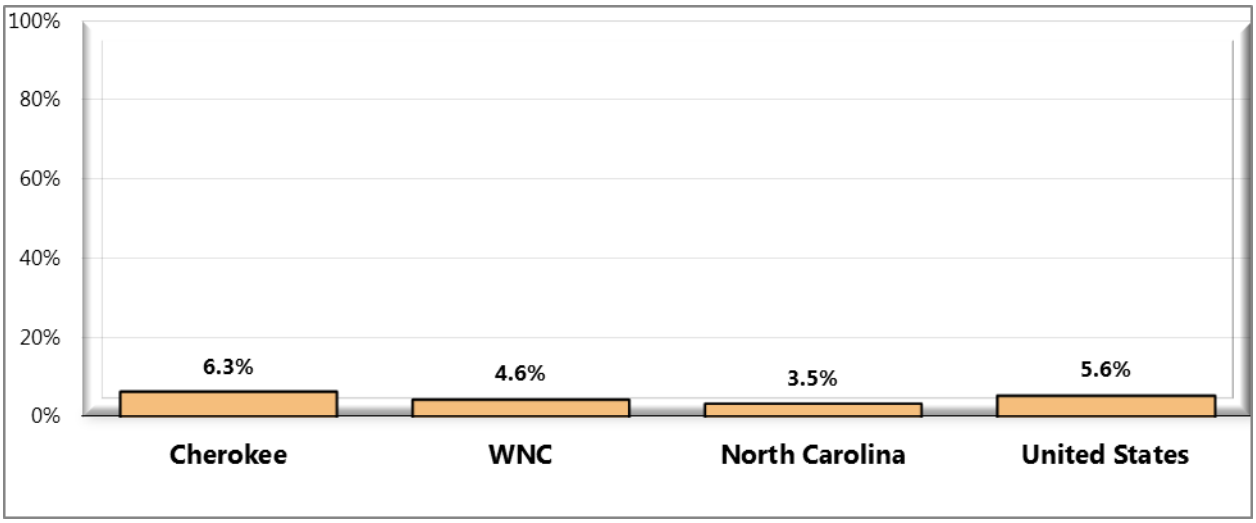
Figure 51. Current Drinkers (WNC Healthy Impact Survey)



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.

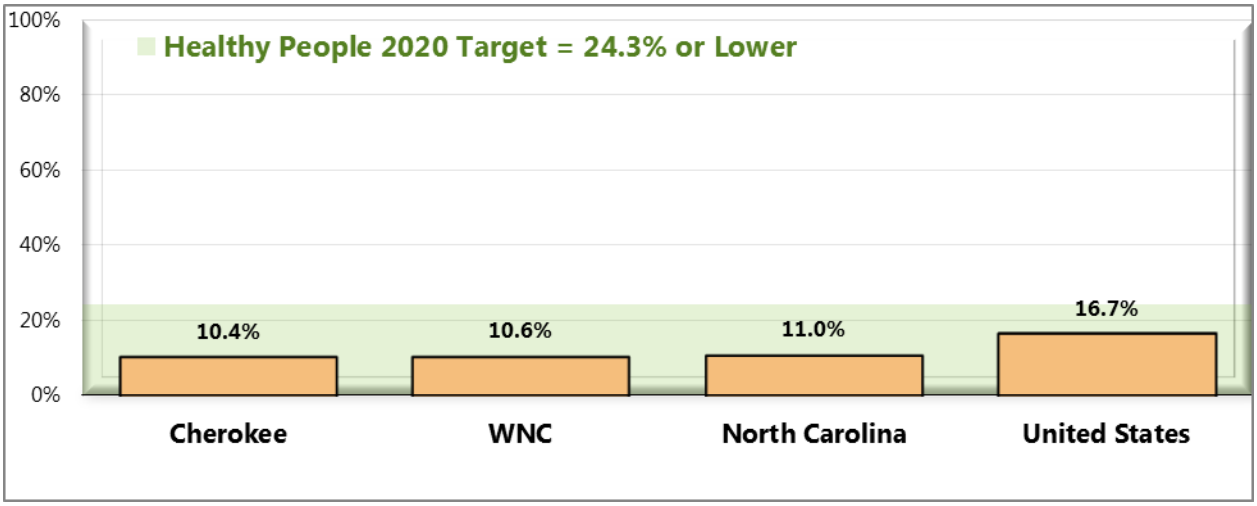
Figure 52. Chronic Drinkers (WNC Healthy Impact Survey)



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.
- *The state definition for chronic drinkers is males consuming 2+ drinks per day and females consuming 1+ drink per day in the past 30 days.

Figure 53. 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]

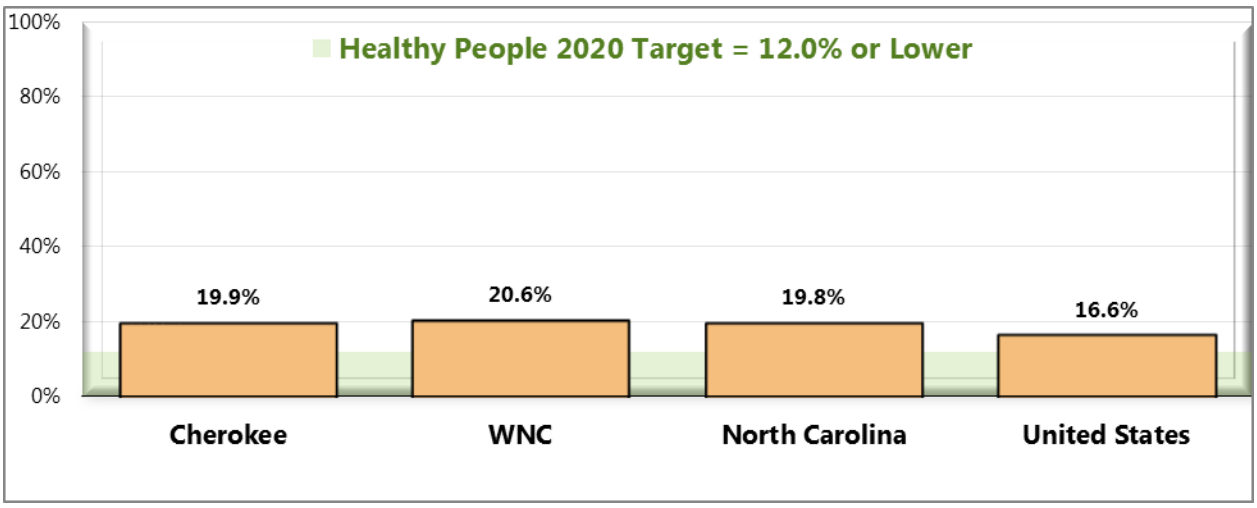
Notes:
- Asked of all respondents.
- Binge drinkers are defined as those consuming 5+ alcoholic drinks on any one occasion in the past 30 days; * note that state and national data reflect different thresholds for men (5+ drinks) and women (4+ drinks).

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).

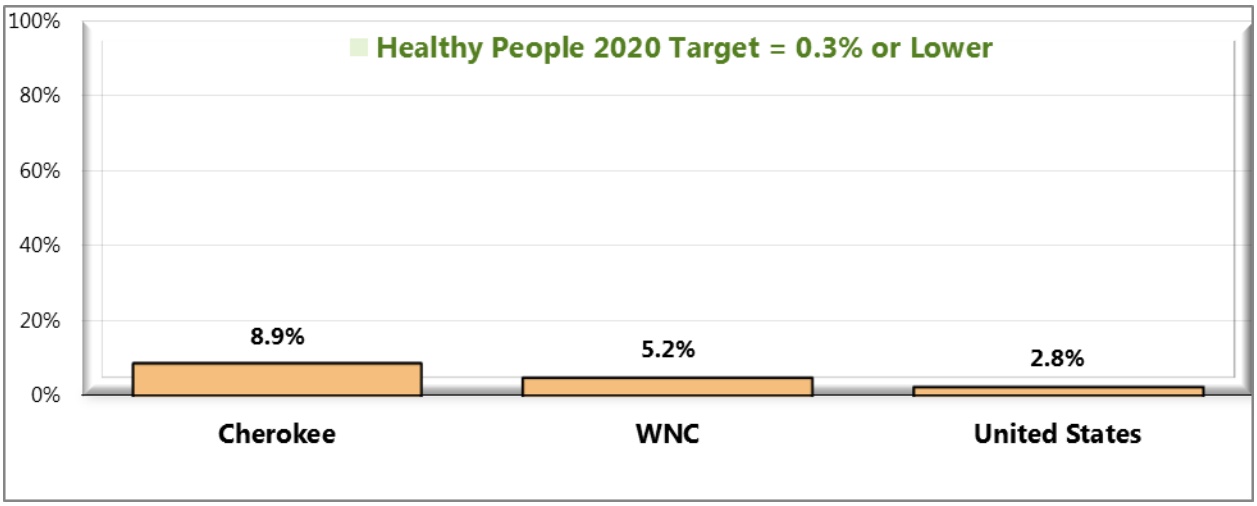
Figure 54. Current Smokers (WNC Healthy Impact Survey)



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

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

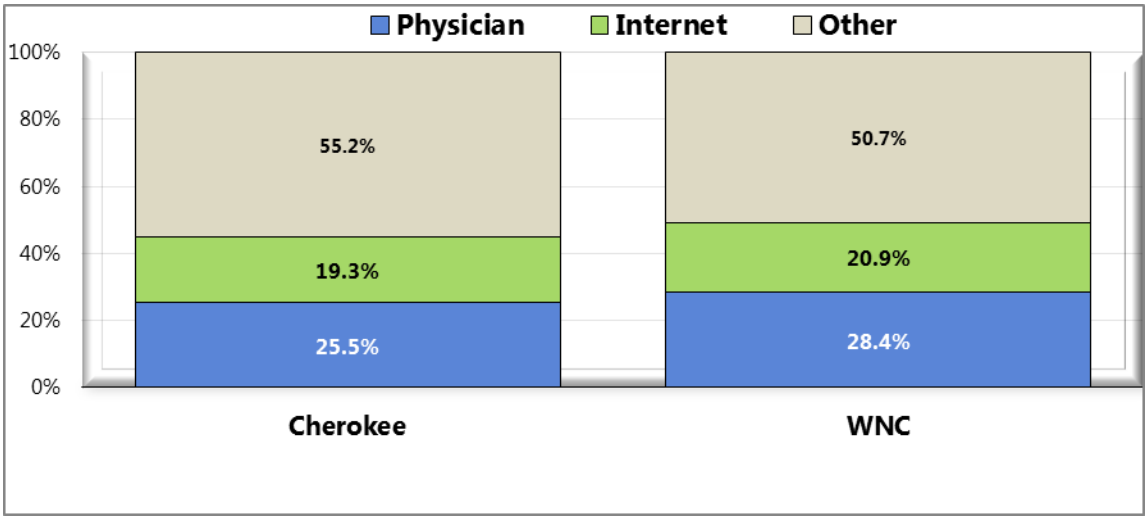
Sources:
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 48]

Notes:
- Asked of all respondents.

Health Information

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

Figure 56. 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 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.

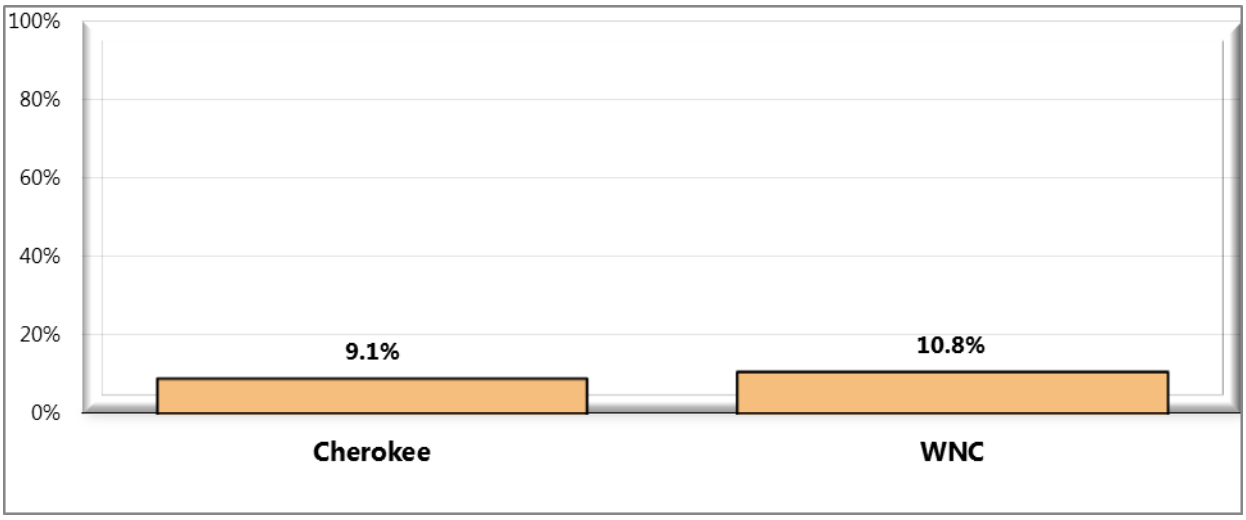
Access to health services means the timely use of personal health services to achieve the best health outcomes. It requires three distinct steps: 1) gaining entry into the health care system; 2) accessing a health care location where needed services are provided; and 3) finding a health care provider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

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.

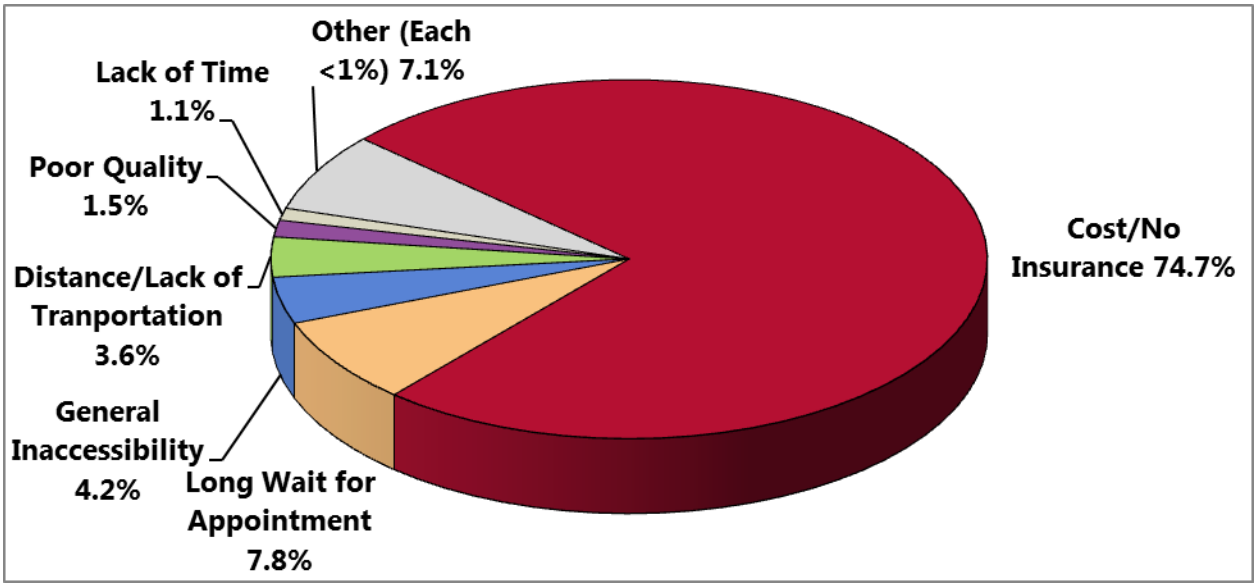
Survey respondents were also asked to indicate their agreement with the following statement: "*Considering cost, quality, number of options and availability, there is good healthcare in my county.*"

Figure 57. Was Unable to Get Needed Medical Care at Some Point in the Past Year (WNC Healthy Impact Survey)



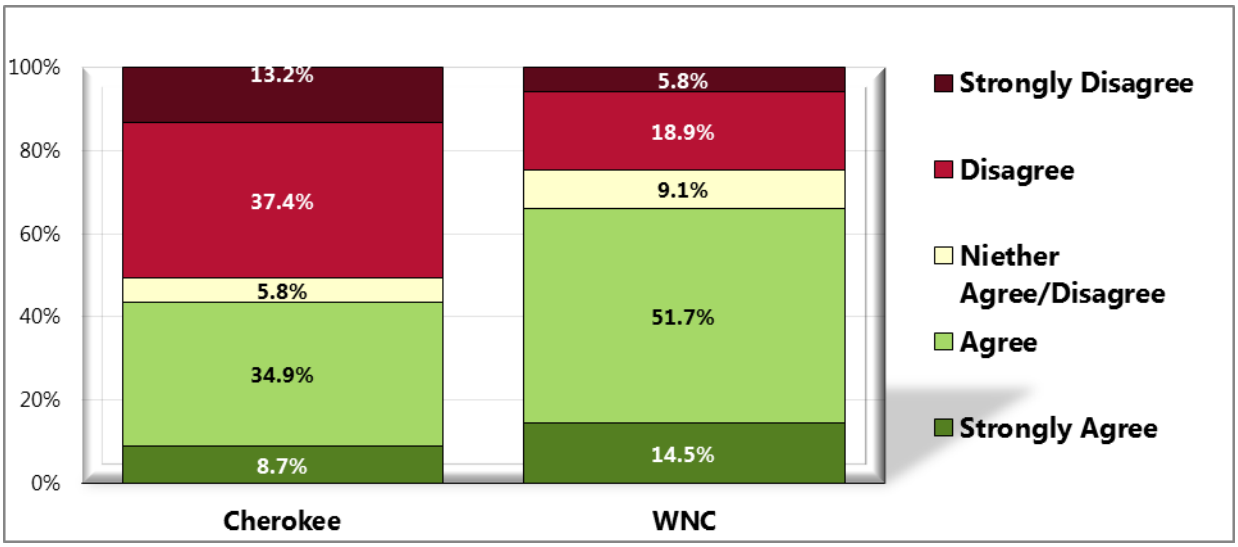
Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 13]
Notes: • Asked of all respondents.

