Clay County Community Health Assessment

December 3

2012

ACKNOWLEDGEMENTS

This document was developed by Clay County, in partnership with Murphy Medical Center, Clay County Healthy Carolinians Partnership & Clay County Health Department 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:

Clay County Partnership for Healthy Carolinians Roster

Members of the partnership represent a cross-section of community leaders in health, education, government and community life.

Joanna Atkisson, School Nurse,
Clay County Schools Clay

Sarah Bishop, Community Manager
American Cancer Society

Jane Forster
Community Volunteer

Cynthia Kelly, WIC Director
Clay County Health Department

Stacey Posey, School Resource Officer
Clay County Schools

Tanya Long, RN, CCPHC Vice Chair
Clay County Health Department

Mary Maney, RN, Office Manager
Hayesville Family Practice

Silas Brown
NC Cooperative Extension

Clyde McCoy, EFNEP
Clay County Health Department

Fran Mull, Administrative Assistant
Clay County Health Department

Janice Patterson, Health Director
Clay County Health Department

Hope Burch, Health Educator
County Health Department

Linda Houser,
Community Volunteer

Susan Riley
CC4C/ Maternity Care Coordinator

Leanna Staton
Clay Co. Soil & Water Conservation

Pam Staton, Extension Agent
NC Cooperative Extension Service

Kathy Tant, Director
Clay County Senior Center

Kendra Martin, Reporter
Clay County Progress

Theresa Waldroup
Communities in Schools

Carie Free, Office Manager
Chatuge Family Practice

Judith Alvarado
Reach Director

Helen Wilson, RN, Case Manager
NC Access to CareCC

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

Clay County Health Department was fully accredited in May 2012.

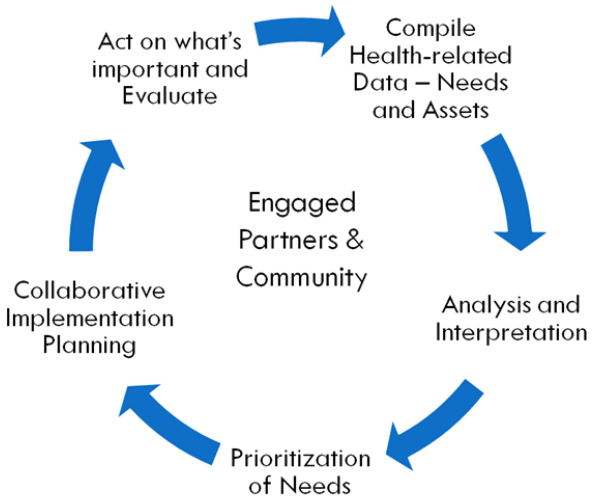
The focus of North Carolina's Local Health Department Accreditation (NCLHDA) is on the capacity of the local health department to perform at a prescribed, basic level of quality the three core functions of assessment, assurance, and policy development and the ten essential services as detailed in the National Public Health Performance Standards Program. The program focuses on a set of minimal standards that must be provided to ensure the protection of the health of the public, but does not limit the services or activities an agency may provide to address specific local needs. NCLHDA does not create a wholly new accountability system; rather it links basic standards to current state statutes and administrative code, and the many Division of Public Health and Division of Environmental Health contractual and program monitoring requirements that are already in place.

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Overview of CHA Purpose and Process
Purpose of Community Health Assessment (CHA)

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



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

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

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

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.

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.

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:

- Three meetings of the Clay County Healthy Carolinians Partnership Steering Committee.
- Board of Health
- Three community listening sessions:

-Clay County School Health Advisory Committee
-Daycare Workers
-Community health providers including physicians, and representatives of the county health department, mental health, Murphy Medical Center and elder services.

- Compilation of state and regional data from sources such as Clay County Health Department, the North Carolina Department of Health, the National Institutes of Health and the Centers for Disease Control.

List of Health Priorities

Our 2008 Community Health Assessment reveled the following that there is widespread concern that many area families are breaking down under the weight of disinterested or disengaged parents, drugs, alcohol, economic struggles, and the negative influence of media and culture.

Community and school leaders are concerned that many parents are lacking in basic knowledge of what it means to be a parent, what the responsibilities are, and what the risks are for children as they grow. In the words of one community leader, "Parents don't have a clue."

Of course, some do have a clue, and there are meaningful programs, such as the Clay County Tobacco Awareness Group and DARE. Yet no single program or two can do the job.
County school and health leaders cite a number of worrisome trends: Teen alcohol consumption is high. It is the #1 teen substance abuse problems in Clay County. In a 2004 community survey, 98% of Clay County students said drugs were a problem in schools. Despite better law enforcement, meth remains a major problem in the county, especially among young adults. Some parents are more interested in being friends with their children than providing parental discipline. There is a tendency to let youth experiment with risky behavior and do what they want. Economic pressures are forcing parents to work more. Even when there are two parents in the home, children may spend a lot of time alone. Teen sex and teen pregnancy statistics are high. According to the North Carolina Department of Health and Human Services, the teen pregnancy rate for Clay County in 2007 was 26.7 per thousand, about average for similar counties. Most churches seem reluctant to tackle problems such as drug addiction, alcohol abuse, sex and broken families. Most parents don't believe that their child would ever get involved in risky behaviors like drinking, drugs and sex. The telephone study shows that only 8% of parents worry that their child or children might be using alcohol. Only 6% worry that their child might be using drugs. And only 9% worry that their child might be using tobacco products.
Progress

As a result from the 2012 Community Health Assessment, The Clay County Health Department along with our partners has determined our top three priorities that we will work on diligently throughout the next three years.

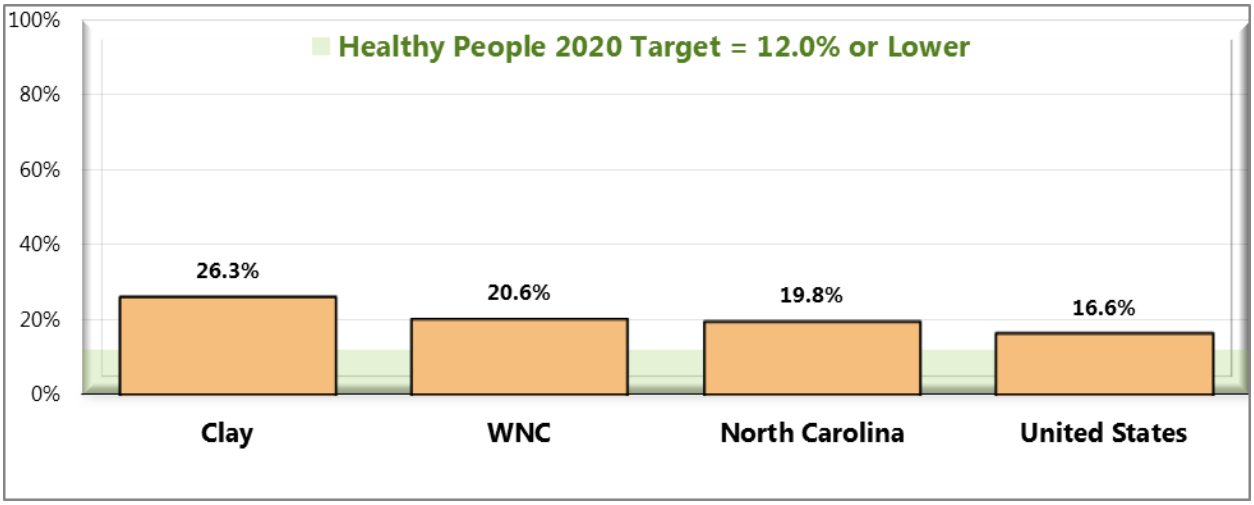
1. Decrease all forms of Tobacco Use
2. Chronic Disease Control and Prevention
3. Increase Access to healthier food options

General Review of Data and Trends

While many in Clay County find the rural life to be a healthy one, there is ample evidence that many in the county suffer from common diseases and chronic health conditions that are in many cases preventable with better health choices and lifestyle changes.

Overeating, poor nutritional choices, smoking and lack of exercise all contribute to obesity, hypertension, diabetes and a variety of heart and lung symptoms that affect long term health. The 2012 Clay County Health Assessment found ample evidence that these health issues should be a community priority.

Current Smokers (WNC Healthy Impact Survey)



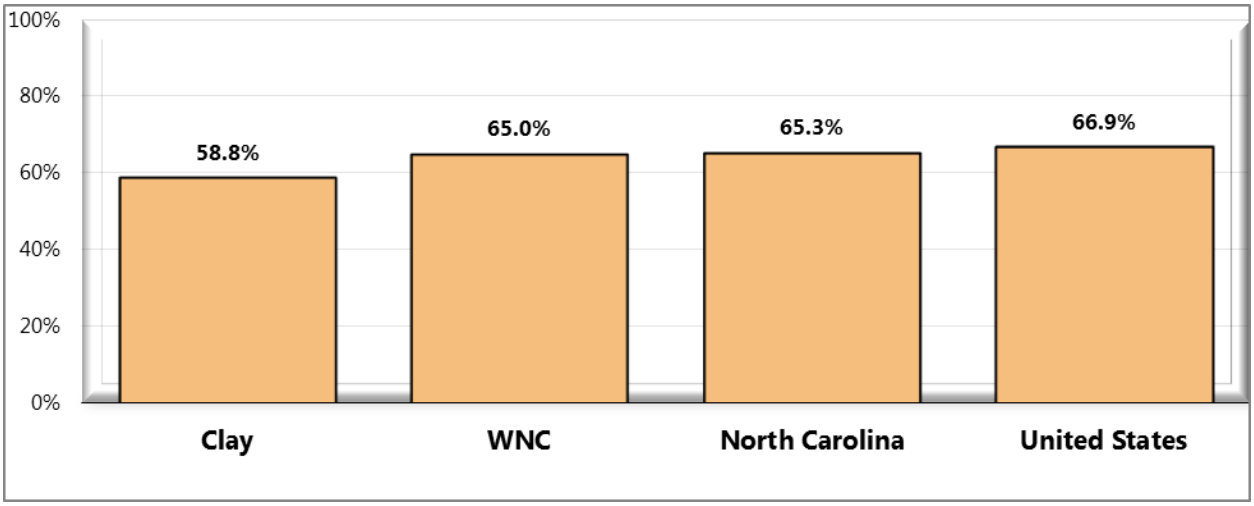
Obesity

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).