Figure 58. 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 59. "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.

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 42 presents those data (which for simplicity's sake will be referred to simply as the "ratio") for Cherokee 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 ratio of professionals to population is lower in three categories in both years for Cherokee County than for WNC, NC or the US: physicians, primary care physicians, and dentists. The ratio for registered nurses is higher in Cherokee County than in WNC, but lower than in the US and NC as a whole. It should be noted that the average ratios for WNC are lower than the comparable state averages in every professional category listed in the table, and lower than the comparable national average in every professional category except primary care.

Table 42. 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
Cherokee County	14.5	7.1	2.6	80.8	9.3	12.7	5.8	3.3	80.3	9.1
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 43 lists the number of active health care professionals in Cherokee County and WNC, by specialty, for 2010. From these data it is apparent that there are several categories of professionals absent from Cherokee County, among them general practitioners, certified nurse midwives, and podiatrists. There also are three or fewer providers in the county in the specialties of obstetrics/gynecology, pediatrics, occupational therapy assistants, and psychological assistants.

Table 43. Active Health Professionals in Cherokee County and WNC, by Specialty (2010)

Category of Professionals	Cherokee County	WNC Total
Physicians		
Primary Care Physicians	16	813
Family Practice	6	368
General Practice	0	10
Internal Medicine	5	240
Obstetrics/Gynecology	3	85
Pediatrics	2	110
Other Specialties	19	853
Dentists and Dental Hygienists		
Dentists	9	342
Dental Hygienists	15	479
Nurses		
Registered Nurses	221	7,981
Nurse Practitioners	7	316
Certified Nurse Midwives	0	28
Licensed Practical Nurses	51	1,854
Other Health Professionals		
Chiropractors	7	192
Occupational Therapists	5	242
Occupational Therapy Assistants	3	99
Optometrists	5	84
Pharmacists	25	669
Physical Therapists	14	511
Physical Therapy Assistants	17	309
Physician Assistants	10	290
Podiatrists	0	24
Practicing Psychologists	5	201
Psychological Assistants	3	87
Respiratory Therapists	14	370

Uninsured Population

Table 44 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% increase in the percent of the uninsured at the state level from 2006-2007 to 2009-2010, the percent of uninsured adults in Cherokee County as well as WNC decreased from one two-year period to the next throughout the span of years shown in the table. In Cherokee County the decrease was 22.3%, and in WNC it was 5.9%.

Table 44. 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
Cherokee County	25.1	22.9	19.5
Regional Arithmetic Mean	23.4	22.3	22.0
State Total	19.5	23.2	23.6

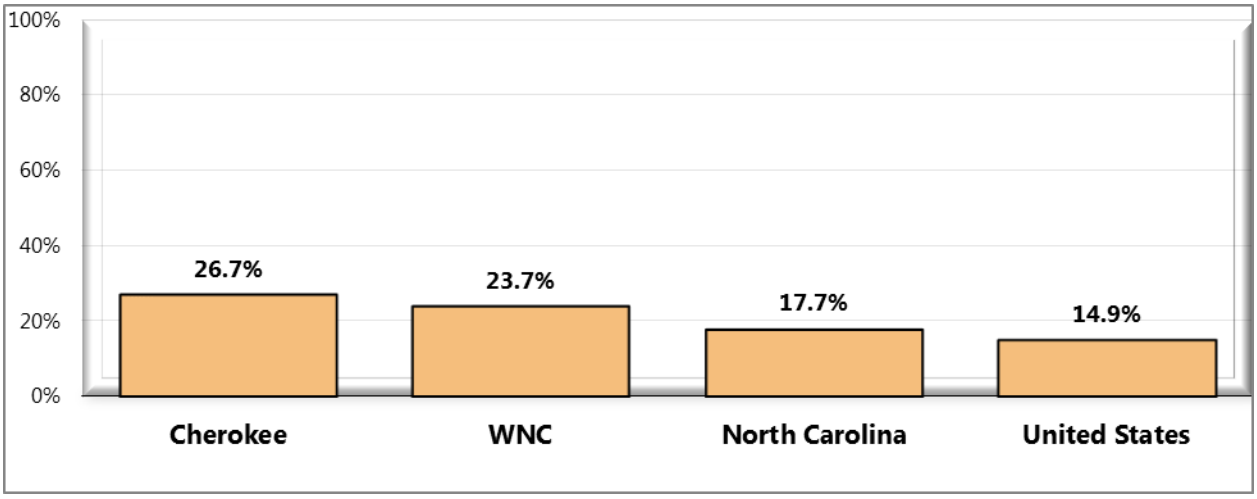
Table 45 shows the percent uninsured for one biennium (2009-2010) stratified by age. This data makes it clear that in Cherokee County as well as in WNC and NC as a whole, insurance coverage is better for children, among whom the percentage uninsured is less than half the percentage uninsured among the 19-64 age group. For all age categories cited, the percent uninsured is lower in Cherokee County and WNC than in NC.

Table 45. Estimated Percent Uninsured, All Ages (2009-2010)

Geography	2009-2010		
	Children (0-18)	Adults (19-64)	Total (0-64)
Cherokee County	9.3	19.5	16.8
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 60. 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 46 presents trend data on the number and percent of persons eligible for Medicaid for several state fiscal years. This data demonstrates that in Cherokee County the number and percent of Medicaid-eligible persons have fluctuated without pattern since SFY2004. Nevertheless, the percent of Medicaid-eligible Cherokee 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 46. Number and Percent of Population Medicaid-Eligible (SFY2004 through SFY2008)

Geography	SFY 2004		SFY 2005		SFY 2006		SFY 2007		SFY 2008	
	#	%	#	%	#	%	#	%	#	%
Cherokee County	5,722	22.63	5,719	22.26	5,798	22.15	5,761	21.48	5,889	21.79
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

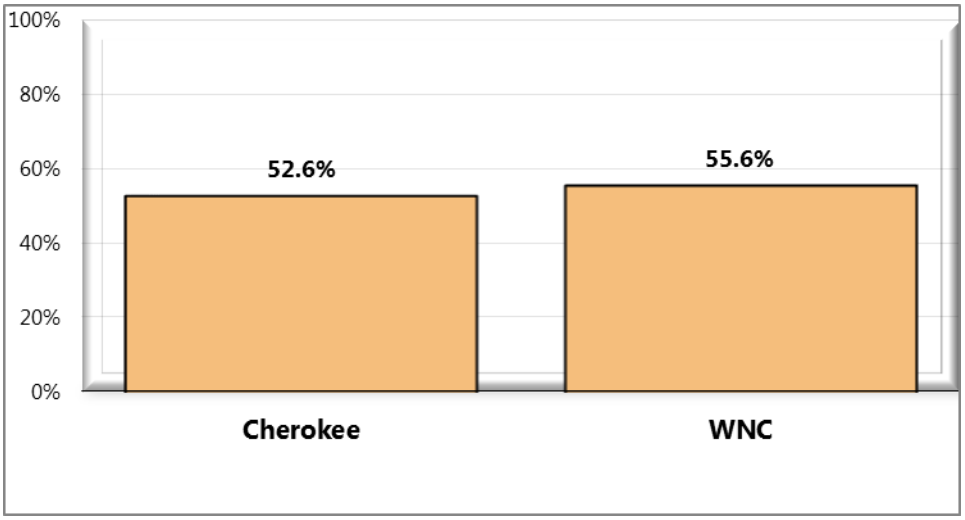
Diabetes mellitus occurs when the body cannot produce or respond appropriately to insulin. Insulin is a hormone that the body needs to absorb and use glucose (sugar) as fuel for the body's cells. Without a properly functioning insulin signaling system, blood glucose levels become elevated and other metabolic 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.

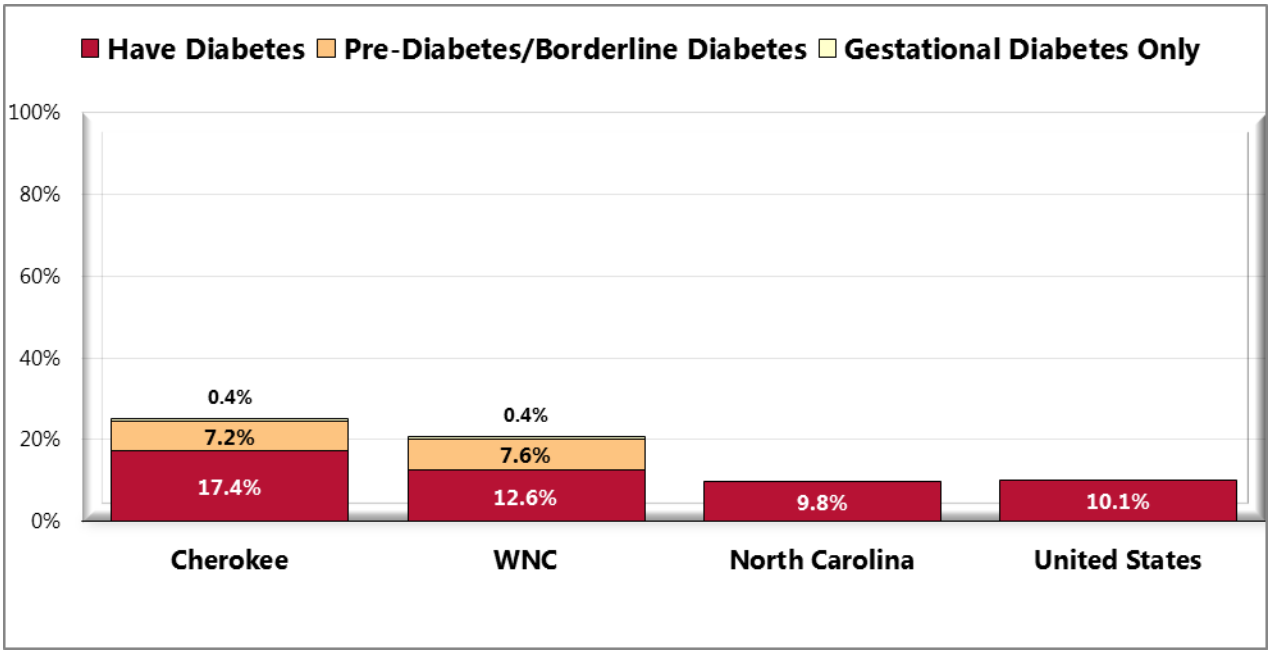
People from minority populations are more frequently affected by type 2 diabetes. Minority groups constitute 25% of all adult patients with diabetes in the US and represent the majority of children and adolescents with type 2 diabetes. Lifestyle change has been proven effective in preventing or delaying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

Figure 61. 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.

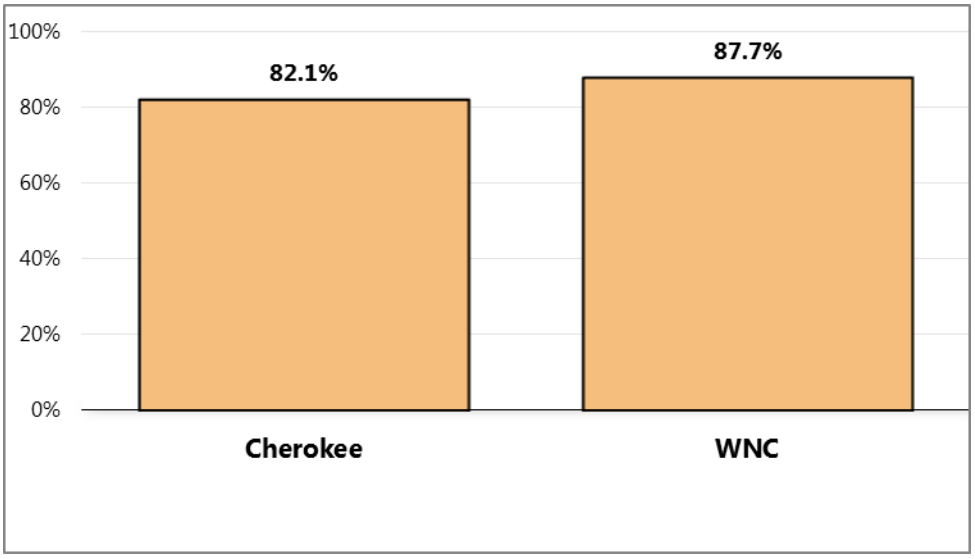
Figure 62. Prevalence of Diabetes (Ever Diagnosed)
(WNC Healthy Impact Survey)



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

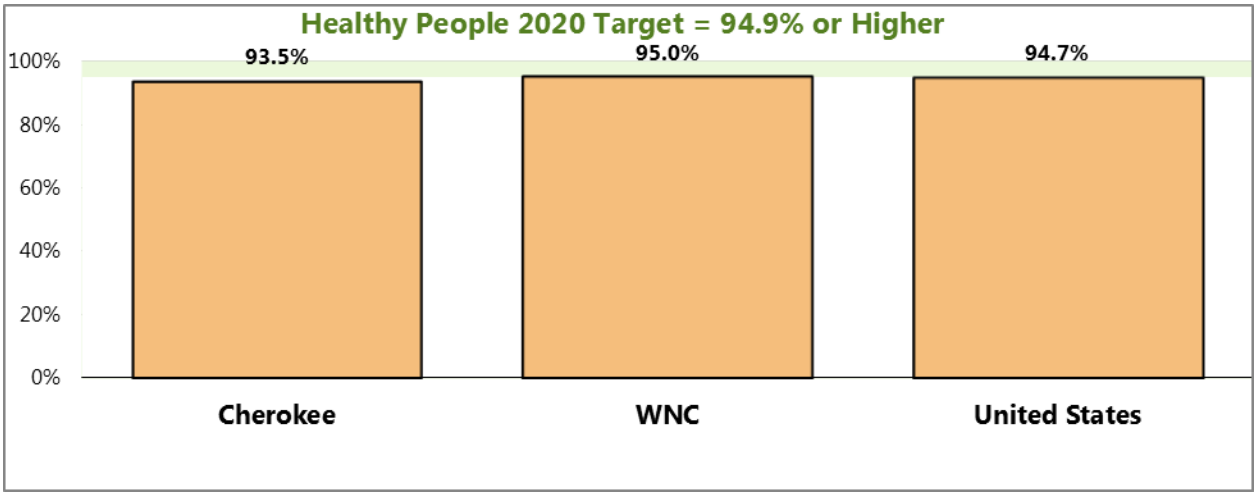


Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 21]
Notes: ● Asked of respondents who have been diagnosed with diabetes or prediabetes/borderline diabetes.
● In this case, the term "action" refers to taking natural or conventional medicines or supplements, diet 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).

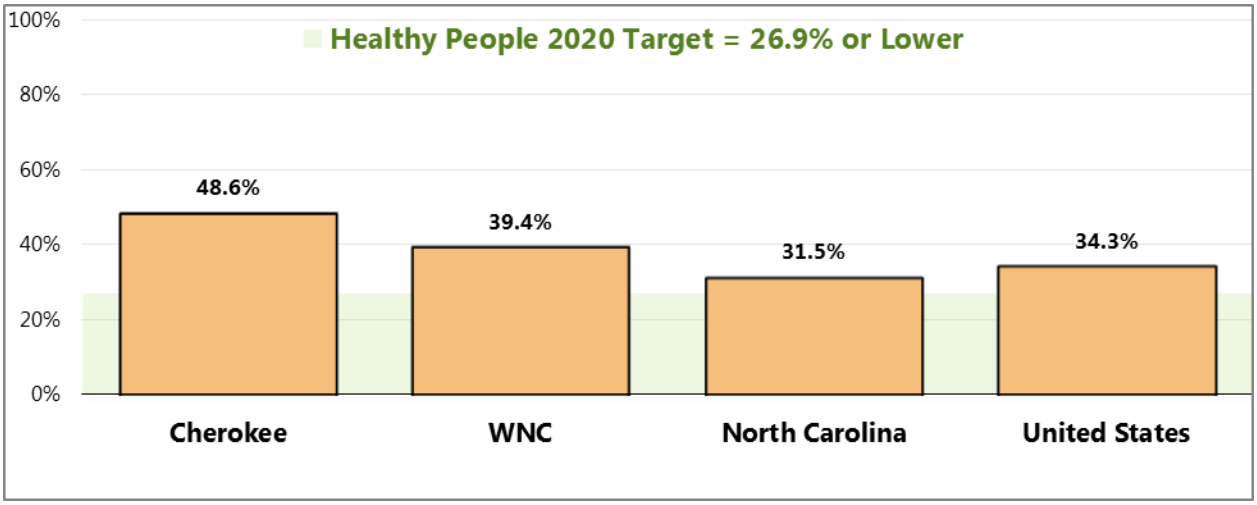
Figure 64. Have Had Blood Pressure Checked in the Past Two Years (WNC Healthy Impact Survey)



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.

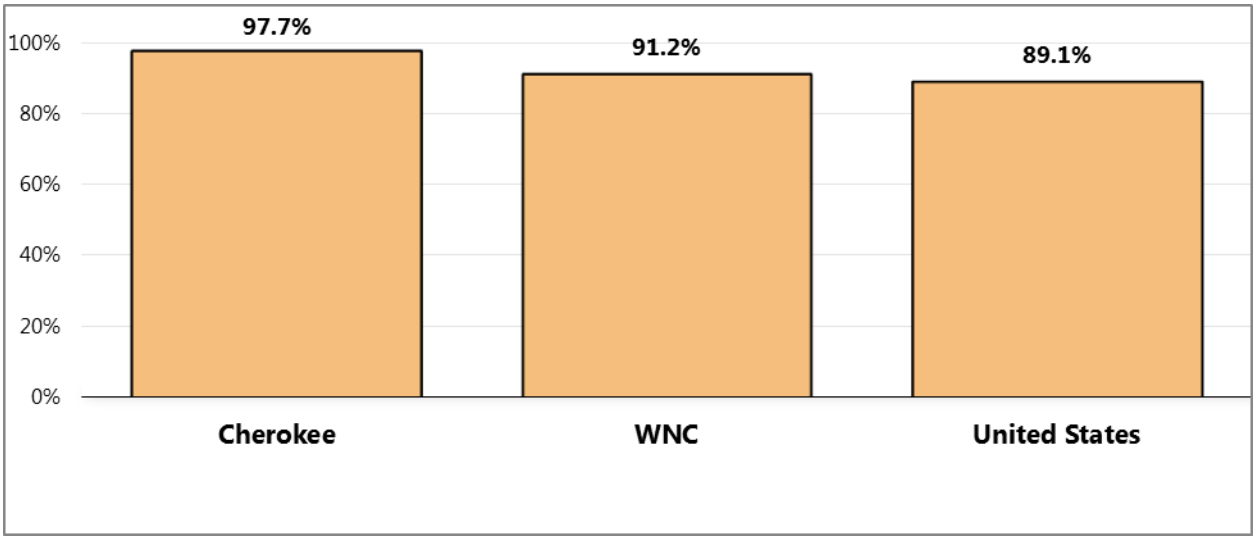
Figure 65. Prevalence of High Blood Pressure (WNC Healthy Impact Survey)



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



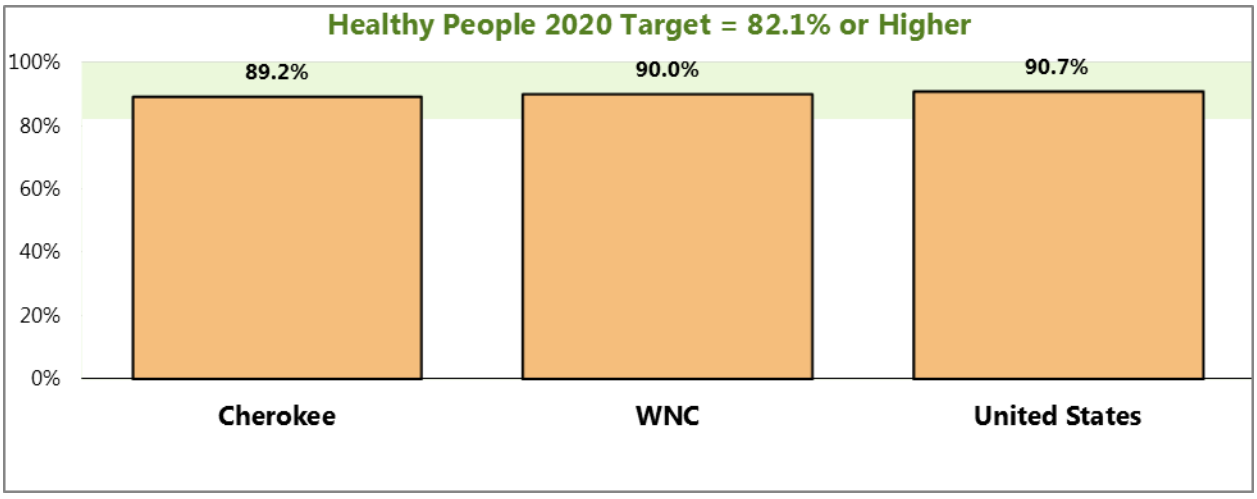
Sources:
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 23]
- 2011 PRC National Health Survey, Professional Research Consultants, Inc.

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.

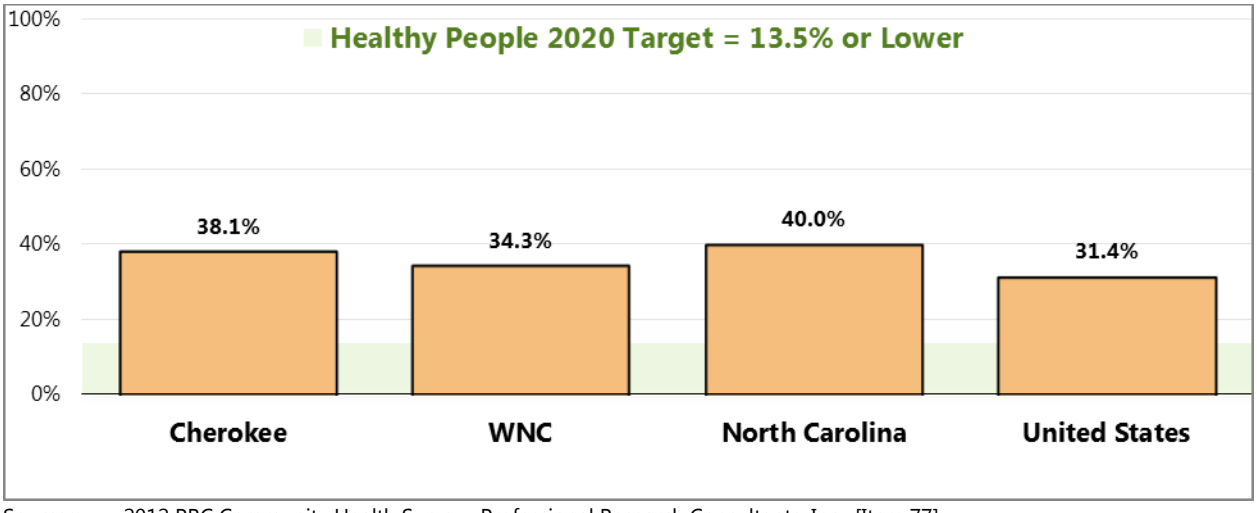
Figure 67. Have Had Blood Cholesterol Levels Checked in the Past Five Years (WNC Healthy Impact Survey)



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.

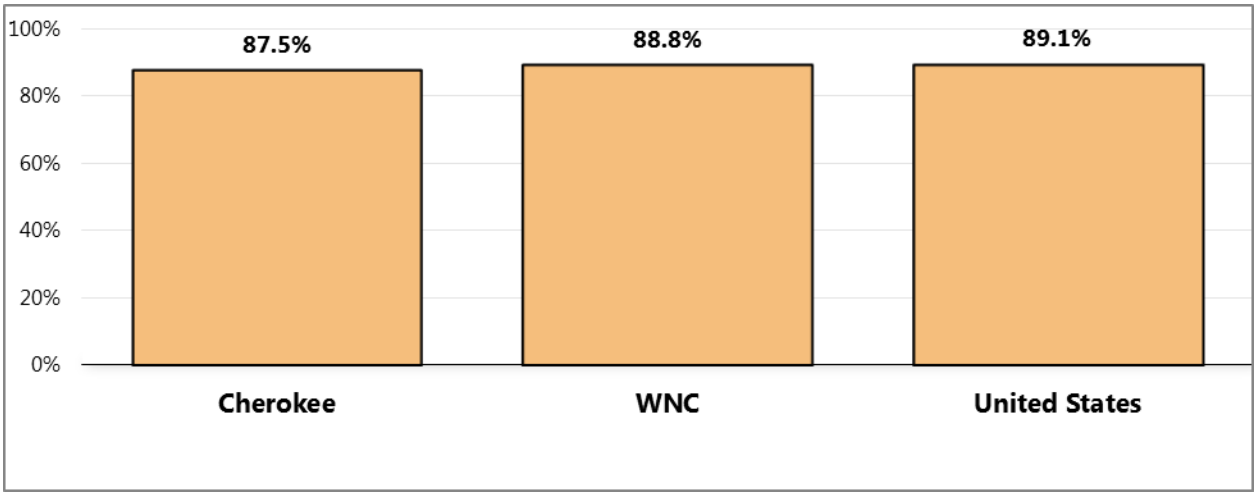
Figure 68. Prevalence of High Blood Cholesterol (WNC Healthy Impact Survey)



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]

Notes:
- Asked of all respondents.

Figure 69. 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

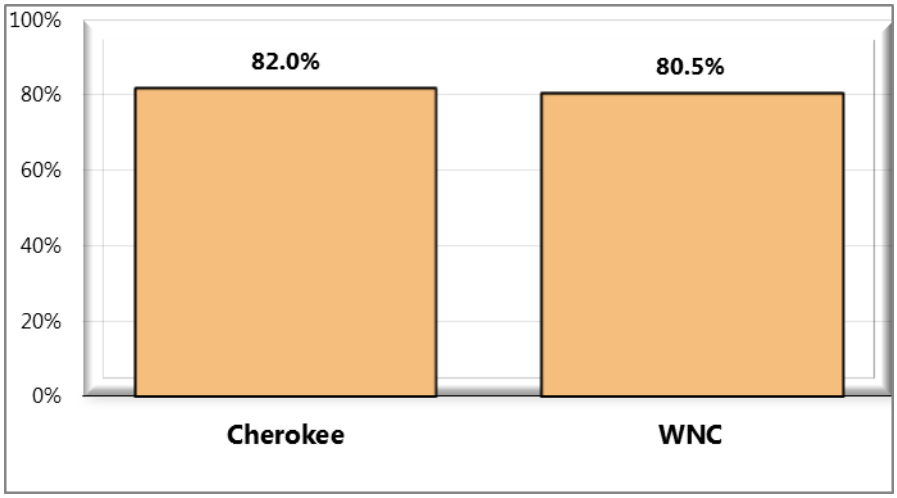
Routine Medical Care

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

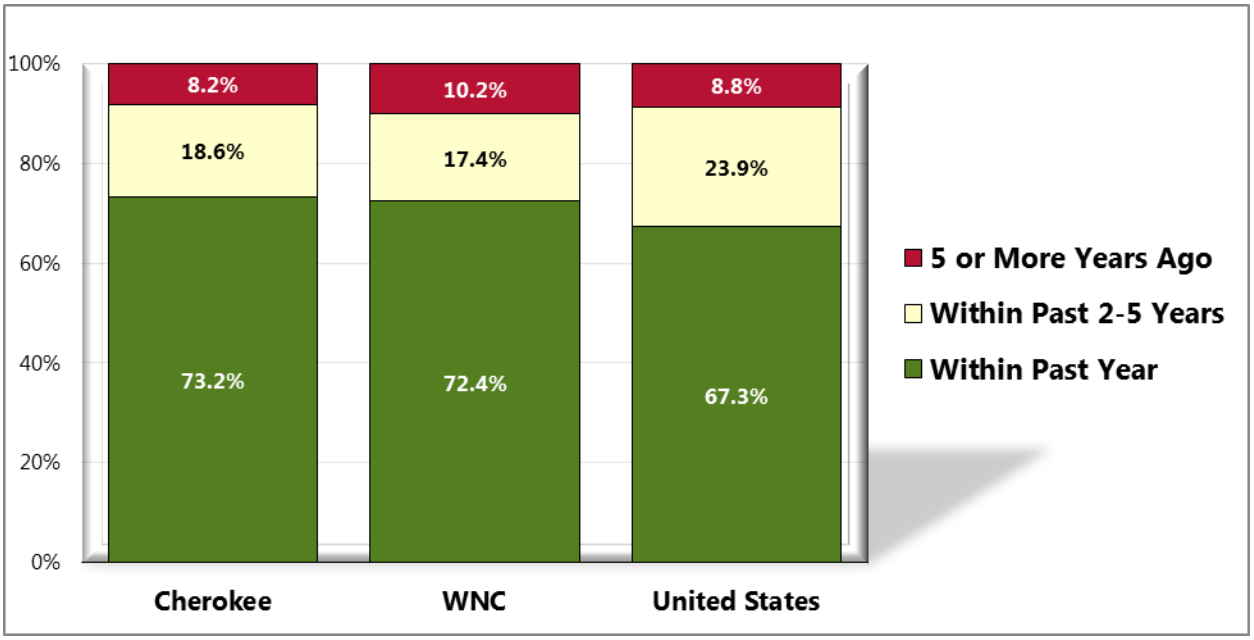
Improving health care services includes increasing access to and use of evidence-based preventive services. Clinical preventive services are services that: **prevent** illness by detecting early warning signs or symptoms before they develop into a disease (primary prevention); or **detect** a disease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