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



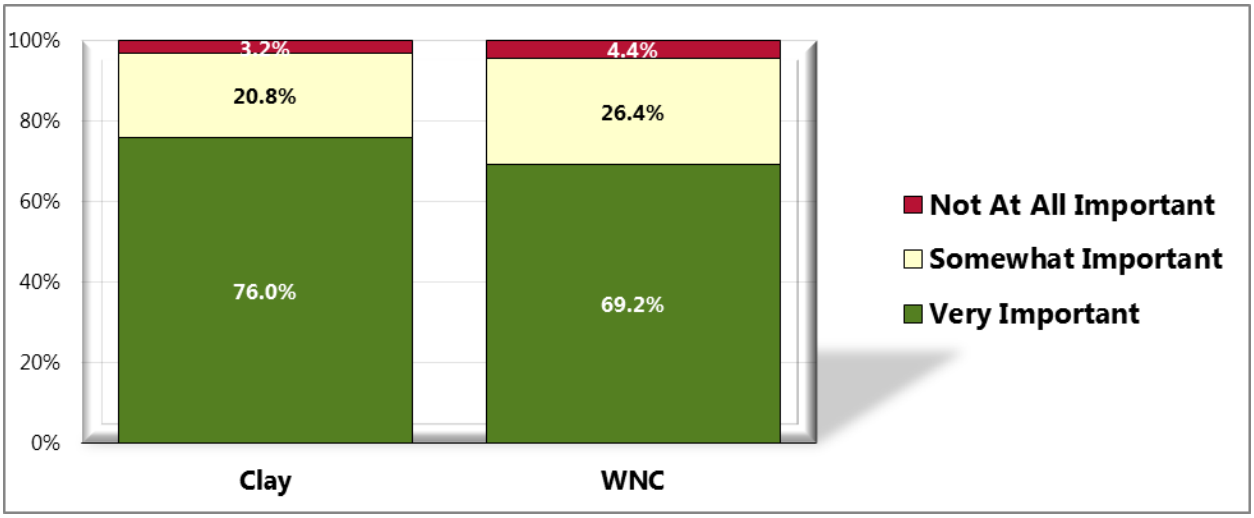
According to the US Department of Agriculture (USDA) Economic Research Service's *Your Food Environment Atlas,* there were a total of 49 farmers' markets in the 16 WNC counties in 2009. This number was reported to have grown by 5, to a total of 54, in 2011, an increase of 10%. In Clay County there was only one farmers' market 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 Clay County there was one grocery store in both 2007 and 2009 (*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?"

Importance of Communities Making It Easier to Access Farmer's Markets, Including Mobile/Tailgate Markets

Y



Emerging Trends

Mercury issues - Elevated levels of mercury have been found in white bass in Lake Chatuge. In addition, previous studies have shown that largemouth bass in all waters of North Carolina may have elevated levels of mercury. As a result, the North Carolina Division of Public Health is issuing a fish consumption advisory for Lake Chatuge. Pregnant women, nursing women, women of childbearing age (15-44 years of age), and children under age 15 should not eat any white bass or largemouth bass caught in Lake Chatuge. The general public (males 15 years or older and women greater than 44 years of age) should limit their fish consumption of the above fish species to one meal per week from Lake Chatuge. A meal is considered approximately 6 ounces of uncooked fish.

Mercury may adversely affect nerve cells in the brain and spinal cord, especially in unborn babies and young children. Prenatal mercury exposure can affect the way children think, learn and problem-solve later in life. Adverse health effects also can occur in adults at much higher doses.

The mercury contamination in the fish in Lake Chatuge does not present a known human health risk for people engaging in other recreational activities such as touching the water, wading, swimming, boating or handling the fish.

Substance Abuse

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
Clay	✓	✓		✓		
WNC	✓	✓	✓			

Childhood Obesity continues to be a concern. Each year Hayesville School students' participant in a health fair that measures their Body Mass Index (BMI). Kindergartens through the ninth grade are screened by the school nurses, Health Occupation Students, and community volunteers. Out of 978 students, 21.67 percent are considered to be overweight or obese.

Economy- Clay County is feeling the downside of the economy just like the rest of the nation. According to the Employment Securities Commission of North Carolina, in October 2012 the unemployment rate was 8.5% in Clay County just below the state's percentage of 10.7%. The surrounding counties of Cherokee and Graham had a rate of 11.6% and 15.1%, respectively.

Per Capita income in the county is still lower than the state income. In 2011, the per capita income in Clay County was $22,350 while the state's was $32,247.

Next Steps

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

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

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

The Clay 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 Clay County Department of Health's role.
- Formal presentation of the role of relevant partners in implementing the plan and a demonstration of the organization's commitment to these roles.
- An emphasis on evidence-based strategies.
- A general plan for sustaining action (NACCHO, 2012)

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

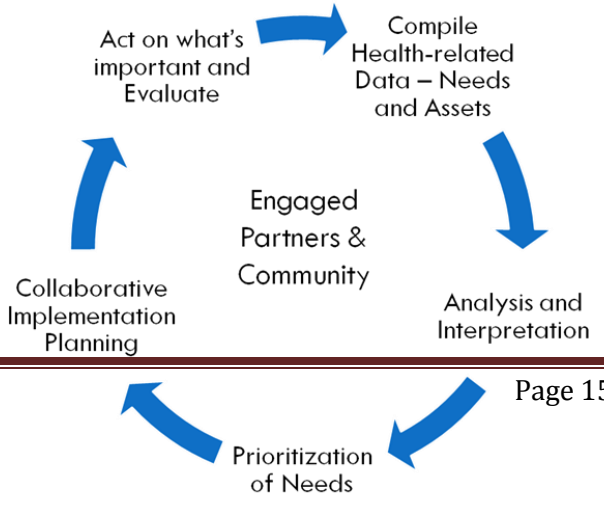
Dissemination of this CHA report and the CHIP will also include creating a simplified, plain-language summary of CHA findings and making all reports publicly available on the Buncombe County Department of Health website, the WNC Healthy Impact website and local libraries. A presentation will be made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

CHAPTER 1 - INTRODUCTION

Purpose of Community Health Assessment (CHA)

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



resources within the county to adequately address these factors.

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

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

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

Definition of Community

Community is defined as "county" for the purposes of the North Carolina Community Health Assessment Process. In western North Carolina, hospitals define their community as one or more counties for this process. Clay 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

Definitions & Data Interpretation Guidance

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.

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.

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).

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:

• Three meetings of the Clay County Healthy Carolinians Partnership Steering Committee.

• Four community listening sessions:
-Clay County School Health Advisory Committee
-Daycare Workers
-Community health providers including physicians, and representatives of the county health department, mental health, Murphy Medical Center and elder services.
Board of Health

• Compilation of state and regional data from sources such as Clay County Health Department, the North Carolina Department of Health, the National Institutes of Health and the Centers for Disease Control.

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

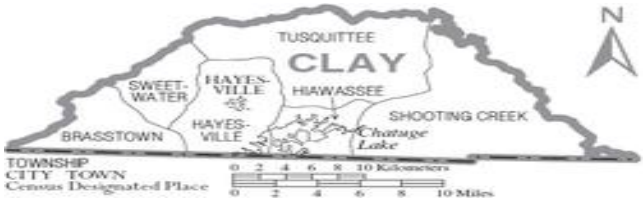
According to the U.S. Census Bureau, the county has a total area of 221 square miles (572.4 km^2), the smallest county in North Carolina, of which 215 square miles (556.8 km^2) is land and 6 square miles (15.5 km^2) (2.67%) is water.

Clay County is bordered to the south by the state of Georgia and the Chattahoochee National Forest. The Nantahala River forms part of its northeastern border. The county is drained by the Hiwassee River. In the southern part of Clay County is Chatuge Lake, on the North Carolina–Georgia border. Much of Clay County exists within the Nantahala National Forest. Fires Creek Bear Reserve is north of the township of Tusquittee.

The eastern portion of the county is preserved as part of the Nantahala National Forest. There are five counties adjacent to Clay County; Macon County to the northeast; Rabun County to the southeast; Towns County, Georgia, to the south; Union County, Georgia to the southwest; Cherokee County, to the north.

Hayesville, with a 2000 population of 297, is the only incorporated town in the county, the county seat, and center of economic activity for Clay County. Warne, Brasstown, Elf and Tusquittee are all unincorporated communities of Clay County.

The county is divided into six townships: Brasstown comprises the westernmost township, Hayesville is centrally located and home to the county seat, Hiawassee is the smallest and surrounds Lake Chatuge, Shooting Creek is the easternmost township, Sweetwater is a small township northwest of Hayesville Township, and Tusquittee, one of the larger townships and most northern.



History

Before settlement, Clay County was home to the Cherokee Indians, who were a tribe of Native Americans that made their home in Southeastern United States (principally Georgia, the Carolinas and Eastern Tennessee) They were one of the "Five Civilized Tribes" because of their assimilation of European-American cultural and technological practices. During the late 1700s, the first European-American settler, John Covington Moore, settled here in what was then part of Macon County. The first emigrants moved to this area in the early 1830s.

In 1837, General Winfield Scott was hired to gather all the Native Americans in the region and detain them in improvised stockades before transporting them into Oklahoma Territory. Captain Hembree was sent to an area about a mile southwest of Hayesville to construct a stockade to hold the Native Americans until they had all been gathered up. This marks the beginning of the Trail of Tears. The stockade was named after Captain Hembree as Fort Hembree and served as a center of business.

In the fall of 1860, George Hayes, who was running for Representative from Cherokee County, promised his southeastern constituents to introduce legislation to form a new county. In February 1861 the legislation was introduced and passed by the North Carolina General Assembly.

Clay County was formed primarily from Cherokee County, North Carolina, however a small area was taken from Macon County, North Carolina. In honor of Mr. Hayes, the then new county's seat was appointed Hayesville and the newly formed county was named in honor Henry Clay, famous American statesman, member of the United States Senate from Kentucky.[2]

Despite having been created in 1861, Clay County lacked an organized, formal government until 1868. Later that year, the first post office opened in Hayesville and the first county courthouse was built in 1888, currently it is listed on the National Register of Historic Places.[3]

Throughout the rest of the nineteenth and early twentieth centuries, Clay County has remained largely agricultural.

Population

Understanding the growth patterns and age, gender and racial/ethnic distribution of the population in Clay 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 Clay County is 8.861. In Clay County, as region-wide and statewide, there is a slightly higher proportion of females than males (50.7% vs. 49.3%).

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

Geography	Total Population (2010)	# Males	% Males	# Females	% Females
Clay County	10,587	5,223	49.3	5,364	50.7
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 Clay County 23.6% 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 Clay County is 49.6, while the regional mean median age is 44.7 years (*Data Workbook*) 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
Clay County	49.6	502	4.7	1,677	15.8	5,910	55.8	2,498	23.6
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, Clay County is less diverse than NC as a whole. In Clay County the population is 96.6% white/Caucasian and 3.4% 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 2.4% in Clay 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)
Clay County	96.6	0.6	0.3	0.2	0.0	0.8	1.4	2.4
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 Clay Count grew by 17.1% and the population of WNC grew by 13.0% (Table 4). The population in the county is projected to *decrease* by a little over 2% in each of the next two decades. This negative growth is out-of-step with the region as a whole, which is projected to grow, although by decreasing positive rates, 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
Clay County	17.1	-2.2	-2.3	15.3
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 Clay County has fallen from 9.2 in 2002-2006 to 8.1 in 2006-2010, a decrease of almost 12%. Throughout this period, the birth rate for the county has been lower than the comparable mean WNC and NC rates. 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
Clay County	9.2	8.5	8.3	8.3	8.1
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 Clay 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 Clay County between 2010 and 2030 is 2.9% for the 65-74 age group, 76.7% for the 75-84 age group, and almost 130% for the 85+ age group. With the exception of the 65-74 age group, these Clay County growth figures are below those projected for WNC as a whole, where the 65-74 age group is projected to grow by 24.0%, the 75-84 age group by 52.5%, and the 85+ age group by 40.0%.