Figure 70. Have One Person Thought of as Respondent's Personal Doctor or Health Care Provider (WNC Healthy Impact Survey)



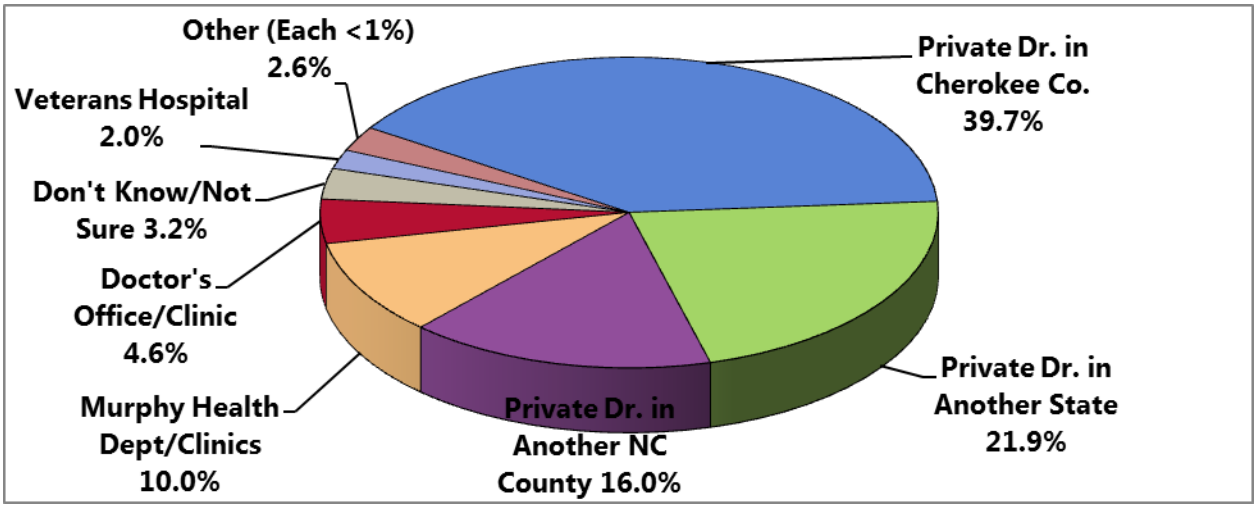
Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 16]
Notes: • Asked of all respondents.

Figure 71. 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.

Figure 72. Place Where Respondent Receives Routine Checkups
(WNC Healthy Impact Survey)



Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 100]
Notes: • Asked of all respondents.

Emergency Department Utilization

According to data in Table 47, the diagnoses associated with the highest frequency of emergency department visits in Cherokee County in 2010 were psychiatric disorders (10.84% of all ED visits), followed by diabetes (10.39%) and chest pain/ischemic heart disease (9.98%). 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 47. North Carolina Emergency Department Visits, NC DETECT Data (2010)

Diagnosis	Cherokee County		WNC Mean
	#	%	%
Chest pain/ischemic heart disease	993	9.98	11.83
Heart failure	320	3.21	2.58
Cardiac arrest	11	0.11	0.14
Lower respiratory disorders	989	9.94	9.48
Diabetes	1,034	10.39	8.80
Neoplasms	214	2.15	1.57
Dental problems	120	1.21	1.85
Stroke/TIA	48	0.48	0.62
Traumatic brain injury	18	0.18	0.30
Psychiatric disorders	1,079	10.84	10.98
Substance abuse	326	3.28	2.99
Total ED Visits	9,954	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 48 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 48. 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 49 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 regional totals presented in the table represent the sum of hospitalizations from each of the 16 WNC counties.

According to data in Table 49, the diagnosis resulting in the highest number of cases of hospitalization in 2010 among Cherokee County residents was cardiovascular and circulatory diseases (including heart disease and cerebrovascular disease), which accounted for 421 hospitalizations. The next highest number of hospitalizations (367) was for respiratory diseases, including pneumonia/influenza and chronic obstructive pulmonary disease, followed by digestive system diseases, including chronic liver disease and cirrhosis (261 cases).

Table 49. Inpatient Hospital Utilization by Cherokee County Residents, by Principal Diagnoses Excluding Newborns and Discharges from Out-of-State Hospitals (2011)

Diagnostic Category	Total # Cases		
	Cherokee County	Region	North Carolina
INFECTIOUS & PARASITIC DISEASES	130	2,741	41,705
-- Septicemia	94	1,604	27,412
-- AIDS	n/a	41	1,456
MALIGNANT NEOPLASMS	74	2,599	31,225
-- Colon, Rectum, Anus	8	324	3,770
-- Trachea, Bronchus, Lung	13	346	4,541
-- Female Breast	4	157	1,498
-- Prostate	4	192	2,505
BENIGN, UNCERTAIN & OTHER NEOPLASMS	16	650	8,948
ENDOCRINE, METABOLIC & NUTRITIONAL DISEASES	124	2,905	40,208
-- Diabetes	63	1,240	18,101
BLOOD & HEMOPOETIC TISSUE DISEASES	22	770	14,011
NERVOUS SYSTEM & SENSE ORGAN DISEASES	41	1,597	19,315
CARDIOVASCULAR & CIRCULATORY DISEASES	421	12,961	162,327
-- Heart Disease	292	9,006	108,060
-- Cerebrovascular Disease	65	2,259	29,429
RESPIRATORY DISEASES	367	8,683	93,891
-- Pneumonia/Influenza	113	3,089	29,852
-- Chronic Obstructive Pulmonary Disease	85	2,557	30,832
DIGESTIVE SYSTEM DISEASES	261	8,527	95,068
-- Chronic Liver Disease/Cirrhosis	4	178	2,361
GENITOURINARY DISEASES	139	4,123	45,978
-- Nephritis, Nephrosis, Nephrotic Synd.	40	1,036	14,368
PREGNANCY & CHILDBIRTH	157	7,921	125,271
SKIN & SUBCUTANEOUS TISSUE DISEASES	36	1,287	17,734
MUSCULOSKELETAL SYSTEM DISEASES	156	5,950	58,753
-- Arthropathies and Related Disorders	76	3,155	30,683
CONGENITAL MALFORMATIONS	12	294	3,318
PERINATAL COMPLICATIONS	4	198	4,035
SYMPTOMS, SIGNS & ILL-DEFINED CONDITIONS	95	3,916	48,299
INJURIES & POISONING	258	7,474	78,637
OTHER DIAGNOSES (INCL. MENTAL DISORDERS)	124	7,329	84,657
ALL CONDITIONS	2,437	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.

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

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 50 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 Cherokee County are lower than in the other two jurisdictions.

Table 50. 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
Cherokee County	3,412	1,593	46.7	2,786	746	26.8
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 51, 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 51. 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
Cherokee County	1,049	554	52.8
Regional Total	26,820	14,407	53.7
State Total	n/a	n/a	51.7

Dental Screening Results among Children

Table 52 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 Cherokee County (2.12 per child) was 3% lower than the mean percentage for WNC (2.18) but 41% higher than the state average (1.50).

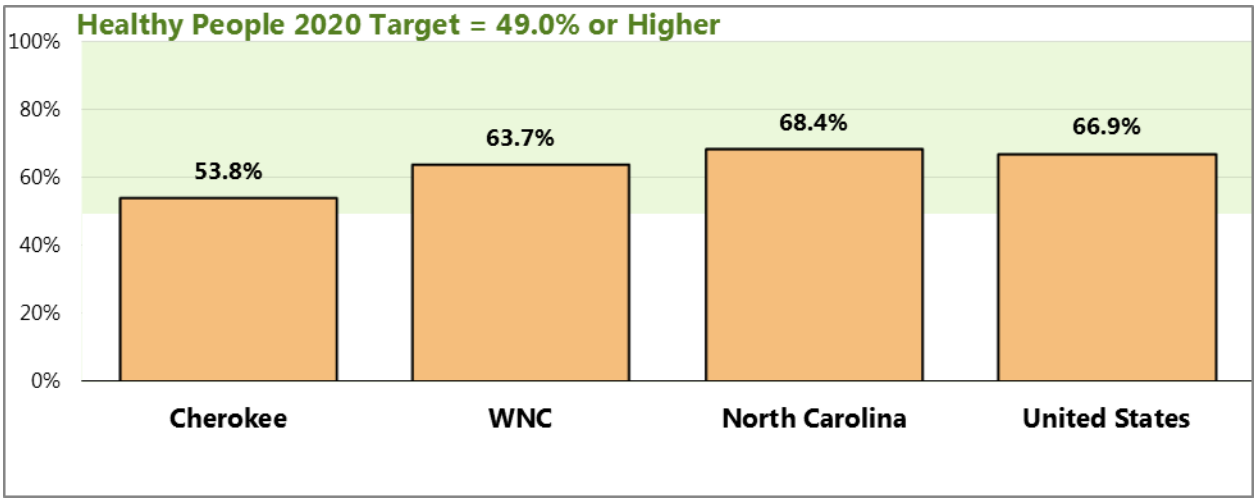
Table 52. Dental Screening Results, Kindergarteners (2009)

Geography	Average # Decayed, Missing or Filled Teeth
Cherokee County	2.12
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 73. 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.

Mental health and physical health are closely connected. Mental health plays a major role in people's ability to maintain good physical health. Mental illnesses, such as depression and anxiety, affect people's ability to participate in health-promoting behaviors. In turn, problems with physical health, such as chronic diseases, can have a serious impact on mental health and decrease a person's ability to participate in treatment and recovery.

In addition to advancements in the prevention of mental disorders, there continues to be steady progress in treating mental disorders as new drugs and stronger evidence-based outcomes become available (DHHS, 2010).

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

Geography	# Persons Served in Area Mental Health Programs				
	2006	2007	2008	2009	2010
Cherokee County	1,436	1,712	1,918	1,009	1,073
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 54 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, it appears that increasing numbers of persons in 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. There is no clear pattern discernible in the data for Cherokee County other than a high number of cases in 2008 relative to other years.

Table 54. 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
Cherokee County	13	13	33	12	13
Regional Total	664	604	774	751	921
State Total	4,003	3,733	4284	4,812	4,483

Table 55 presents figures on the numbers of persons receiving services in NC state psychiatric hospitals. The number of persons in Cherokee County utilizing these services fell every year from 2006 to 2010, decreasing by 51% over the 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.

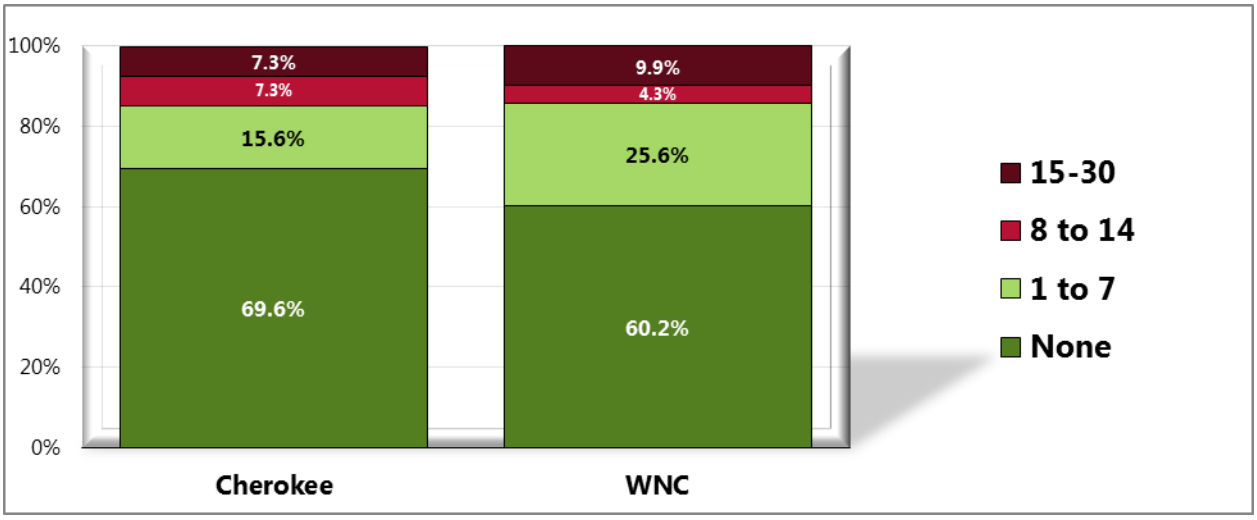
Table 55. Persons Served in NC State Psychiatric Hospitals (2006-2010)

Geography	# Persons Served in NC State Psychiatric Hospitals				
	2006	2007	2008	2009	2010
Cherokee County	43	39	25	22	21
Regional Total	1,509	1,529	1190	818	564
State Total	18,292	18,498	14643	9,643	7,188

Poor Mental Health Days

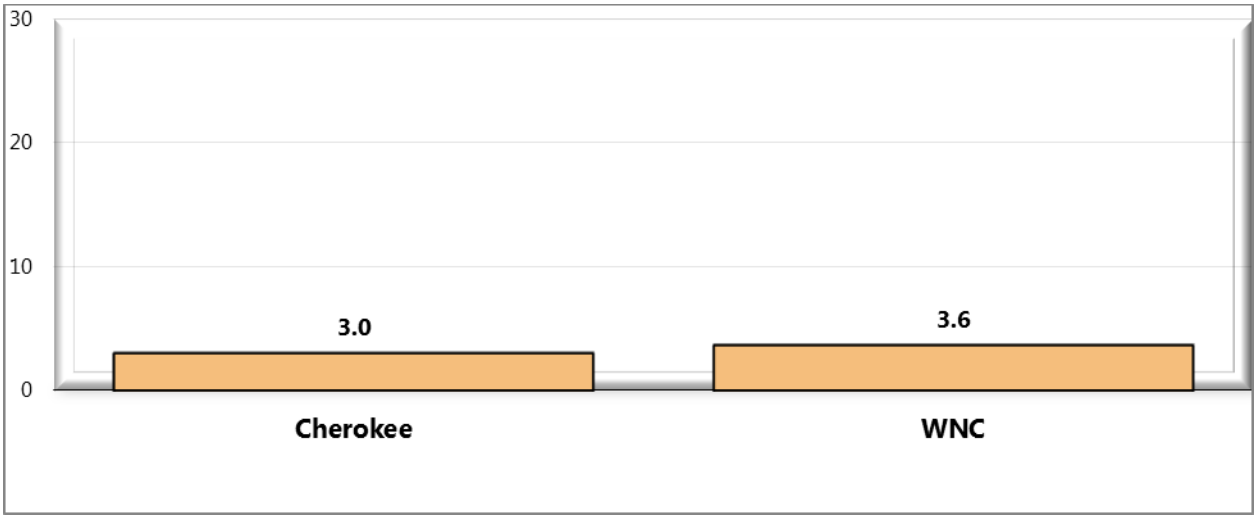
Survey respondents were asked, "Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many of the past 30 days was your mental health not good?"

Figure 74. Number of Days in 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 respondents.

Figure 75. Average Number of the Past 30 Days on Which Mental Health Was Not Good (WNC Healthy Impact Survey)

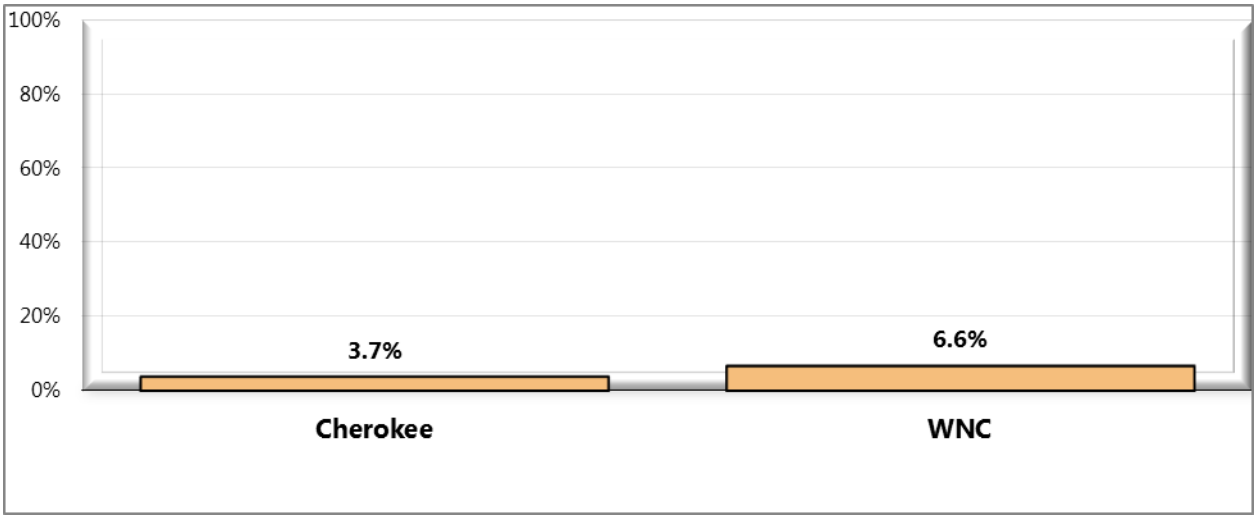


Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 64]
Notes: ● Asked of all respondents.

Access to Mental Health Services

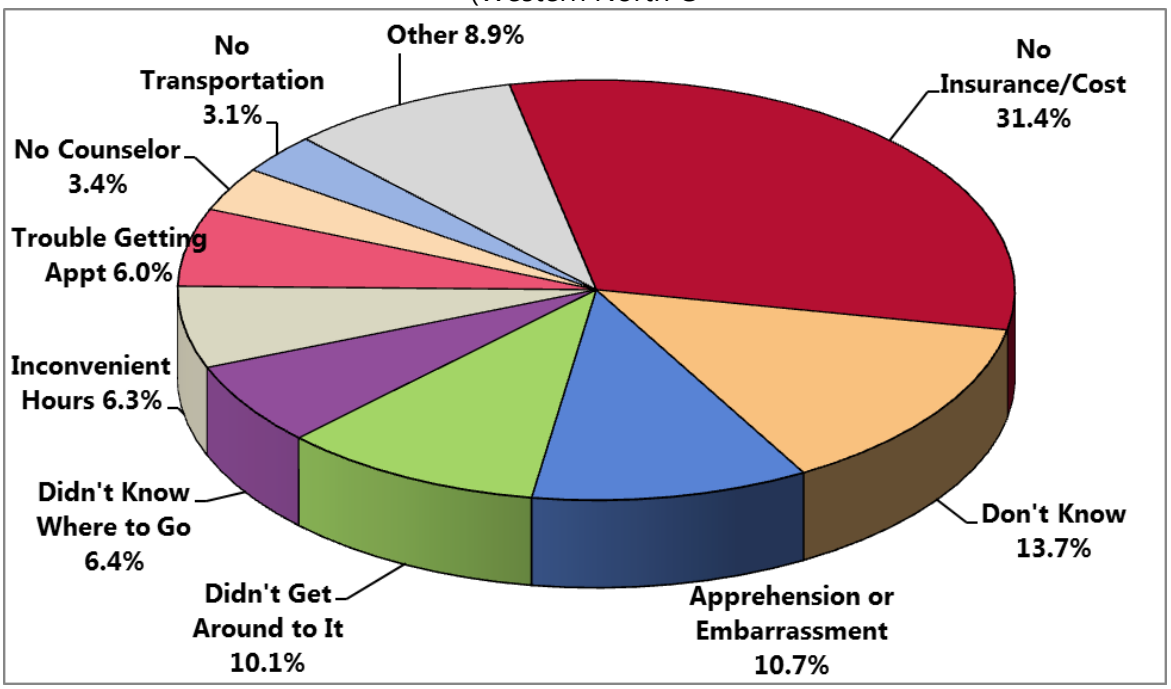
Survey respondents were asked if they had a time in the past year when they needed mental health care or counseling, but did not get it at that time. Those who responded, "yes," were asked to name the main reason they did not get mental health care or counseling. Due to small county-level sample sizes,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

Figure 76. 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 77. 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 C



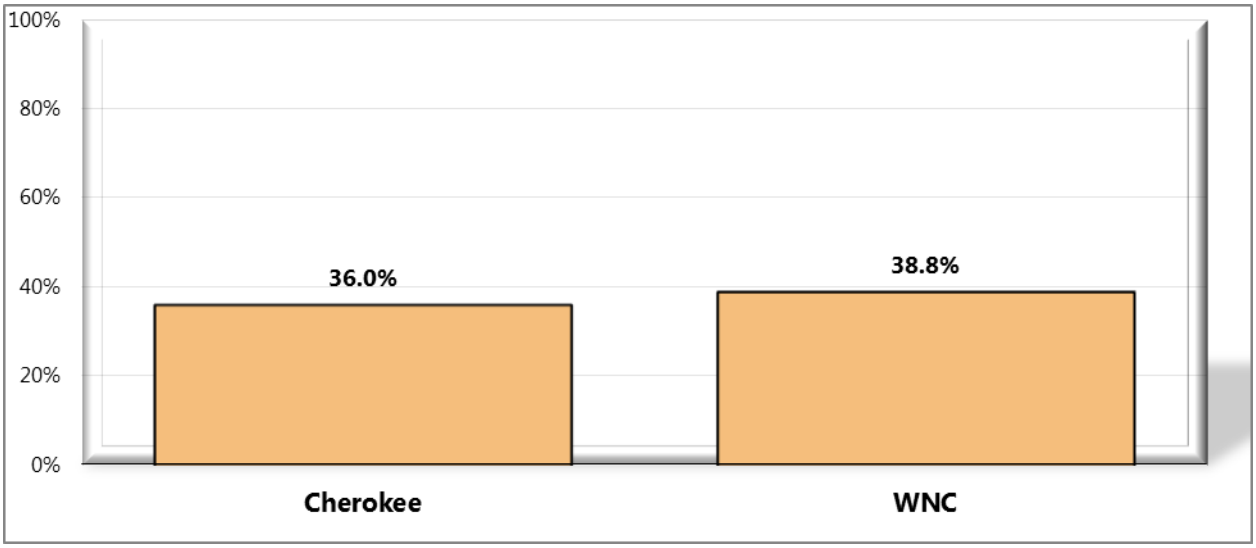
arolina, 2012)

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.

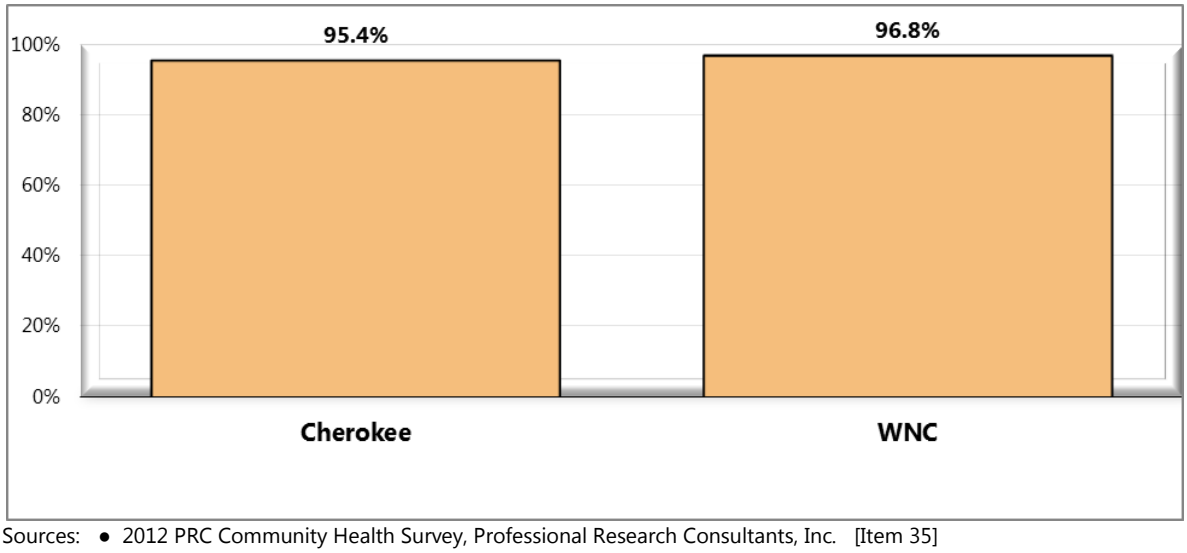
Figure 78. Have Completed Advance Directive Documents (WNC Healthy Impact Survey)



Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 34]
Notes: ● Asked of all respondents.

Figure 79. Have Communicated Health Care Decisions to Family or Doctor (WNC Healthy Impact Survey)

(Among Respondents with Advance Directive Documents)

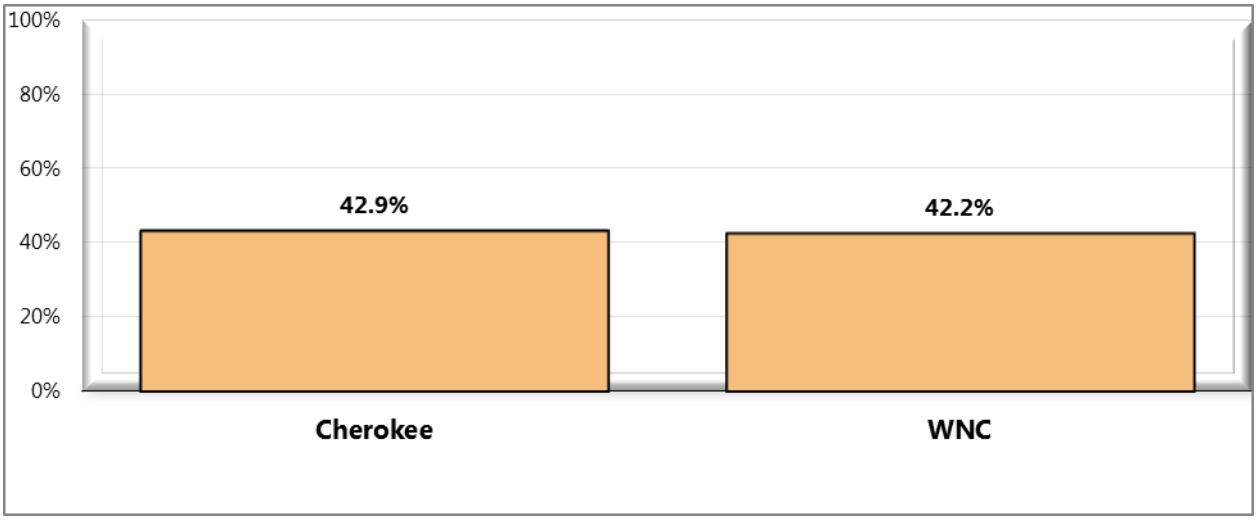


Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 35]
Notes: ● Asked of respondents with completed advance directive document

Care-giving

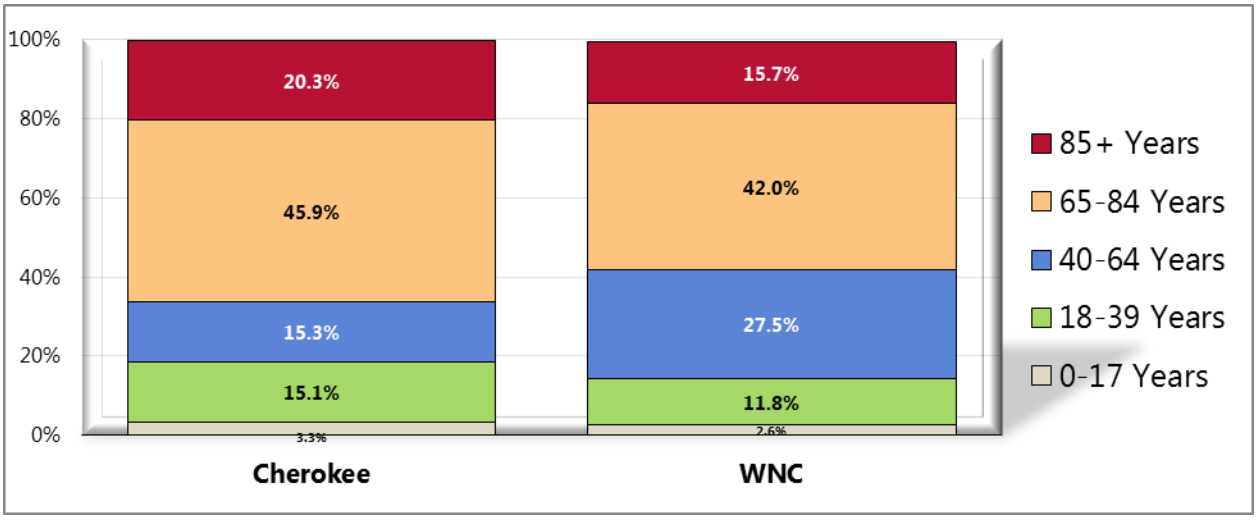
People may provide regular care or assistance to a friend or family member who has a health problem, long-term illness, or disability. Respondents were asked, "During the past month, did you provide any such care or assistance to a friend or family member?" Those who answered, "yes," were asked for the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

Figure 80. 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 81. 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 56. 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
Cherokee	4.3%	10.9%	11.8%	11.6%	6.1%	7.5%	4.0%	43.8%	0.0%
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 57. 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
Cherokee	2.1%	1.8%	4.8%	5.9%	25.8%	14.6%	13.9%	31.1%
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

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 58 defines the AQI levels.

Table 58. 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. Note that Cherokee County is not among the monitored counties. The WNC figures presented in Tables 59 and 60 below represent the arithmetic means of the values for those nine counties. Data in Table 59 shows that there were no days rated "very unhealthy" or "unhealthy" in 2011, and only one day 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.

Table 59. 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
Regional Arithmetic Mean	275	227	47	1	0	0

Table 60 lists the pollutants causing the air quality deficiencies. This data shows that in 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 60. 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}
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 61 presents the 2010 TRI Summary for Cherokee County, which ranks 73rd among the state's 86 ranked counties. The TRI chemicals released in the greatest quantity in Cherokee County include propylene, from Team Industries in Andrews, and lead, from Moog Components in Murphy.