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+ *
Clay County	23.6	13.5	7.3	2.7	31.1	16.6	10.7	4.2	33.0	13.9	12.9	6.2
Regional Total	19.0	10.4	6.1	2.5	23.5	13.2	7.4	2.9	25.7	12.9	9.3	3.5
State Total	12.9	7.3	4.1	1.5	16.6	9.9	4.9	1.8	19.3	10.6	61.8	2.2

Composition of Families with Children

Data in Table 7 illustrates that the percentage of households with children headed by a married couple is smaller in Clay County than in WNC (15.5% vs. 17.2%) and in NC as a whole (15.5% 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. #	%
Clay County	4,510	700	15.5	18	0.4	165	3.7
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 Clay County, 74.4% 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. #	%
Clay County	164	122	74.4
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 Clay County than in WNC, NC, or the US as a whole. Calculating from figures in Table 9, veterans make up 15.9% of the civilian population in Clay County, compared to 12.4% in the WNC region, 10.8%

statewide, and 9.9% nationally. In Clay County, approximately 54% 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
Clay County	8,484	1,345	7,139	3.9	10.5	32.0	26.8	26.8
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, Clay County had an approximately 2% higher proportion than WNC as a whole of residents age 25 or older possessing a high school diploma or its equivalent, and an approximately 15% higher proportion than NC as a whole. On the other hand, the proportion of the Clay County population with *more* than a high school diploma or equivalency is smaller than for NC as a whole. Although the county has an approximately 9% to 11% higher proportion of persons age 25 and older with some college (22.8%) than does the state (20.9%) or the region (20.5%), at the bachelor's and greater level the proportional attainment in the county (18.6%) is 7.9% smaller than the comparable mean regional figure (20.2%) and 28.7% smaller than the state 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
Clay County	7,616	33.0	21.8	20.0	7,851	33.7	22.8	18.6
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 five years cited in Table 11, the high school drop-out rate for Clay 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. The rates for Clay County were somewhat variable, however, likely because they were based on small numbers of events (n=7-16/year).

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
Clay County	11	2.55	16	3.86	7	1.75	12	2.97	7	1.78
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 Clay 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 Clay County is 8.7 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
Clay County	100	85.0	83.3	86.5	76.3	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 Clay County was $35,109, compared to a mean WNC median household income of $37,815, a difference of $2,709 *less* in Clay County. The mean median household income in Clay County was approximately $10,000 lower than the comparable state average for both the periods cited in Table 13, and the gap increased by $481 from 2005-2009 to 2006-2010.

As calculated from the most recent estimate (2006-2010), the median *family* income in Clay County was $39,406, compared to a mean WNC median family income of $47,608, a difference of $8,202 *less* in Clay County. The median family income in Clay County was more than $15,900 lower than the comparable state average for both periods cited in Table 13, and the gap grew by $827 between 2005-2009 and 2006-2010.

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

Geography	2005-2009				2006-2010			
	Median Household Income*		Median Family Income**		Median Household Income		Median Family Income	
	$	$ Difference from State	$	$ Difference from State	$	$ Difference from State	$	$ Difference from State
Clay County	35,085	-9,980	39,609	-15,920	35,109	-10,461	39,406	-16,747
Regional Arithmetic Mean	37,107	-7,962	46,578	-8,951	37,815	-7,756	47,608	-8,545
State Total	45,069	n/a	55,529	n/a	45,570	n/a	56,153	n/a

* Median household income is the incomes of all the people 15 years of age or older living in the same household (i.e., occupying the same housing unit) regardless of relationship. For example, two roommates sharing an apartment would be a household, but not a family.
** Median family income is the income of all the people 15 years of age or older living in the same household who are related through either marriage or bloodline. For example, in the case of a married couple who rent out a room in their house to a non-relative, the household would include all three people, but the family would be just the couple.

Population in Poverty

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

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

The 100%-level poverty rate in Clay County was 18.2% in the 2005-2009 period, and rose to 21.4% in the 2006-2010 period, as the number of persons in poverty increased by 407; this change represents an increase of 17.6%% in the percent of persons living in poverty. In both periods cited, the poverty rate in Clay County exceeded the comparable rates in both WNC and NC. As calculated from figures in Table 14, the 200%-level poverty rate in Clay County was 43.1% in the 2005-2009 period and rose to 43.6% in the 2006-2010 period, an increase of 1.1%. 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
Clay County	9,756	1,778	18.2	4,201	10,198	2,185	21.4	4,448
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 Clay County the 2005-2009 poverty rate for young persons (21.3%) was 17.0% higher than the overall rate (18.2%), and the 2006-2010 poverty rate for young people (28.7%) was 34.1% higher than the overall rate (21.4%). 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. Over the same period, poverty in this age group in Clay County rose from 21.3% to 28.7%, an increase of 34.7%.

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

Geography	2005-2009			2006-2010		
	Population Estimate	# Below Poverty Level	% Below Poverty Level	Population Estimate	# Below Poverty Level	% Below Poverty Level
Clay County	1,824	388	21.3	1,922	552	28.7
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 Clay County, the percentage of *rental* housing units costing more than 30% of household income was 31.8% in the 2005-2009 period and 40.8% in the 2006-2010 period, an increase of almost 17%. 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 Clay County costing more than 30% of household income was 43.0% in 2005-2009 and 42.0% in 2006-2010, a decrease of a little over 2%. 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% of household income or more on housing costs. In Clay County, the reverse appears to be true: a higher proportion of mortgage holders (42.0%) than renters (40.8%) spend 30% or more of household income on housing costs.

Table 16. Estimated Housing Units Spending >30% Household Income on Housing 5-Year Periods (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%
Clay County	817	31.8	754	40.8	1,757	43.0	1,608	42.0
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 Clay County the five sectors employing the greatest proportions of the workforce are, in descending order: (1) Retail Trade (23.71%), (2) Public Administration (13.91%), (3) Health Care & Social Assistance (13.32%), (4) Educational Services (12.15%), and (5) Construction (10.23%). 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 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. The high placement of construction on the Clay County list stands out from the other two.

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

Sector	Clay 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	n/a	n/a	0.36	0.35
Construction	192	10.23	4.75	4.53
Manufacturing	156	8.31	11.28	11.33
Wholesale Trade	15	0.80	2.35	4.38
Retail Trade	445	23.71	13.86	11.66
Transportation & Warehousing	25	1.33	2.53	3.27
Information	9	0.48	1.35	1.82
Finance & Insurance	45	2.40	2.25	3.88
Real Estate & Rental & Leasing	5	0.27	0.93	1.23
Professional, Scientific & Technical Services	25	1.33	3.32	4.96
Management of Companies & Enterprises	n/a	n/a	0.49	2.01
Administrative & Waste Services	30	1.60	4.90	6.53
Educational Services	228	12.15	9.19	9.58
Health Care & Social Assistance	250	13.32	18.52	14.45
Arts, Entertainment & Recreation	n/a	n/a	1.73	1.58
Accommodation & Food Services	169	9.00	11.43	8.95
Public Administration	261	13.91	7.18	6.18
Other Services	22	1.17	2.76	2.49
Unclassified	*	n/a	0.00	n/a
TOTAL ALL SECTORS	1,877	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 Clay County ($29,197) is lower than the comparable figure for employees both region-wide ($32,144) and statewide ($46,772).

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

Sector	Average Annual Wage per Employee		
	Clay County	WNC	NC
Agriculture, Forestry, Fishing & Hunting	n/a	$23,145	$28,752
Mining	n/a	41,662	45,828
Utilities	n/a	72,196	76,552
Construction	28,579	31,190	41,316
Manufacturing	30,697	38,443	52,613
Wholesale Trade	23,469	36,182	61,194
Retail Trade	25,763	22,109	24,650
Transportation & Warehousing	43,021	39,117	43,400
Information	31,012	38,682	63,833
Finance & Insurance	34,600	42,881	75,088
Real Estate & Rental & Leasing	18,110	24,051	38,476
Professional, Scientific & Technical Services	60,199	36,584	66,951
Management of Companies & Enterprises	n/a	43,518	88,763
Administrative & Waste Services	15,172	25,753	30,258
Educational Services	36,701	32,604	39,787
Health Care & Social Assistance	22,524	32,843	42,811
Arts, Entertainment & Recreation	n/a	20,936	28,474
Accommodation & Food Services	13,232	14,424	14,877
Public Administration	29,138	33,818	43,641
Other Services	25,732	24,660	28,182
Unclassified	n/a	12,056	n/a
TOTAL ALL SECTORS	$29,197	$32,144	$46,772

Unemployment

Table 19 summarizes the annual unemployment rate for 2007 through 2011. From these data it is apparent that the unemployment rate in Clay County was higher the state rate. During the same period, the unemployment rate in Clay County was the same as, or lower than, the regional unemployment rate.

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

Geography	Annual Average				
	2007	2008	2009	2010	2011
Clay County	4.0	6.5	11.8	11.5	10.7
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 Clay 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 Clay County was lower in every year than the comparable rate in WNC, and that the mean WNC rate was 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
Clay County	1,566.4	1,497.0	1,247.8	1,334.3	1,486.8	1,620.1	2,080.0	1,607.6	1,577.7	1,850.4
Regional Arithmetic Mean	2,163.4	2,294.3	2,413.8	2,656.0	2,648.1	2,536.4	2,688.3	2,703.4	2,502.2	2,426.4
State Total	5,005.2	4,792.6	4,711.8	4,641.7	4,622.9	4,654.4	4,658.6	4,581.0	4,191.2	3,955.7

Table 21 separates the violent crime rate from the overall index crime rate for the same period cited above. As with overall index crime, violent crime rates in Clay County and WNC are significantly lower than the rates 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, none of them in Clay 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
Clay County	79.5	55.4	119.4	74.7	31.2	222.8	138.0	106.5	172.1	151.8
Regional Arithmetic Mean	181.5	194.4	200.4	198.5	232.9	221.9	274.4	190.7	224.4	258.6
State Total	503.8	475.3	454.7	460.9	478.6	483.5	480.5	477.0	417.1	374.4

Table 22 separates the property crime rate from the overall index crime rate for the same period cited above. Comparing these figures to the index crime rate it is clear that the majority of all index crime committed is property crime. In keeping with the pattern noted above, the mean property crime rates for Clay County and WNC all were significantly lower than the comparable rates 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
Clay County	1,486.9	1,441.6	1,128.5	1,259.6	1,455.6	1,397.3	1,942.0	1,501.1	1,405.6	1,698.6
Regional Arithmetic Mean	1,981.9	2,093.9	2,215.2	2,423.1	2,410.3	2,298.7	2,468.3	2,494.0	2,262.1	2,228.4
State Total	4,501.4	4,317.3	4,257.1	4,180.7	4,144.3	4,170.9	4,178.1	4,103.9	3,774.1	3,581.4