Table 61. Toxic Release Inventory (TRI) Summary, Cherokee 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
237	Propylene Lead	183 54	Team Industries Moog Components	Andrews Murphy

Indoor Air Quality

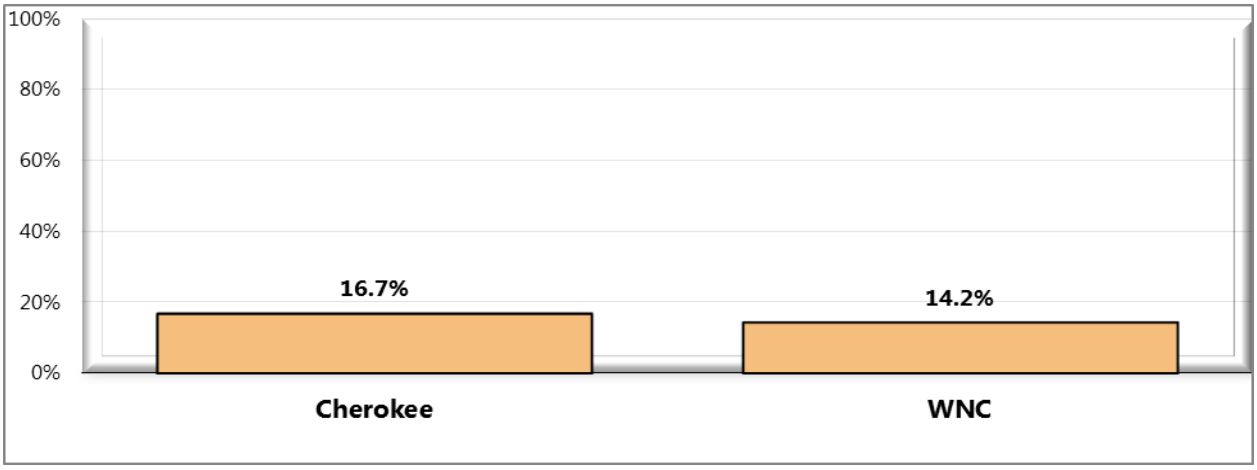
Environmental tobacco smoke

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 US. 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).

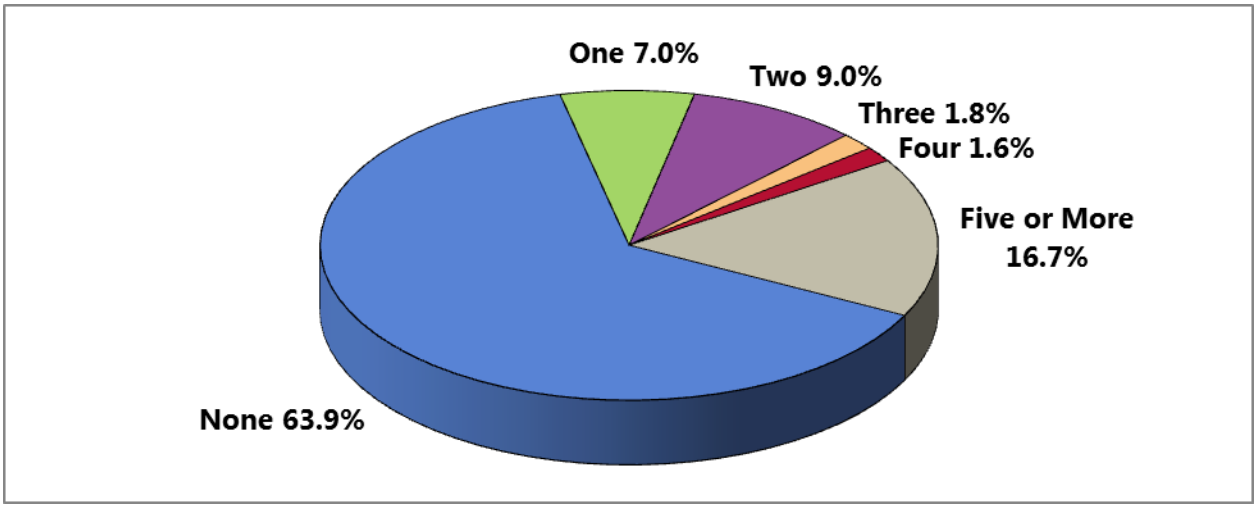
Survey respondents were asked about their second-hand smoke exposure in their workplace and in outdoor spaces. In addition, in order to evaluate community members' perceptions about environmental tobacco smoke, survey respondents were given a series of three statements regarding smoking in public places 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 82. Have Breathed Someone Else's Cigarette Smoke at Work in the Past Week (WNC Healthy Impact Survey)
(Among Employed Respondents)



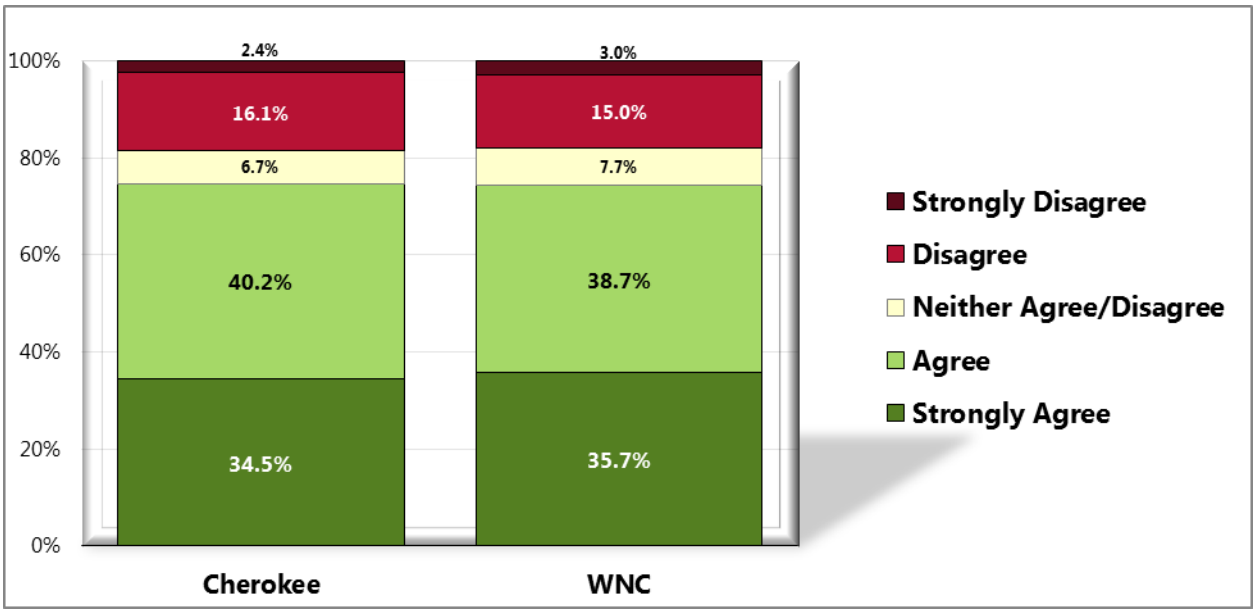
Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 44]
Notes: ● Asked of employed respondents.

Figure 83. Number of the Past 30 Days on Which Respondent Breathed Someone Else's Smoke in an Outdoor Public Space (WNC Healthy Impact Survey)



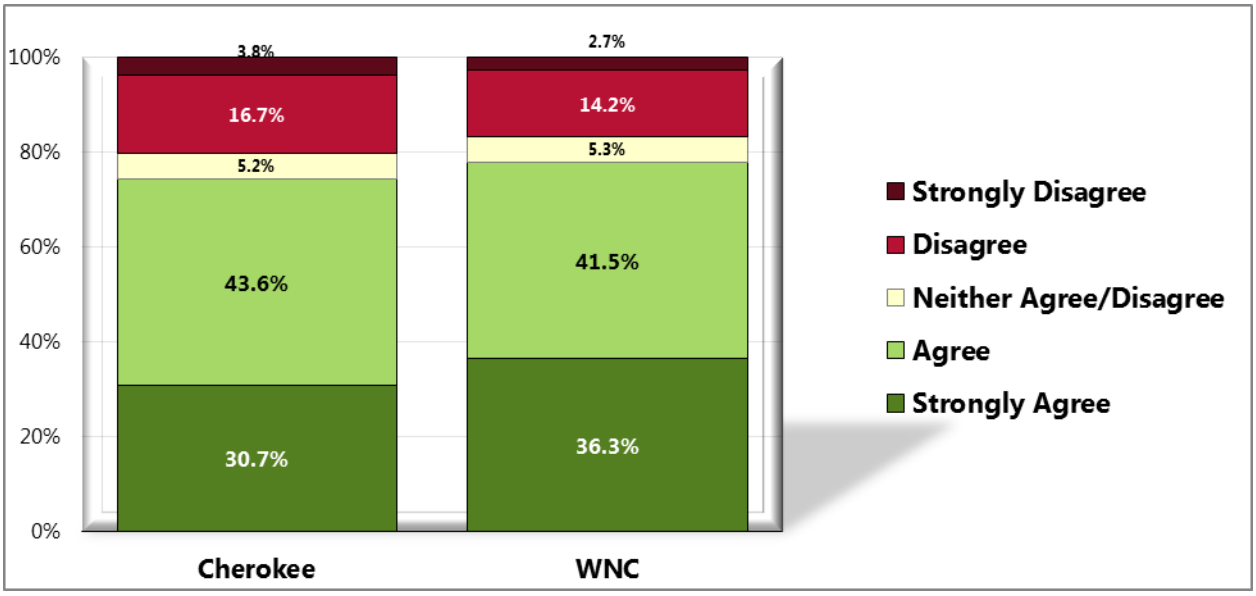
Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 104]
Notes: ● Asked of all respondents.

Figure 84. "I believe it is important for universities and colleges to be 100% tobacco-free" (WNC Healthy Impact Survey)



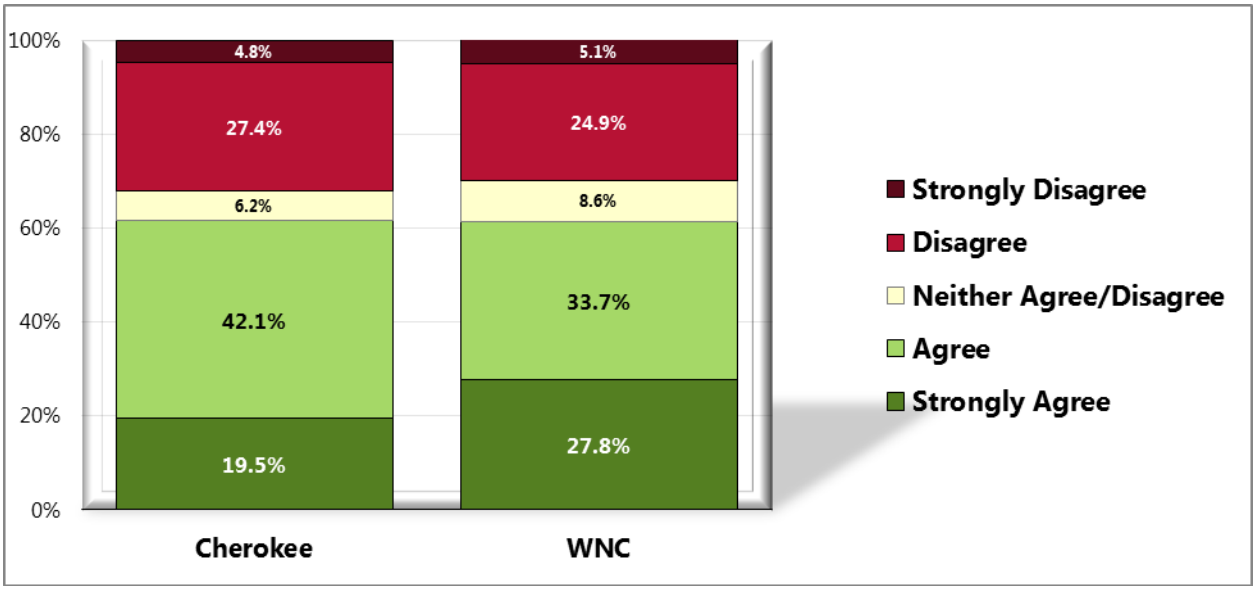
Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 45]
Notes: ● Asked of all respondents.

Figure 85. "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 86. "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

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. This category includes municipalities, but also subdivisions and mobile home parks. 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 Cherokee County, 9,551 of 27,444 county residents, or 34.8%, were being served by community water systems in February of 2012. Presumably the remaining 65.2% were served by wells or other sources.

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 Cherokee County was 5.5 pCi/L, over four times the national indoor radon level (*Data Workbook*).

Built Environment

The term "built environment" refers to the human-made surroundings that provide the setting for human activity, ranging in scale from buildings and parks or green space to neighborhoods and cities that can often include their supporting infrastructure, such as water supply, or energy networks. In recent years, public health research has expanded the definition of built environment to include healthy food access, community gardens, "walkability", and "bikability" (Wikipedia, 2012).

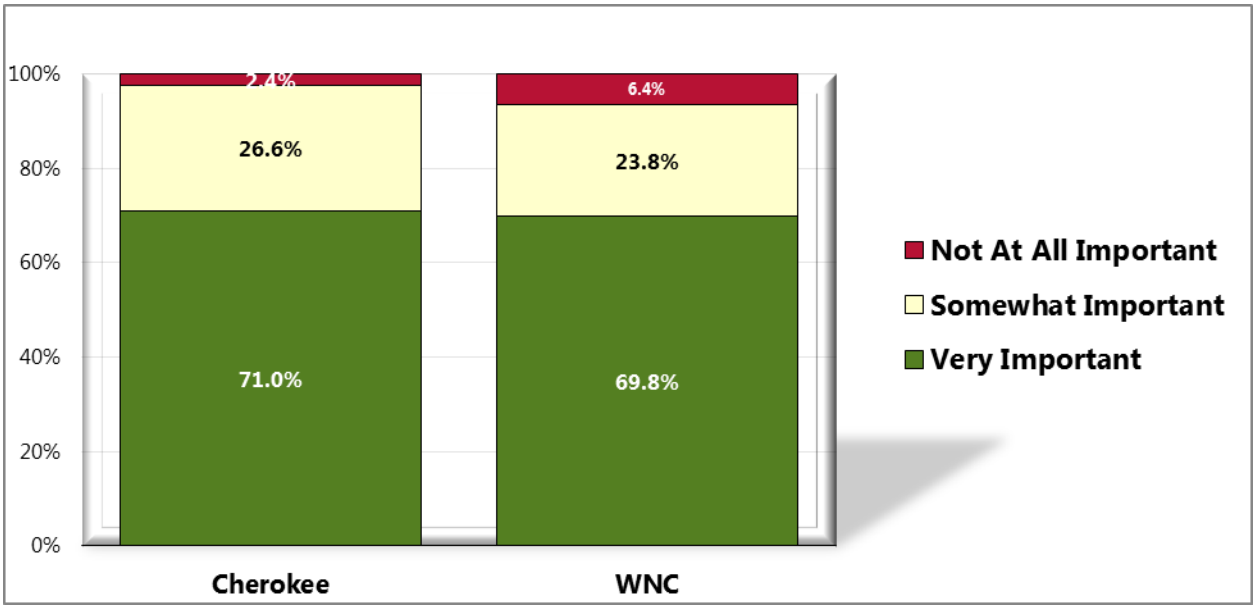
Access to Farmers' Markets and Grocery Stores

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 Cherokee County there were two 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 Cherokee County the number of grocery stores grew from 5 to 6 over the same period (*Data Workbook*).

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?"

Figure 87. 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.

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 Cherokee County the number of fast food restaurants fell from 28 to 22 over the same period (*Data Workbook*).