CHAPTER 3 – HEALTH STATUS AND HEALTH OUTCOME PARAMETERS

Health Rankings

America's Health Rankings

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

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

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

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

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

County Health Rankings

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

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

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

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

Table 24 presents the health outcome and health factor rankings for Clay 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	
Clay County	35	5	14	45	36	6	19

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:

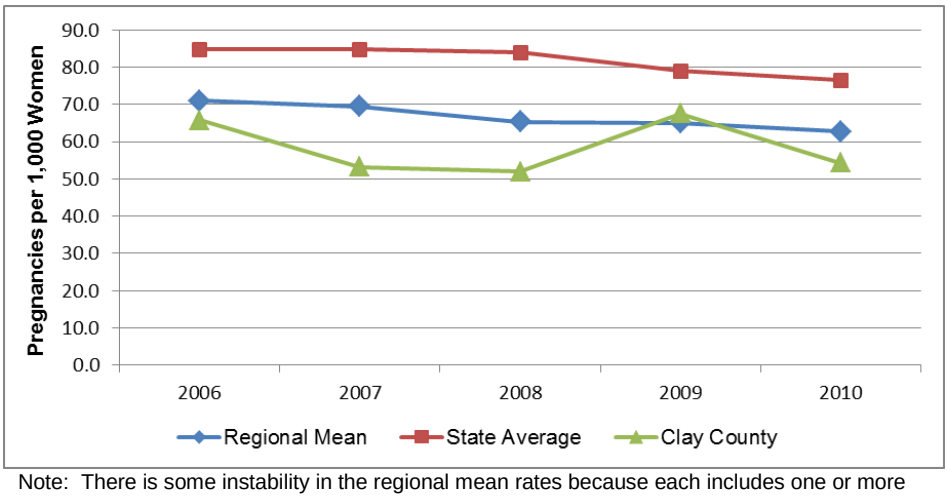
- Reproductive age = 15-44
- Total pregnancies = live births + induced abortions + fetal death at >20 weeks gestation
- Pregnancy rate = number of pregnancies per 1,000 women of reproductive age
- Fertility rate = number of live births per 1,000 women of reproductive age
- Abortion rate = number of induced 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 1 and 2 present pregnancy rate data for ages 15-44 and 15-19, respectively. (Note that regional rates are

presented as *arithmetic means* (sums of individual county rates divided by the number of county rates). These means are approximations of true regional rates, which NC SCHS does not compute.)

Data in Figure 1 illustrate that the Clay County pregnancy rate for women ages 15-44 was lower than both the comparable state rate and the mean WNC rate over most of the period cited. The pregnancy rates in all three jurisdictions decreased between 2006 and 2010, by 17.4% in Clay County, by 11.6% in WNC, and by 9.9% in NC. The 2010 pregnancy rate was 62.7 in Clay County, 62.7 in WNC, and 76.4 in NC.

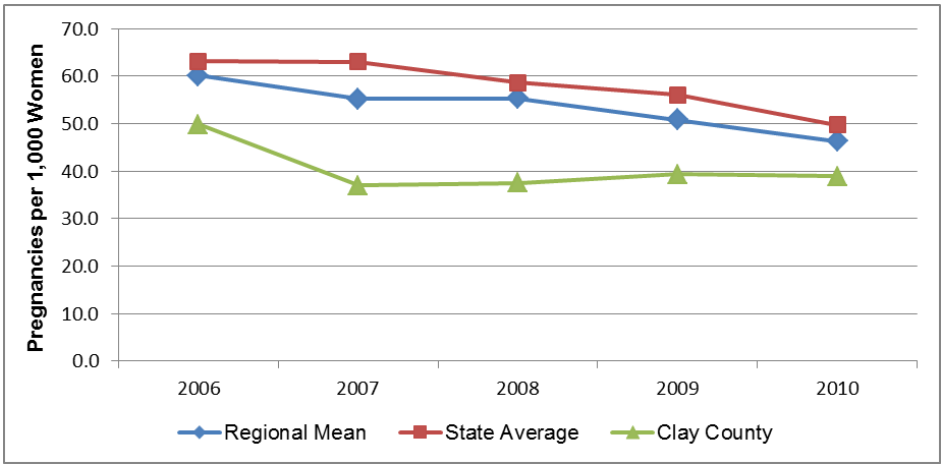
Figure 1 – Pregnancy Rate Ages 15-44, Pregnancies per 1,000 Women (Single Years, 2006-2010)



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

Data in Figure 2 illustrate that the Clay County pregnancy rate for teens (ages 15-19) was lower than the comparable WNC and NC rates over the entire period cited. It must be noted, however, that the Cay County teen pregnancy rate is likely unstable due to small and variable numbers of events (n=8-11 pregnancies per year). Note that the teen pregnancy rate in WNC and NC decreased between 2006 and 2010, by 22.9% in WNC, and by 21.2% in NC. The 2010 teen pregnancy rate was 38.9 in Clay County, 46.3 in WNC, and 49.7 in NC.

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



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

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 Clay County was significantly higher than the comparable mean percentage 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 decreased overall in each of the three jurisdictions.

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	
	#	%	#	%	#	%	#	%	#	%
Clay County	128	30.1	136	30.6	114	27.1	108	25.9	108	25.4
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 Clay County that included early prenatal care were equal to or higher than comparable mean figures for WNC and NC for the first three aggregate periods cited in the table. For reasons not explained at the data source, the early prenatal care percentage in Clay County decreased significantly in 2004-2008 (by 11%) and again in 2005-2009 (by 17%). The frequency of early prenatal care utilization in WNC and NC decreased over the entire period cited in the table, in WNC by 2.7% and in NC by 1.7%. In neither the region nor the state was the decrease as dramatic as in Clay County where the frequency reported for 2005-2009 was 27% lower than the frequency reported for 2001-2005.

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	
	#	%	#	%	#	%	#	%	#	%
Clay County	384	90.4	395	88.8	374	88.8	330	79.1	281	66.0
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 Clay County over the same time span, low birth weight data demonstrated some variability, decreasing from 2002-2006 to 2004-2008 and increasing after that to a high for the entire period cited (6.7%).

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

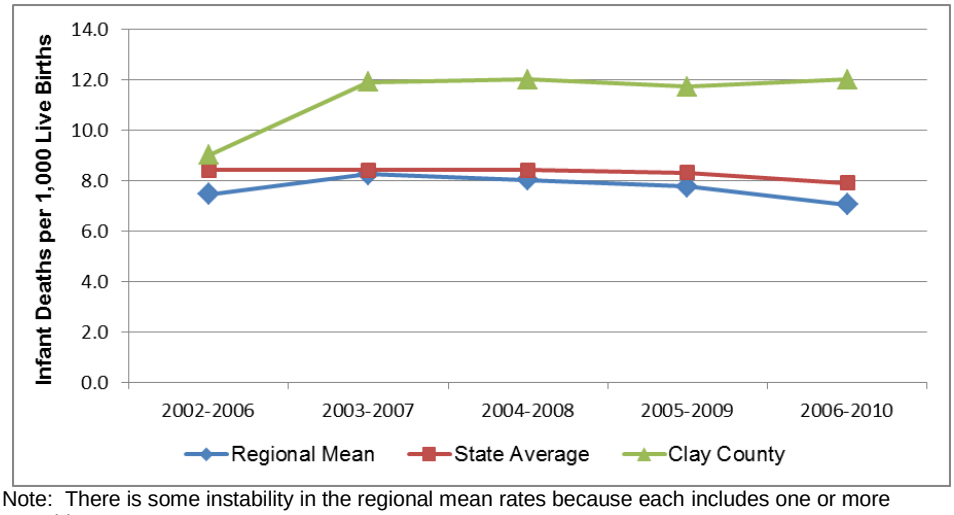
Geography	2002-2006		2003-2007		2004-2008		2005-2009		2006-2010	
	#	%	#	%	#	%	#	%	#	%
Clay County	27	6.1	24	5.7	23	5.5	25	5.9	28	6.7
Regional Total	3,447	8.2	3,473	8.4	3,467	8.3	3,434	8,2	3,373	8.2
State Total	54,991	9.1	56,541	9.1	57,823	9.1	58,461	9.1	58,260	9.1

Infant Mortality

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

The state's infant mortality rate recently has begun to decrease; after hovering near 8.5 for several years it was 7.9 in the most recent aggregate period (2006-2010). The infant mean mortality rate for WNC has been lower than the state rate, and appears to be trending in the right direction. While infant mortality rates for Clay County are plotted in Figure 3, it should be noted that all five of the plotted rates technically are unstable due to small numbers of events (n=4-5 infant deaths per five-year aggregate period).

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



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

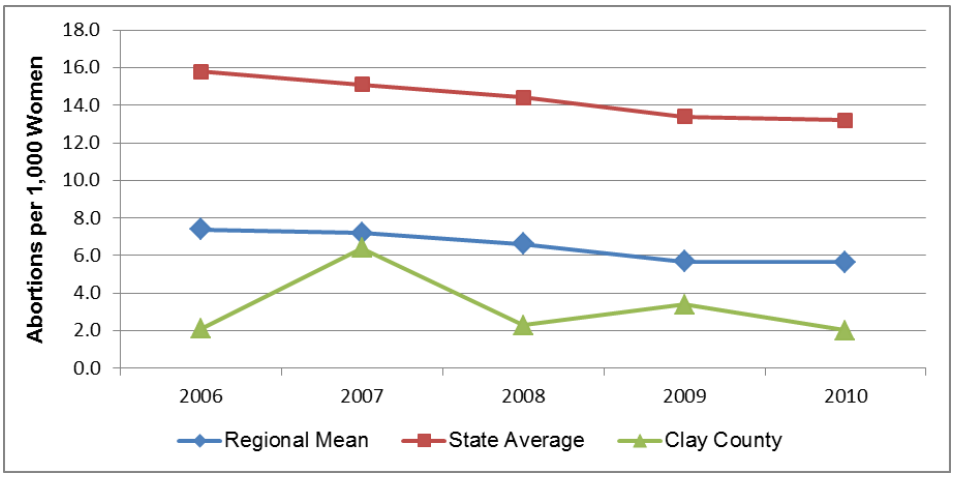
Due to small non-white populations and similarly small numbers of infant deaths among them in both Clay County and WNC it is not possible to calculate stable minority infant mortality rates for those jurisdictions. Statewide, the infant mortality rate among non-Hispanic African Americans is *more than twice* the comparable rate among whites (*Data Workbook*).

Abortion

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

The abortion rate in Clay County was below both the mean WNC and NC rates throughout the period cited. Fluctuations in the county data plotted in Figure 4 may be due partly to the small numbers of events (n=3-7 abortions per five- year aggregate period) used in calculating the rates). In 2010 the abortion rate was 2.0 in Clay County.

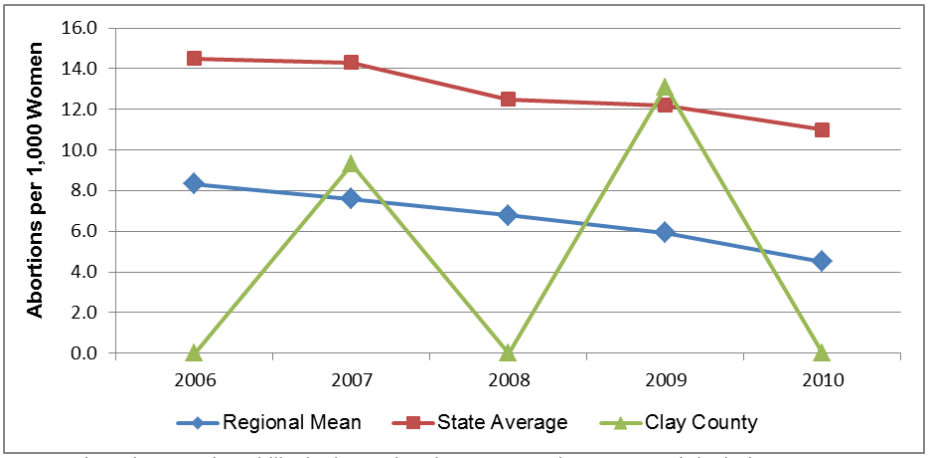
Figure 4. Pregnancies Ending in Abortion, Ages 15-44, per 1,000 Population (Single Years, 2006-2010)



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

Data in Figure 5 show that the mean abortion rate in WNC for teens ages 15-19 was slightly more than half the teen abortion rate for the state as a whole for the first three years cited in the figure and less than half the state rate in the most recent two years. The rate in both jurisdictions fell over the time period cited in the figure, by 45.8% in WNC and by 24.1% in NC. In Clay County, all teen abortion rates for the period cited are either zero or unstable due to small numbers of abortions (n=0-3) per year; this instability accounts for the extreme variability seen in the plot for the county.

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



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

Only limited mortality data are available for Clay County for 2006-2010 due to numbers of deaths below the threshold for calculating stable rates for most of the causes of death listed in Table 28. Of the six stable rates listed by NC SCHS for Clay County, three (mortality rates for chronic lower respiratory disease, all other unintentional injuries, and Alzheimer's disease) exceed comparable rates for NC, and one (the mortality rate for all other unintentional injuries) exceeds the WNC rate. Of particular note, the Clay County mortality rate for all other unintentional injuries exceeds the WNC rate by 12.8% and the NC rate by 69.2%. Other differences in mortality statistics will be covered as each cause of death is discussed separately below. Note that in those discussions some unstable data will be presented, 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	Clay County		WNC Mean		NC	
	Rank	Rate	Rank	Rate	Rank	Rate
Heart Disease	1	184.2	1	194.4	1	184.9
Total Cancer	2	163.0	2	180.3	2	183.1
Chronic Lower Respiratory Disease	3	49.5	3	51.1	4	46.4
Cerebrovascular Disease	5	37.2	4	44.0	3	47.8
All Other Unintentional Injuries	4	48.4	5	42.9	5	28.6
Alzheimer's Disease	6	28.7	6	30.7	6	28.5
Diabetes Mellitus	7	n/a	7	19.6	7	22.5
Pneumonia and Influenza	8	n/a	8	19.1	9	18.6
Unintentional Motor Vehicle Injuries	12	n/a	9	16.7	10	16.7
Suicide	13	n/a	10	16.7	12	12.1
Nephritis, Nephrotic Syndrome & Nephrosis	11	n/a	11	16.2	8	18.9
Septicemia	10	n/a	12	13.4	11	13.7
Chronic Liver Disease & Cirrhosis	9	n/a	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 Clay) 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 28 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 Clay County, deaths in the two youngest age groups are 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.

Noteworthy findings among the age-grouped rankings of mortality in WNC compared to NC as a whole include the relatively greater regional prominence of mortality due to 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		
		Clay County	WNC	NC
00-19	**1**	*Perinatal conditions*	Perinatal conditions	Perinatal conditions
	2	*Congenital anomalies*	Motor vehicle injuries	Congenital abnormalities
	3	*Motor vehicle injuries*	Congenital abnormalities	Motor vehicle injuries
		Suicide	Other unintentional injuries	
20-39	**1**	*Other unintentional injuries*	Other unintentional injuries	Motor vehicle injuries
	2	*Cancer*	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

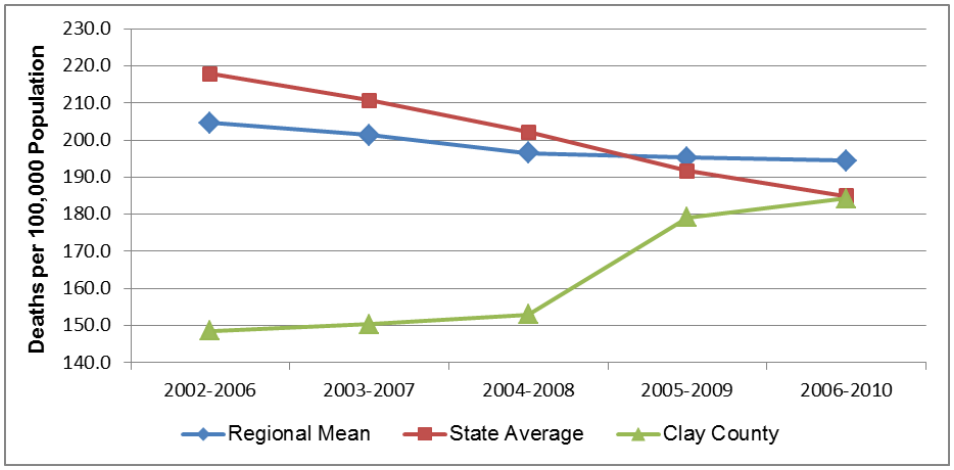
The following section examines in greater detail each of the causes of death listed in Table 28, in the order of highest mean WNC rank to lowest, beginning with heart disease.

Heart Disease Mortality

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

Heart disease was the leading cause of death in Clay County, WNC and NC in the 2006-2010 aggregate period (Table 28, cited previously). Figure 6 presents heart disease mortality trend data. This graph illustrates that the heart disease mortality rate in Clay County has been increasing while the comparable rates for WNC and NC have been decreasing. In Clay County the heart disease mortality rate rose from 148.5 to 184.2 between the 2002-2006 and 2006-2010 aggregate periods, an increase of 24.0%. Once well below both the WNC and NC heart disease mortality rates, the most recent county rate equals the state average. 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%. For the 2002-2006 period the mean WNC heart disease mortality rate was 204.6; by the 2006-2010 period it had fallen to 194.4, a decrease of 4.9%.

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



Further subdivision of heart disease mortality data reveals a modest gender disparity in the county that is not as pronounced as in the region as a whole. Figure 7 plots heart disease mortality rates for Clay County, stratified by gender. From these data it is clear that males have had a higher heart disease mortality rate than females for the past decade, with the difference ranging from 9% to 35% higher. (In WNC, males have an approximately 60% higher heart disease mortality rate than females.) Noteworthy are a recent increase in heart disease mortality among Clay County males, and an apparent steady increase in the heart disease mortality rate among Clay County females. The heart disease mortality rate among Clay County males increased 22.2% (from 159.6 to 195.0) between 2004-2008 and 2006-2010, and among females it increased (from 127.9 to 173.5) over the entire period cited in the figure. In the 2006-2010 aggregate period the heart disease mortality difference between males (195.0) and females (173.5) in Clay County was 12.4%.

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

Only four of the 16 counties in WNC (Buncombe, Jackson, Rutherford and Swain) had large enough minority populations to yield stable heart disease mortality rates for minority populations, so it is not possible to calculate stable mean region-wide rate for minorities. At the state level, heart disease mortality demonstrates significant racial disparity, with the minority rate higher than the non-minority rate. For example, statewide in 2006-2010 the heart disease mortality rate among non-Hispanic African American males (285.8) was almost 23% higher than the comparable rate among non-Hispanic white males (233.0), and the rate among non-Hispanic African American females (175.7) was 25% higher than the rate among non-Hispanic white females (140.9). The comparable rates among Other non-Hispanics were 148.7 for males and 102.7 for females. Hispanics had the lowest heart disease mortality rates, 55.7 for males and 36/9 for females (*Data Workbook*).

Total Cancer Mortality

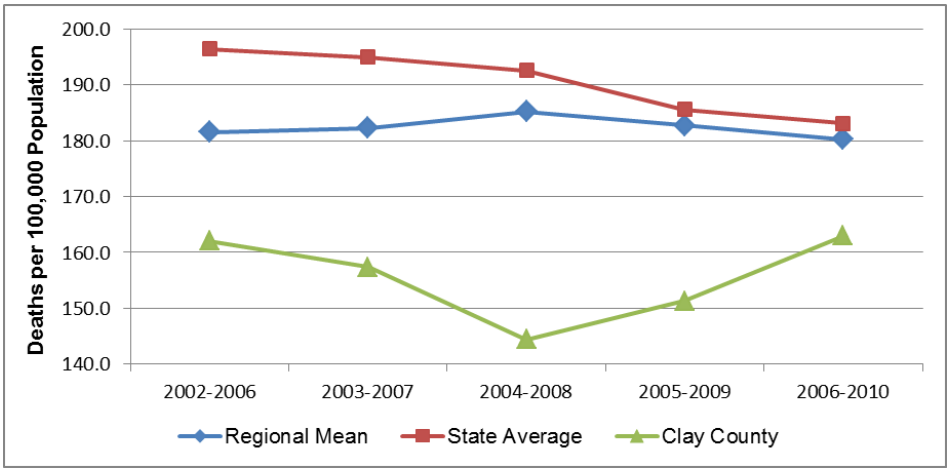
Cancer is a term for diseases in which abnormal cells divide without control and can invade nearby tissues. Cancer cells also can spread to other parts of the body through the blood and lymph systems. If the disease remains unchecked, it can result in death (National Cancer Institute).

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

Figure 8 presents mortality trend data for total cancer. This graph illustrates how over the period cited the total cancer death rate in Clay County both fell and rose but was little different at the end of the period (163.0) than at the beginning (162.0). The total cancer mortality rate in the county remained well below both the comparable state and regional rates throughout the period cited.

This graph also illustrates how over the period cited the total cancer death rate has decreased at the state level, and the comparable regional rate has fluctuated some but changed little in the net. Statewide, mortality attributable to all cancers decreased over the period covered in the graph, with the rate for 2006-2010 (183.1) being 6.8% lower than the rate for 2002-2006 (196.4). In WNC the total cancer mortality rate in 2006-2010 (180.3) was less than 1% lower than the comparable rate in 2002-2006 (181.5). Nevertheless, the mean regional rate was lower than the comparable state rate in each of the periods cited in Figure 8, although the gap has narrowed.