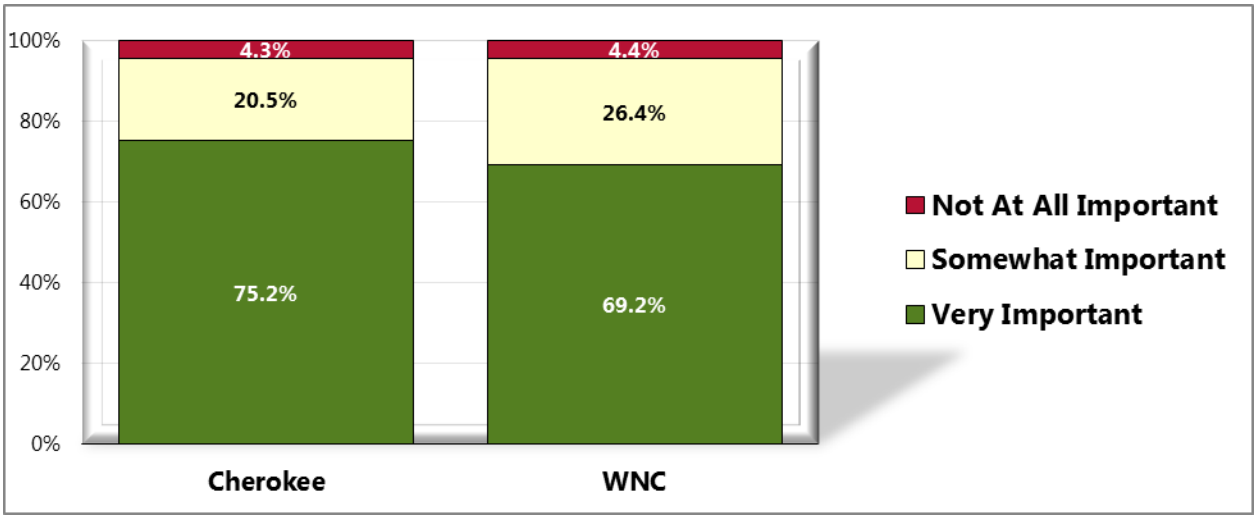
Also according to the USDA, mean per capita fast food expenditures in WNC rose 45% (from $514 to $746) between 2002 and 2007, and mean per capita restaurant expenditures in WNC also rose 45% (from $449 to $665) over the same period (*Data Workbook*).

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 55, in 2009, a decrease of 32%. In Cherokee County the number of recreational and fitness facilities fell from 4 to 2 over the same period (*Data Workbook*).

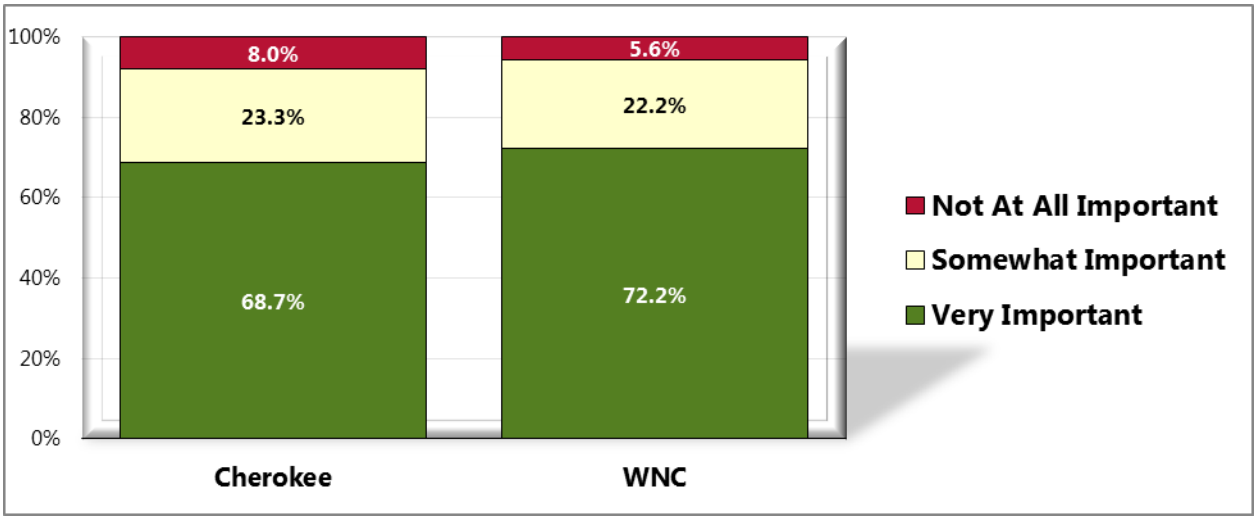
Survey respondents were asked whether they feel it is important for community organizations to explore ways to increase the public's access to physical activity spaces during off-times, as well as whether it is important for communities to improve access to trails, parks, and greenways. Survey respondents in Cherokee County were also asked about the availability of recreational options for children and youth to be physically active.

Figure 88. Importance That Community Organizations Make Physical Activity Spaces Available for Public Use After Hours (WNC Healthy Impact Survey)



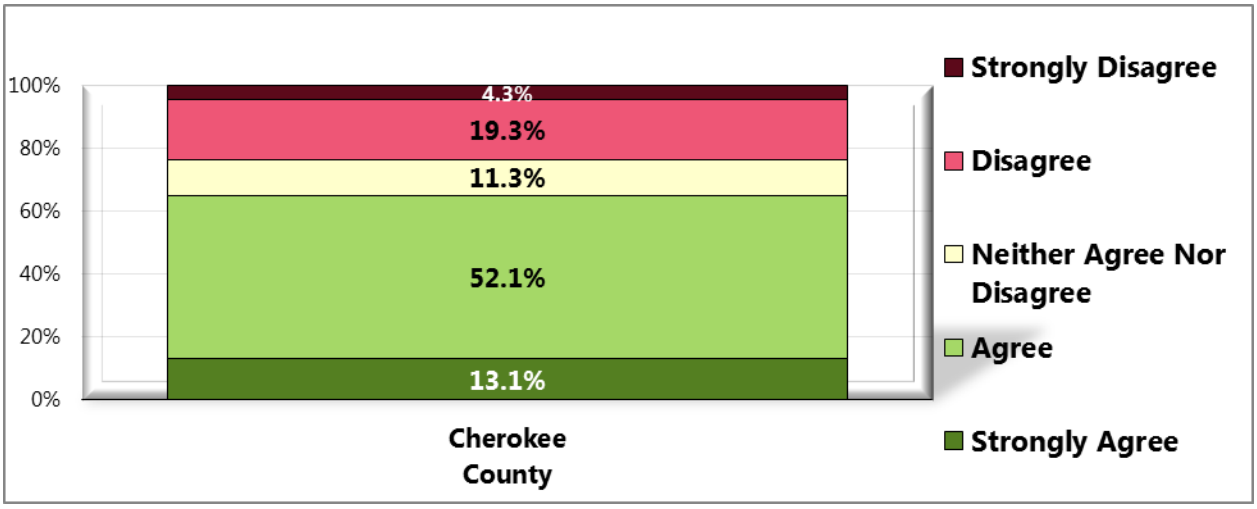
Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 60]
Notes: • Asked of all respondents.

Figure 89. 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.

Figure 90. "I believe my county provides the facilities and programs needed for children and youth to be physically active throughout the year." (WNC Healthy Impact Survey)



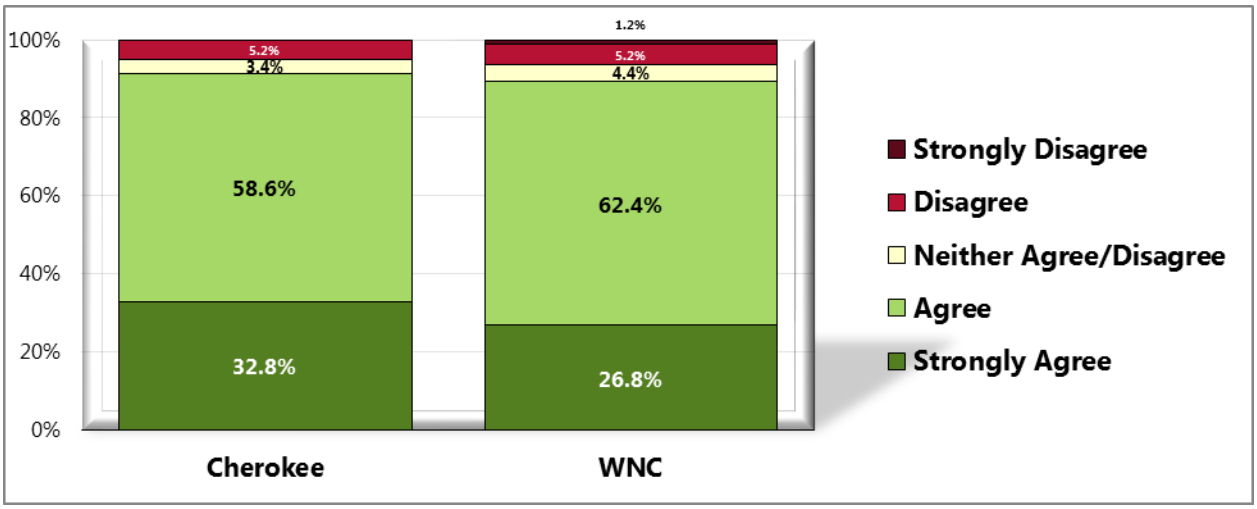
Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 118]
Notes: ● Asked of all respondents.

CHAPTER 7 – QUALITY OF LIFE

Perception of County

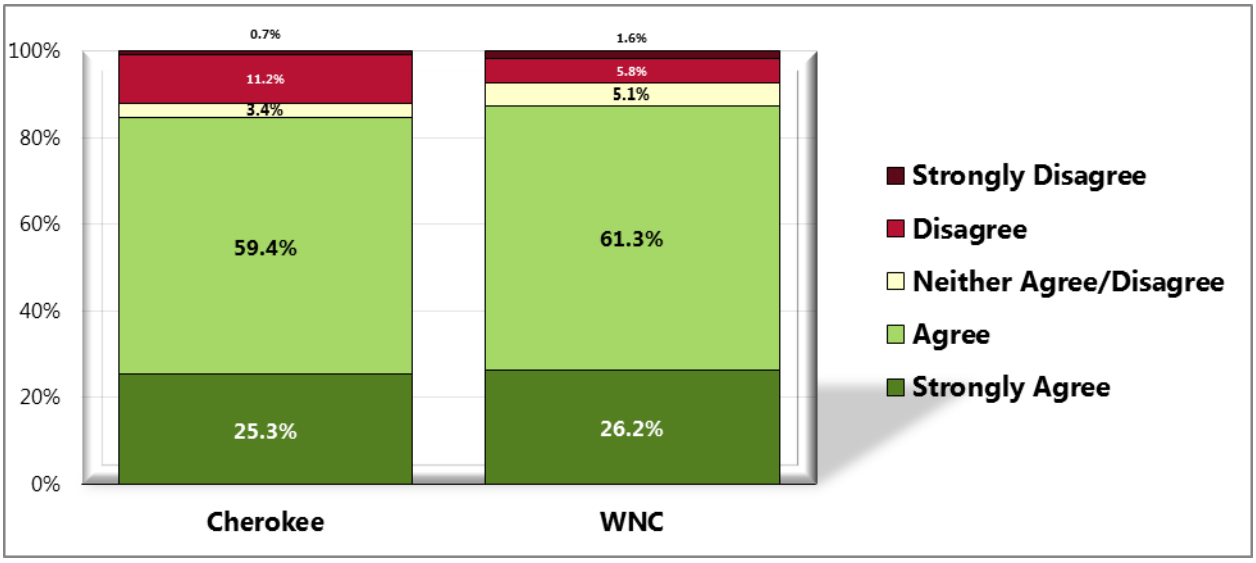
In order to evaluate community members' perceptions about the quality of life in western North Carolina (WNC), survey respondents were given a series of three statements regarding life in their county (my county is a good place to raise children, my county is a good place to grow old, and there is plenty 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 91. "My county is a good place to raise children"
(WNC Healthy Impact Survey)



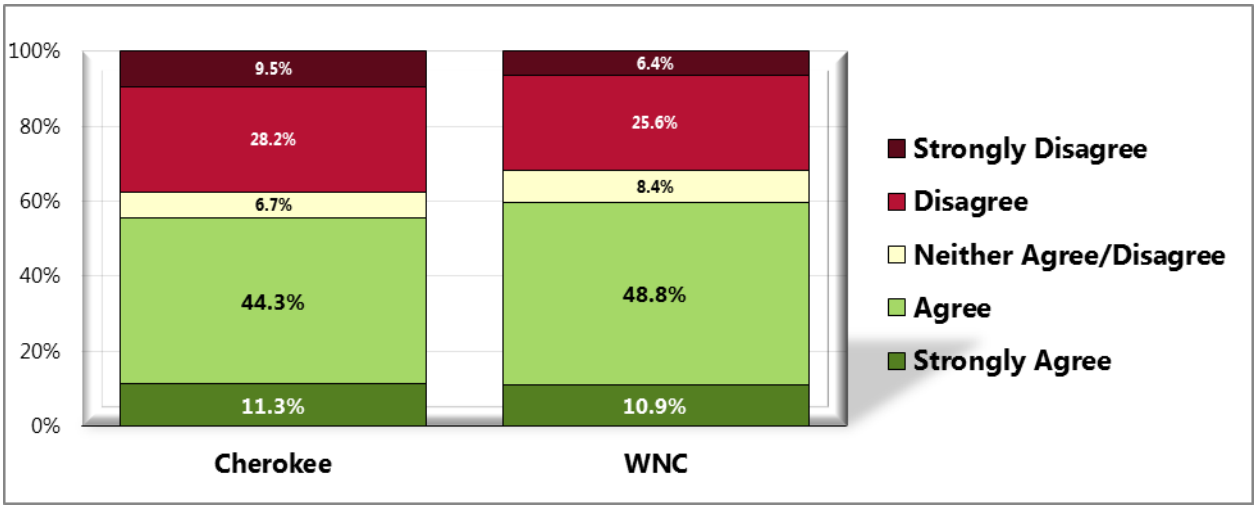
Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 5]
Notes: ● Asked of all respondents.

Figure 92. "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 93. "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 62. 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
Cherokee	✓	✓		✓		
WNC	✓	✓	✓			

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

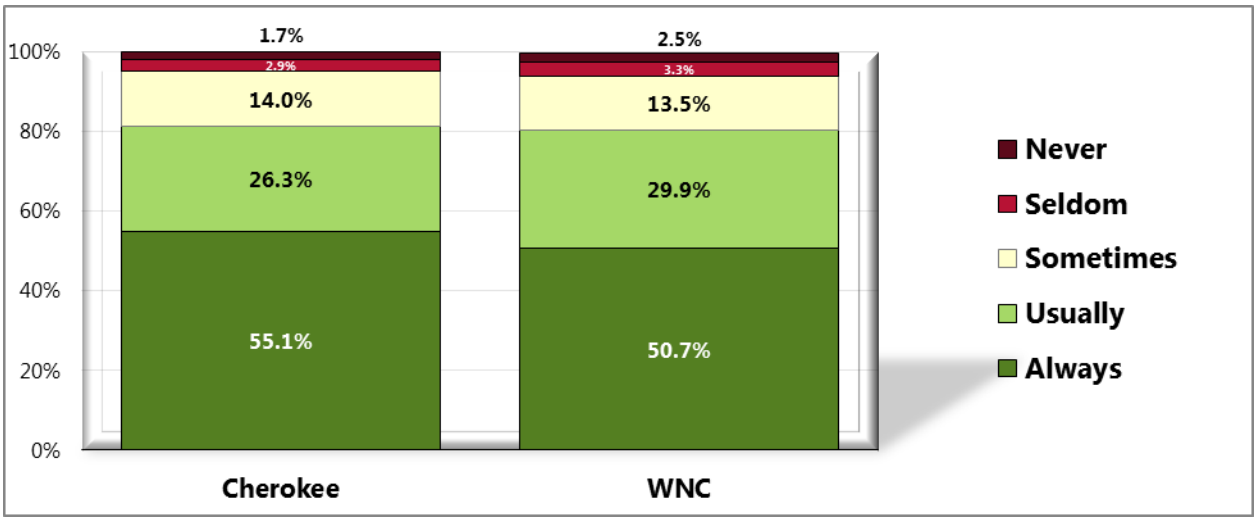
Table 63. Top Three Neighborhood/Community Issues Perceived as in Most Need of Improvement (WNC Healthy Impact Survey)

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

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

Social and Emotional Support

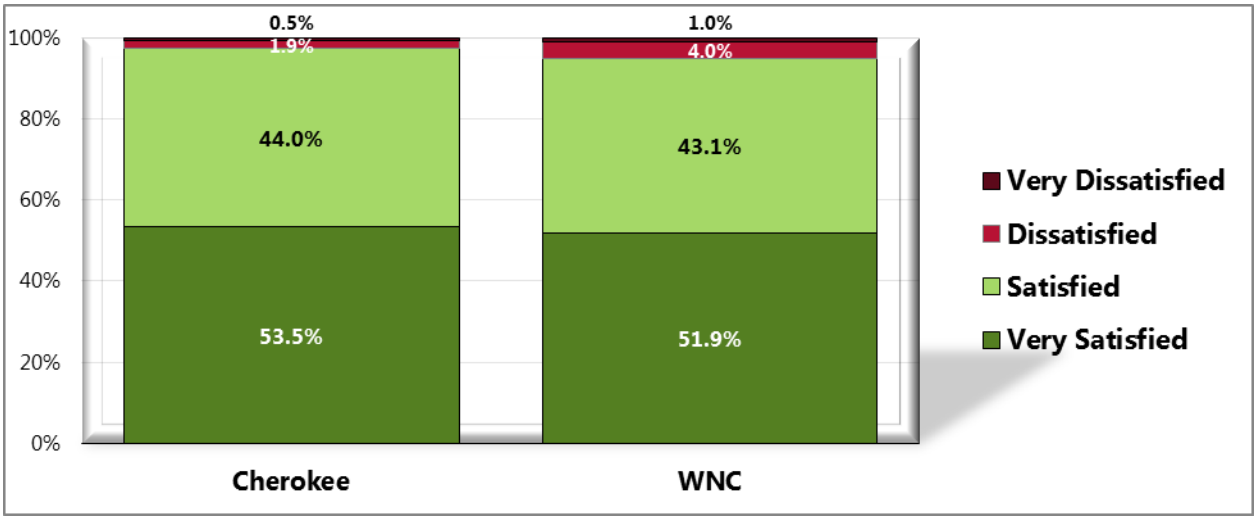
Figure 94. Frequency of Getting Needed Social/Emotional Support (WNC Healthy Impact Survey)



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

Satisfaction with Life

Figure 95. Satisfaction with Life (WNC Healthy Impact Survey)



Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 62]
Notes: ● Asked of all respondents.