Figure 8. 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 9 plots mean total cancer mortality rates for Clay County, stratified by gender. From these data it is clear that males had and continue to have a higher total cancer mortality rate than females for the past decade. Noteworthy is that the total cancer mortality rate among both Clay County males and females first decreased then increased during the period cited in the figure. In the most recent aggregate period (2006-2010) the total cancer mortality rate for Clay County males (196.7) is 43.6% higher than the comparable rate for females (137.0).

Figure 9. Gender Disparities in Mean Total Cancer Mortality, Clay County (Five-Year Aggregates, 2002-2006 through 2006-2010)

Regionally, only four of the 16 counties in WNC (Buncombe, Jackson, Rutherford and Swain) had large enough minority populations to yield stable total cancer mortality rates, so it is not possible to calculate stable mean region-wide rates for minority populations. At the state level, total cancer mortality demonstrates significant racial disparity, with the minority rates higher

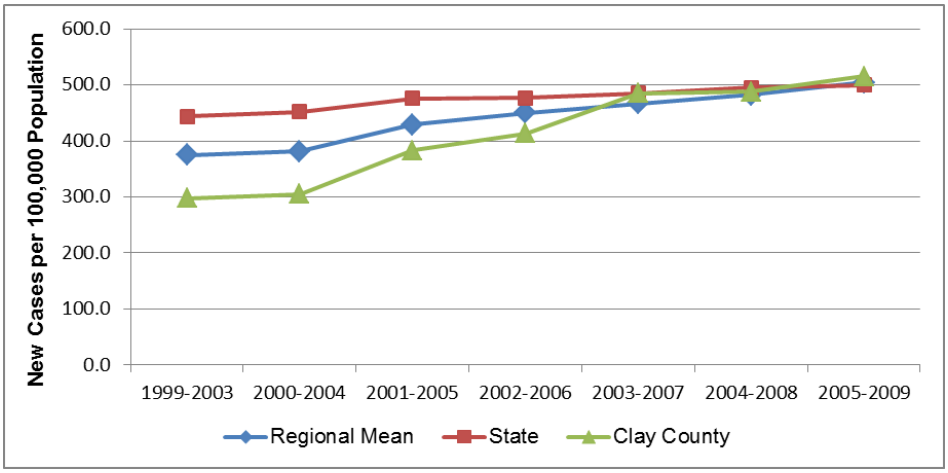
than non-minority rates. For example, statewide in 2006-2010 the total cancer mortality rate among non-Hispanic African American males (302.9) was 35% higher than the comparable rate among non-Hispanic white males (224.6), and the rate among non-Hispanic African American females (166.6) was 12% higher than the rate among non-Hispanic white females (149.3). The comparable total cancer mortality rates for Other non-Hispanics were 145.7 for males and 103.2 for females. Hispanics had the lowest total cancer mortality rates, 66.0 for males and 61.2 for females (*Data Workbook*).

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 10 graphs the incidence rates for total cancer for seven five-year aggregate periods. From this data it appears that the total cancer incidence rate in Clay County increased by 72.9% (from 297.9 to 515.2) between 1999-2003 and 2005-2009, although the rate of increase has appeared to slow in the three most recent aggregate periods.

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 10. 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 Clay 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 Clay County the number of deaths in that period attributable to breast, prostate and colon cancers were below the threshold for calculating stable rates. The only stable county site-specific mortality rate, 45.5 for lung cancer, was below both the WNC and NC rates for the same period. 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
Clay County	45.5	n/a	n/a	n/a
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 age-adjusted incidence rates for these four site-specific cancers for the 2005-2009 aggregate period. From this data it appears that in Clay County, as in WNC, breast cancer is the site-specific cancer with the highest incidence, followed by prostate cancer, lung cancer, and colon cancer. Clay County incidence rates for breast, prostate and lung cancers are below the comparable incidence rates for the other two jurisdictions; the colon cancer incidence

rate in Clay County is higher than in WNC or NC. Multi-year incidence rate trends for these four site-specific cancers will be presented subsequently, as each cancer type is discussed separately.

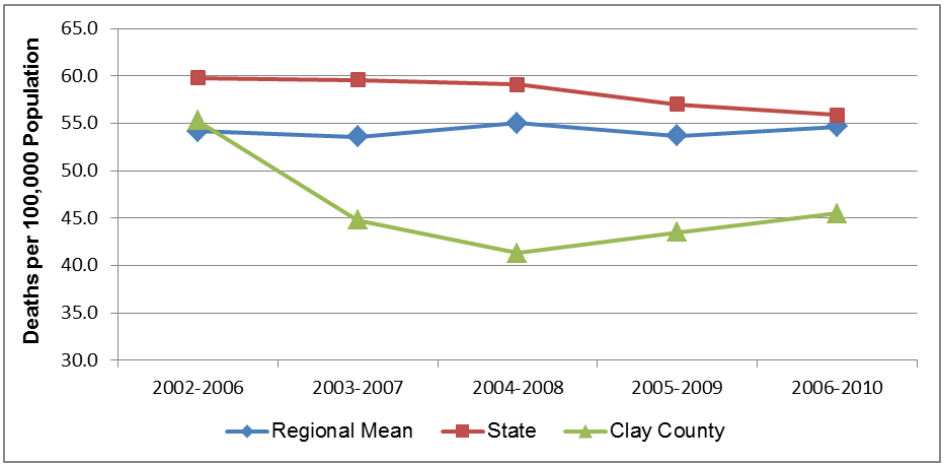
Table 31. Age-Adjusted Incidence Rates for Major Site-Specific Cancers (2005-2009)

Geography	New Cases per 100,000 Population			
	Breast Cancer	Prostate Cancer	Lung Cancer	Colon Cancer
Clay County	153.8	138.3	73.8	52.4
Regional Mean	154.0	139.2	75.4	46.0
State	154.5	158.3	75.9	45.5

Lung Cancer Mortality

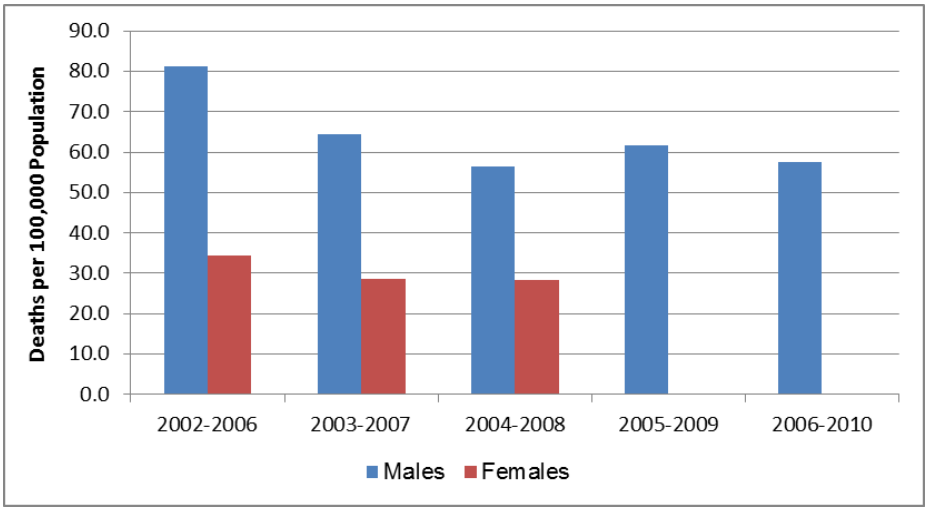
Lung cancer was the leading cause of cancer mortality in Clay County in the 2006-2010 aggregate period (Table 30, cited above). Figure 11 plots lung cancer mortality rates for several aggregate periods. This data reveals that the lung cancer mortality rate in Clay County fell significantly from 55.3 for 2002-2006 to 41.3 for 2004-2008, a decrease of 25.3%, before rising slightly. The 2006-2010 Clay County lung cancer mortality rate was 45.5, 17.7% lower than the 2002-2006 rate. Statewide the lung cancer mortality rate fell from 59.8 for 2002-2006 to 55.9 for 2006-2010, a 6.5% decrease over the period. The comparable WNC rate fluctuated somewhat but was essentially the same at the end of the period as at the beginning (54.7 vs. 54.2, respectively).

Figure 11. Lung Cancer Mortality Rate, Deaths per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)



Lung cancer deaths among females in Clay County were below the threshold for calculating stable mortality rates, so all the rates for women presented in Figure 12 were unstable or were not released by NC SCHS. All the rates shown for males were stable. From this data it would appear that males had disproportionately higher lung cancer mortality compared to females, with the lung cancer mortality rate among men from 77%-87% higher than the rate among women. It also appears that lung cancer mortality rates among both genders decreased over the period cited.

Figure 12. Gender Disparities in Lung Cancer Mortality, Clay County (Five-Year Aggregates, 2002-2006 through 2006-2010)

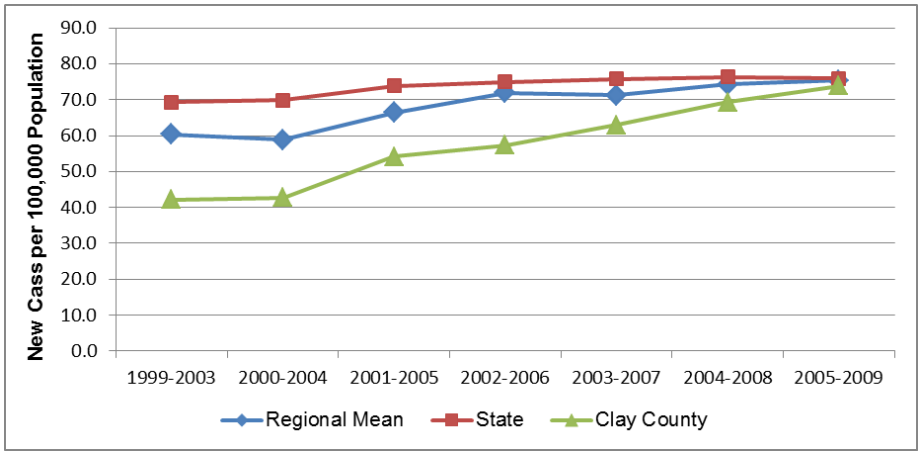


Regionally, only one of the 16 counties in WNC (Buncombe) had large enough minority populations to yield stable minority lung cancer mortality rates, so it is not possible to calculate stable mean region-wide rates for minorities. Statewide, lung cancer mortality rates demonstrate racial disparity. For example, statewide in 2006-2010 the lung cancer mortality rate among African American non-Hispanic males (90.9) was 19% higher than the comparable rate among white non-Hispanic males (76.1); however, the rate among African American non-Hispanic females (32.7) was 25% lower than the rate among white non-Hispanic females (43.7). The comparable rates among "Other" non-Hispanics were 47.2 for males and 24.6 for females. Hispanic males and females had the lowest lung cancer mortality rates, 12.7 and 8.6, respectively (*Data Workbook*).