CHAPTER 8 - HEALTHCARE & HEALTH PROMOTION RESOURCES

Health Resources

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 Cherokee County to respond to the health needs of the community.

Resource Gaps

There are many resources that are needed in Cherokee County in order to close these resource gaps.

Some gaps include:

1.) Shortage of Heath Resources and Services Administration Health Professions- Primary Medical Care, Dental, and Mental Health.
2.) Lack of Specialists (Example: Closest Endocrinologist is located in Asheville)
3.) Lack of Adult Dental Health Clinic as part of Health Department
4.) Lack of resources for a rapidly growing, aging population.

CHAPTER 9 - HEALTH PRIORITIES & NEXT STEPS

Prioritization Process & Criteria

Priorities were discussed among the Community Health Assessment Team and were based on the top issues mentioned above. In discussing these priorities the 2008 Community Health Assessment, Healthy North Carolina 2020, and 2011 State of the County Health report (SOTCH) (See Appendix E) were also taken into consideration as well as the WNC- Health Impact Survey issues that respondents reported to be "Issues within the Neighborhood/ Communities was perceived as in most need of improvement". Other rising community issues were also discussed. Questions considered when choosing priorities were how many people does this issue affect and can this issue be reduced with the help of collaborative efforts throughout the community.

Priority Health Issues

Below is a list of the priorities chosen and the impact they are having on the community as well as the possible contributing factors of these diseases and behaviors.

Chronic Disease:

According to the Centers for Disease Control and Prevention heart disease and stroke, the first and third leading causes of death for men and women, are among the most widespread and costly health problems facing our nation today, yet they also are among the most preventable. Cardiovascular diseases, including heart disease and stroke, account for more than one-third (33.6%) of all U.S. deaths. In 2010, the total costs of cardiovascular diseases in the United States were estimated to be $444 billion. Treatment of these diseases accounts for about $1 of every $6 spent on health care in this country. As the U.S. population ages, the economic impact of cardiovascular diseases on our nation's health care system will become even greater. All of these trends are true in Cherokee County as well. (See Table 28 and Figure 1)

Taken together, cancers of all types compose the second leading cause of death in Cherokee County, WNC and NC in 2006-2010 (Table 28). The financial costs of cancer to families, communities, state, and nation also are overwhelming. According to the National Institutes of Health, cancer cost the United States an estimated $263.8 billion in medical costs and lost productivity in 2010. Although these numbers may seem overwhelming and out of control there are still opportunities that exist to reduce cancer risk and prevent some cancers. Cancer risk can be reduced by avoiding tobacco , limiting alcohol use, limiting exposure to ultraviolet rays from the sun and tanning beds, eating a diet rich in fruits and vegetables, maintaining a healthy weight, being physically active, and seeking regular medical care.

Type 2 Diabetes accounts for 90%–95% of diabetes cases and is usually associated with older age, obesity and physical inactivity, family history, or a personal history of gestational diabetes. However type 2 diabetes can be prevented through healthy food choices, physical activity, and weight loss, it can also be controlled with these same activities. This chronic disease is one that

we have made progress on reducing here in Cherokee County but we have a long way to go (See Figure 26) Increasing physical activity and lowering the obesity rate are going to contribute heavily to continuing to see these numbers decline.

Chronic Obstructive Pulmonary Disease, or COPD, refers to a group of diseases that cause airflow blockage and breathing-related problems. It includes emphysema, chronic bronchitis, and in some cases asthma. This is the 4th leading cause of death in Cherokee County (See Table 28). Tobacco use is a key factor in the development and progression of COPD, but asthma, exposure to air pollutants in the home and workplace, genetic factors, and respiratory infections also play a role.

Tobacco Use: Tobacco Use has been on the decline within the past few years but while smoking tobacco is on the decline, smokeless tobacco is on the rise. Many new laws and policies have contributed to this drop in smoking. However, there is still room for improvement. For instance, tobacco use among expectant mothers is quite concerning because of the multitude of possible complications. Table 27 shows that Cherokee County's incidence of low birth weight infants is substantially higher than the regional and state levels. Contributing factors to Cherokee County's high incidence of low birth weight infants could include the high rate of mothers who smoked during pregnancy Table 25. WNC-Healthy Impact stated that 19.9% of Cherokee County residents currently smoke and the Healthy People 2020 goal is to decrease this number to 12% or lower. Figures 84, 85, and 86 show that residents of Cherokee County support more tobacco-free environments.

Physical Activity and Nutrition: Physical Inactivity and Obesity are two of the top PREVENTABLE risk factors for many of the chronic diseases responsible for most of the deaths in Cherokee County. We also know that the CDC recommends at least 150 minutes a week of Physical Activity. The obesity rates for Cherokee County are staggering and they seem to be on the rise. Table 35 presents trend data from the CDC on the estimated prevalence of diagnosed adult obesity in Cherokee County and WNC. The trend upward is continuing among children as well. This can be attributed to lack of fruits and vegetables in most of the resident's diets and the ease of the accessibility to fast food.

Next Steps

Data collection and prioritization are only the foundational steps in understanding and addressing priority health needs in a community. It is our belief and the belief of many of the National Public Health organizations that the CHA should be a part of a broader community health improvement planning process. A community health improvement planning process uses the information gathered during the CHA and develops and implements strategies for action and established accountability to insure measurable health improvement.

Cherokee County, along with partners in WNC Healthy Impact, will move forward in planning and determining how we can most effectively impact the health of our community. We will be collaborating with Murphy Medical Center and our partners on collaborative planning to create a Community Health Improvement Plan (CHIP). This phase of the process will begin early 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

The Cherokee 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

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 Cherokee County Health Department 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 Cherokee County Health Department website and the WNC Healthy Impact website. A presentation of the CHA was given and approved on Nov 20, 2012 by the Cherokee County Board of Health. A

presentation of the CHIP will be made in July 2013 to the Cherokee County Board of Health 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.

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APPENDICES

Appendix A – Data Collection Methods & Limitations
Appendix B – WNC Healthy Impact Survey Instrument
Appendix C – Health Resource Inventory
Appendix D- PRIDE- Student Survey Results (2011-2012)
Appendix E- State of The County Health Report- 2011

APPENDIX A - DATA COLLECTION METHODS & LIMITATIONS

Secondary Data

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).

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.

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.

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.

Professional Research Consultants, Inc.

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

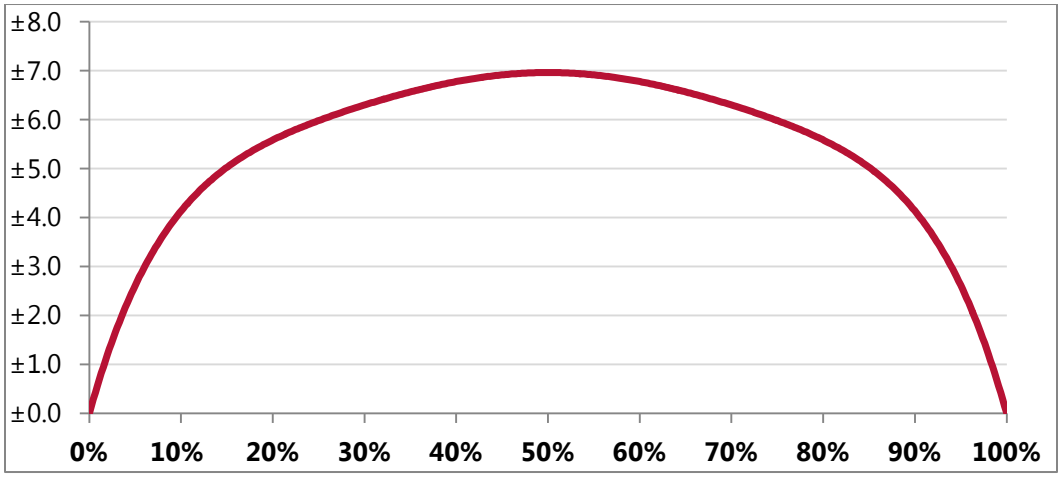
To ensure the best representation of the population surveyed, a telephone interview methodology (one that incorporates both landline and cell phone interviews) was employed. The primary advantages of telephone interviewing are timeliness, efficiency and random-selection capabilities.

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 200. 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 200 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:

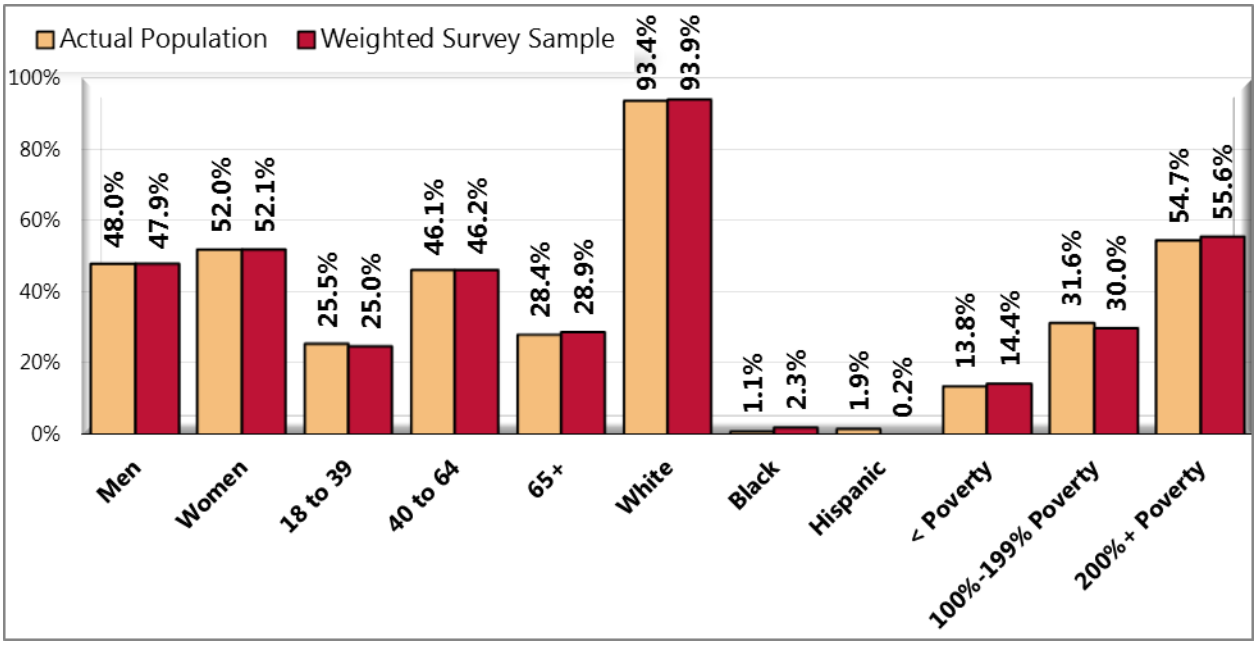
- If 10% of the sample of 200 respondents answered a certain question with a "yes," it can be asserted that between 5.8% and 14.2% (10% ± 4.2%) of the total population would offer this response.
- If 50% of respondents said "yes," one could be certain with a 95 percent level of confidence that between 43.1% and 56.9% (50% ± 6.9%) 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
(Cherokee 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.

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.

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APPENDIX C - HEALTH RESOURCE INVENTORY

Double-click on the Health Resource Inventory below to access the complete inventory. If you cannot access this, please contact your local health department for a copy.

Dental Services			
Name of Provider	**Name of Practice**	**Address**	**Phone**
Dr. Tom Mims	Mims Family Dentistry	96 Central Street Murphy, NC 28906	828-837-3577
Dr. Donald Ambler		494 Main Street Andrews, NC 28901	828-321-1444
Dr. Michael Davis	Carolina Smiles Dentistry	114 Buttercup Trail Marble, NC 28905	828-837-1005
Dr. Bud Garrison		4188 E US 64 Murphy, NC 28906	828-837-2113
Dr. Barry Watson	Murphy Dental Center	119 Natural Springs Drive Murphy, NC 28906	828-837-5911
Dr. James Vollmer		5 Poplar Street Andrews, NC 28901	828-321-5413
Far West Dental Clinic – Medicaid ONLY		Medical Park Lane Suite I Murphy, NC	828-837-1397
Cherokee Co. Indian Clinic – Cherokee Indian ONLY		Tomotla Road Murphy, NC	828-837-4312

Servicios dentales			
Nombre del proveedor de	**Nombre de la práctica**	**Dirección**	**Teléfono**
El Dr. Tom Mims	Familia de Mims odontología	Calle central 96 Murphy, CN 28906	828-837-3577
Dr. Donald Ambler		494 Main Street Andrews, NC 28901	828-321-1444
Dr. Michael Davis	Carolina sonrisas odontología	114 Ranunculaceae Trail Mármol, NC 28905	828-837-1005
Dr. Bud Garrison		4188 E DE LOS ESTADOS UNIDOS DE 64 Murphy, CN 28906	828-837-2113
Dr. Barry Watson	Murphy Dental Center	119 Naturales Springs Drive Murphy, CN 28906	828-837-5911
Dr. James Vollmer		5 Poplar Street Andrews, NC 28901	828-321-5413
Clínica dental de Far West – Medicaid sólo		Médicos Park Lane Suite I Murphy, Carolina del Norte	828-837-1397
Clínica indio Cherokee Co. – Cherokee Indian sólo		Tomotla Road Murphy, Carolina del Norte	828-837-4312

APPENDIX D- PRIDE- STUDENT SURVEY RESULTS

Double-click on the PRIDE- Student Survey Results below to access the complete inventory. If you cannot access this, please contact your local health department for a copy.

APPENDIX E – STATE OF THE COUNTY HEALTH REPORT 2011 (SOTCH)

Double-click on the State of The County Health Report below to access the complete document. If you cannot access this, please contact your local health department for a copy.