Since lung cancer is a significant cause of mortality in Clay County, it is instructive to examine the trend of development of new lung cancer cases over time. Figure 13 depicts the seven-year trend of lung cancer incidence.

From this data it appears that lung cancer incidence in Clay County increased 67% (from 44.2 to 73.8) between 1999-2003 and 2005-2009. Region-wide, the lung cancer incidence rate crept 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% between the 1999-2003 aggregate period and the 2005-2009 period, 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.

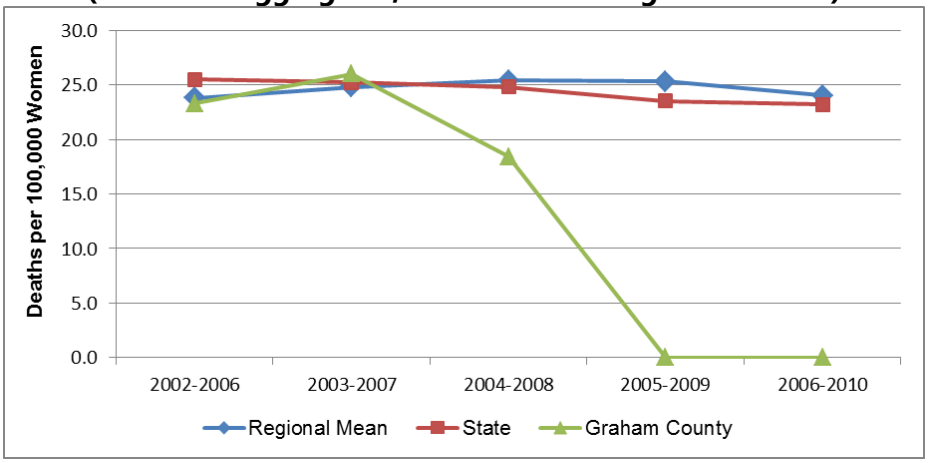
Figure 13. Lung Cancer Incidence, New Cases per 100,000 Population (Five-Year Aggregates, 1999-2003 through 2005-2009)



Breast Cancer Mortality

Deaths attributable to breast cancer in Clay County (n=9-12 per five-year aggregate period) were too few to calculate and graph stable mortality rates, so all the county rates presented in Figure 14 are unstable. The NC SCHS did not release breast cancer mortality rates for the county for the last two aggregate periods (indicated as "zero" in the figure) because of below-threshold numbers of deaths. From the limited county data available, it appears that the breast cancer mortality rate was comparable to the mean WNC and NC rates. Region-wide, breast cancer is the second leading cause of cancer death (Table 30, cited previously). Data in Figure 14 plots demonstrate that at the state level the breast cancer mortality rate decreased 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. In WNC, the 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 figure of 24.0.

Figure 14. Breast Cancer Mortality Rate, Deaths per 100,000 Women (Five-Year Aggregates, 2002-2006 through 2006-2010)

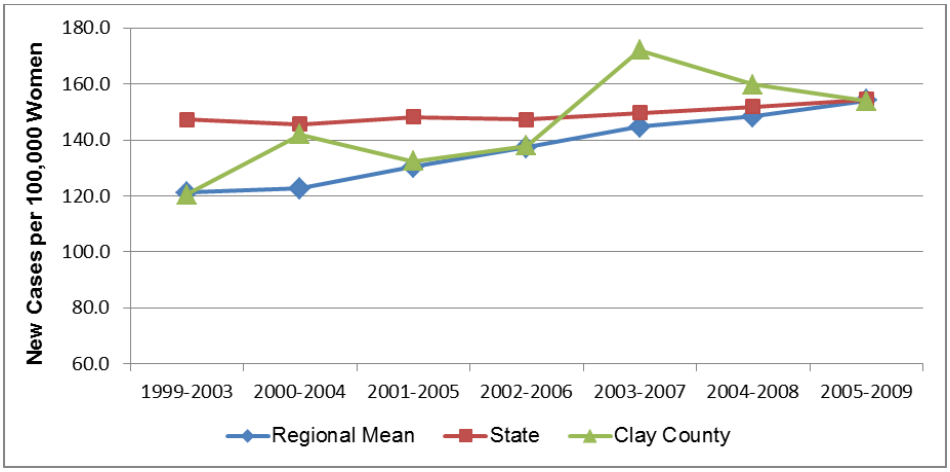


Note: There is some instability in the regional mean rates because each includes one or more unstable county rate.

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

Figure 15 demonstrates that the breast cancer incidence rate has been increasing in all three jurisdictions over the past several years, but at a more erratic pace in Clay County. In Clay County, the breast cancer incidence rate rose from 120.5 new cases per 100,000 women in the 1999-2003 aggregate period to 153.8 in the 2005-2009 aggregate period, an increase of almost 27.6%. In WNC, the mean breast cancer incidence rate rose from 121.3 new cases per 100,000 women 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 15. Breast Cancer Incidence, New Cases per 100,000 Women (Five-Year Aggregates, 1999-2003 through 2005-2009)

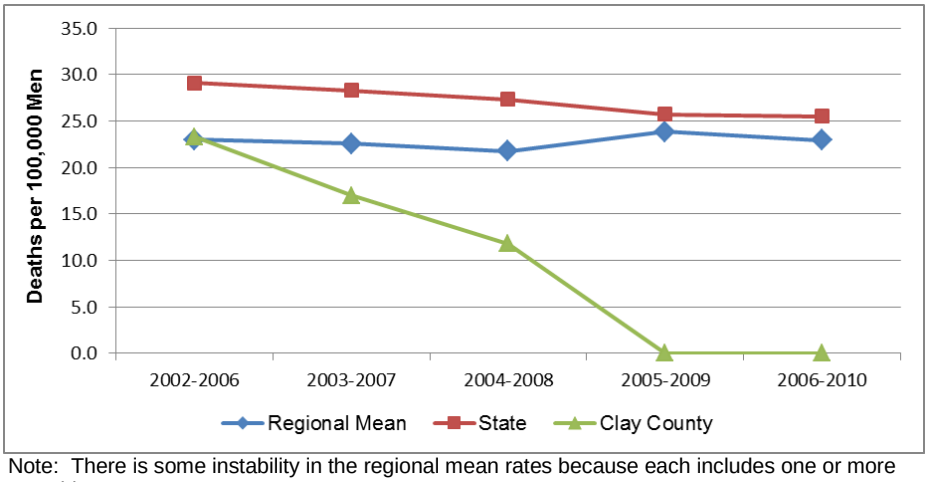


Prostate Cancer Mortality

Deaths attributable to prostate cancer in Clay County (n=4-9 per five-year aggregate period) were too few to calculate and graph stable mortality rates, so all the county rates shown in Figure 16 are unstable. From this limited county data it appears that prostate cancer deaths decreased over the period cited. Note that the "zero" values plotted in the last two aggregate periods signify that the NC SCHS did not release county rates for those periods. Region-wide, prostate cancer is the third largest cause of cancer deaths (Table 30, cited previously). 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 no net decrease in the mean prostate cancer mortality rate over the period cited in the graph.

Figure 16. Prostate Cancer Mortality Rate, Deaths per 100,000 Men (Five-Year Aggregates, 2002-2006 through 2006-2010)

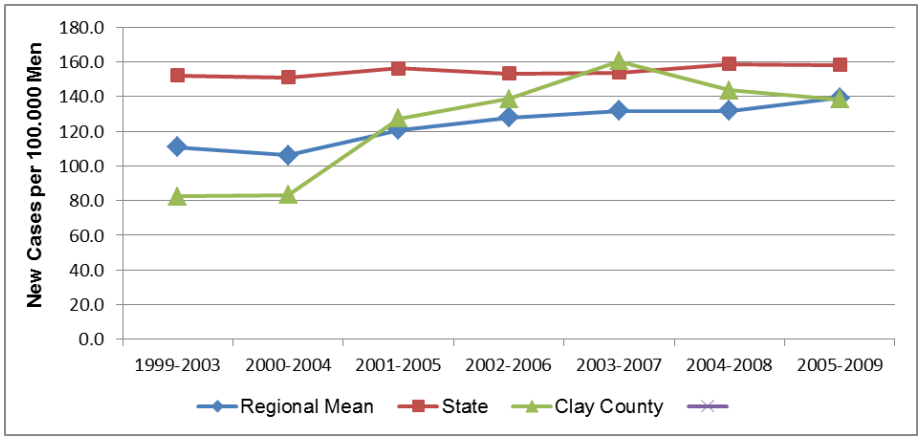


Note: There is some instability in the regional mean rates because each includes one or more unstable county rate.

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

Prostate cancer incidence statewide remained relatively stable in recent years, increasing by 4.1%, or from 152.0 to 158.3, in the period from 1999-2003 through 2005-2009 (Figure 17). Over the same span of time, prostate cancer incidence in WNC rose from 110.7 new cases per 100,000 men in the 1999-2003 period to 139.2 in 2005-2009 period, a total increase of 25.7%, or over six times the statewide increase. In Clay County the prostate cancer incidence rate rose dramatically after 2000-2004, and for some period of time was above the WNC rate. From the beginning to the end of the entire period cited, the Clay County prostate cancer incidence rate rose from 82.4 to 138.3, an increase of 67.8%.

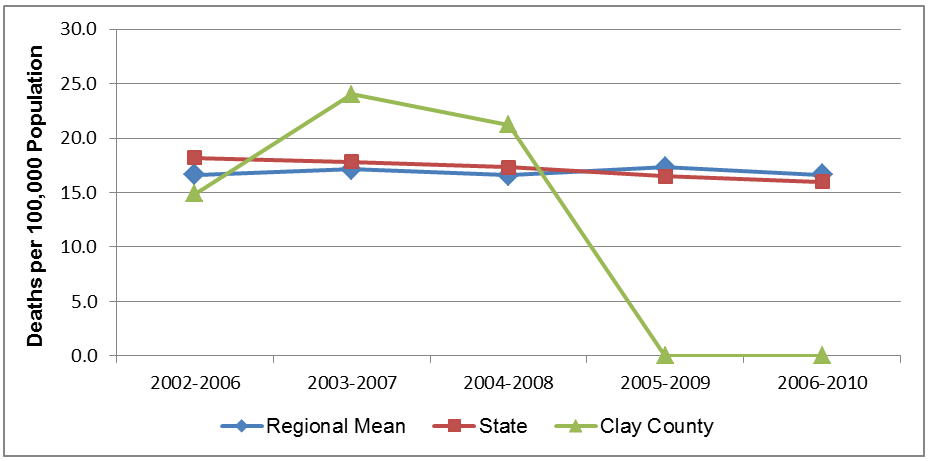
Figure 17. Prostate Cancer Incidence, New Cases per 100,000 Men (Five-Year Aggregates, 1999-2003 through 2005-2009)



Colorectal Cancer Mortality

Deaths attributable to cancer of the colon, rectum and anus (collectively "colorectal" cancer) in Clay County were too few (n=13-22 per five-year aggregate period) to yield stable mortality rates in most aggregate periods, so all the county data plotted in Figure 18 is unstable except for 2003-2007. Region-wide, colorectal caused the fourth largest mortality rate among the major site-specific cancers (Table 30, cited previously). 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 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).

Figure 18. 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.

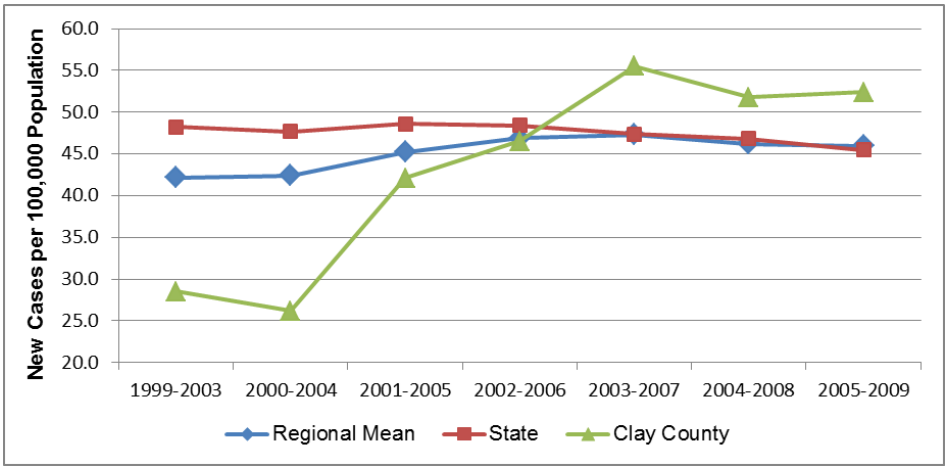
In Clay County there are too few colorectal cancer deaths stratified by gender to yield stable gender-based mortality rates, so all the county rates presented in Figure 19 are technically unstable. At the regional level, the colorectal cancer mortality rate for males was higher than the rate for females. Although the data are limited, that also appears to have been the case in Clay County.

Figure 19. Gender Disparities in Colorectal Cancer Mortality, Clay County (Five-Year Aggregates, 2002-2006 through 2004-2008)

In WNC, only one of the 16 counties (Buncombe) had large enough minority populations to yield stable colorectal cancer mortality rates for any minority group, so it is not possible to calculate stable mean region-wide colorectal cancer mortality rates for minorities. Statewide, colorectal cancer mortality rates demonstrate some racial disparities. In the 2006-2010 aggregate period, the colorectal cancer mortality rate among African American non-Hispanic males (29.0) was 58% higher than the comparable rate among white non-Hispanic males (18.4) and over three times the rate among Other non-Hispanic males (9.0). Statewide in the same period the colorectal cancer mortality rate was 18.5 for African American non-Hispanic females, 12.4 for white non-Hispanic females, and 9.9 for Other non-Hispanic females. Statewide, the colorectal cancer mortality rates were lowest for Hispanic males (7.4) and Hispanic females (5.4) (*Data Workbook*).

From data in Figure 20 it is apparent that the incidence rate for colorectal cancer in Clay County has risen dramatically since 2002-2004. In 2000-2004 the colorectal cancer incidence rate in the county was 28.5; in 2005-2009 the rate was 52.4, an increase of 83.8%. In the three most recent aggregate periods the county rate exceeded both the comparable WNC and NC colorectal cancer incidence rates. The 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 20. Colorectal Cancer Incidence, New Cases per 100,000 Population (Five-Year Aggregates, 1999-2003 through 2005-2009)



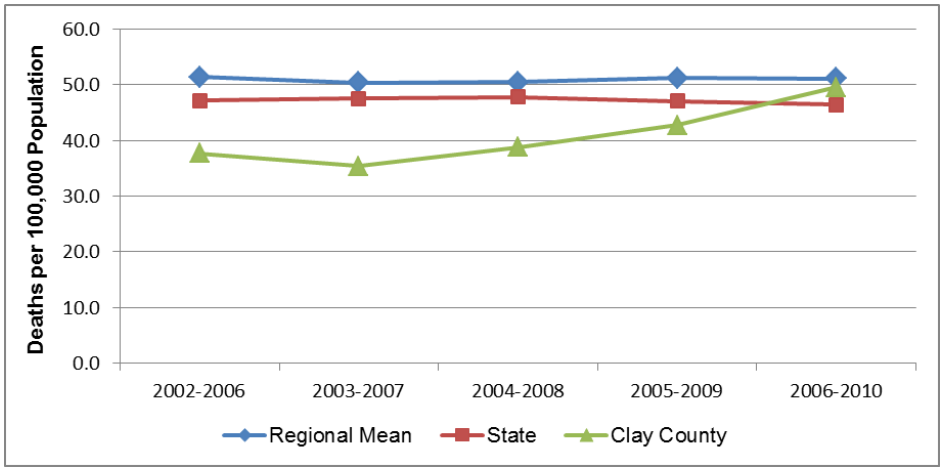
Chronic Lower Respiratory Disease (CLRD) Mortality

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 Clay County for the 2006-2010 aggregate period (Table 28, cited previously).

Figure 21 plots CLRD mortality rates for five aggregate periods. In Clay County, the CLRD mortality rate, which had been lower than the comparable WNC and NC rates, has risen to overtake the state rate and approach the WNC rate. From the 2002-2006 aggregate period to the 2006-2010 aggregate period the CLRD mortality rate in Clay County rose from 37.7 to 49.5, a 31.3% increase. The data also shows that CLRD mortality has been and remains higher in WNC than in the state as a whole. The mean WNC CLRD mortality rate ranged from 5% to 10% higher than NC rate throughout the period cited in Figure 21. Neither the NC nor the WNC CLRD mortality improved significantly over the period. CLRD mortality rates in 2006-2010 were 49.5 in Clay County, 46.4 in NC, and 51.1 in WNC.

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



In Clay County there are too few CLRD deaths stratified by gender to yield a complete set of stable gender-based mortality rates for the target period. In Figure 22 only the last two data points for males are stable, but those are significant, since they verify the impression that CLRD mortality is increasing among Clay County males. Throughout the period cited the CLRD mortality rates for males in the county exceeded mortality rates for females. Note that the NC SCHS did not release rates for females in the last two aggregate periods due to below-threshold numbers of deaths.

Figure 22. Gender Disparities in CLRD Mortality, Clay 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

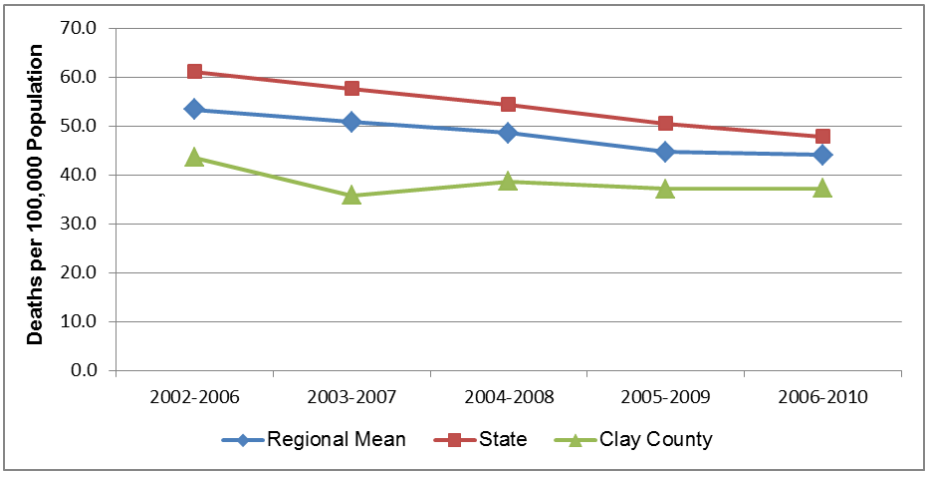
aggregate period, the CLRD mortality rate was highest among non-Hispanic white males (58.7), followed by non-Hispanic white females (46.4), non-Hispanic African American males (45.1), Other non-Hispanic males (27.4), non-Hispanic females (21.1), and Other non-Hispanic females (15.6). CLRD mortality rates 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 Clay County (Table 28, cited previously). Figure 23 plots stroke mortality rates for several aggregate periods. The stroke mortality rate for Clay County was lower than the comparable rates for WNC and NC throughout the period cited. After decreasing by around 18% between 2002-2006 and 2003-3007, the Clay County stroke mortality rate has been stable at around 37.0 for the last two aggregate periods. These data also illustrate how the mean stroke mortality rate for WNC has was consistently lower than the comparable state rate for the entire period cited in Figure 23. Furthermore, both the regional rate and state rate appear to have decreased over the entire period. The rate fell 17.4% in WNC (from 53.3 to 44.9) and 21.8% in NC (from 61.1 to 47.8).

Figure 23. Cerebrovascular Disease Mortality Rate, Deaths per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)



In Clay County there are too few cerebrovascular disease deaths among men to yield stable gender-based mortality rates, so all the rates shown for males in Figure 24 are unstable. All the

rates for women, however, are stable. Stroke is one cause of death for which there was little gender disparity in the WNC region (*Data Workbook*). From the data in Figure 24 it appears that the same is the case in Clay County.

Figure 24. Gender Disparities in Cerebrovascular Disease Mortality, Clay County (Five-Year Aggregates, 2002-2006 through 2006-2010)

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

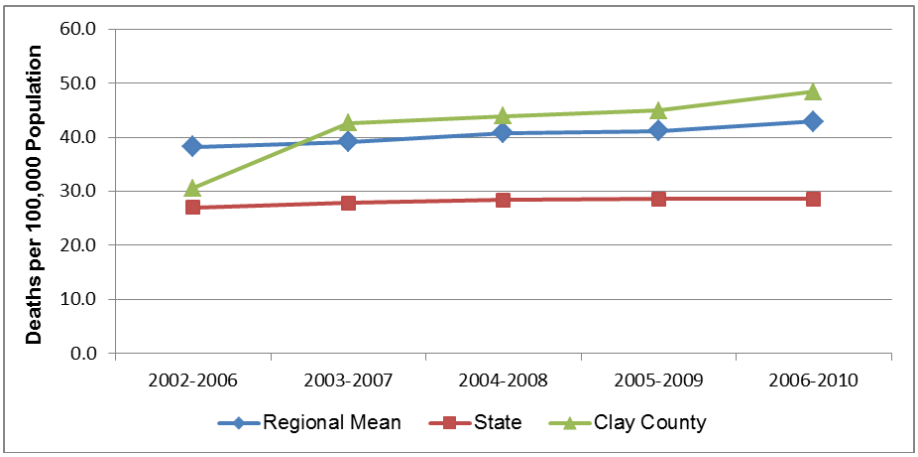
Non-Motor Vehicle Injury Mortality ("All Other Injuries Mortality")

In the 2006-2010 aggregate period mortality due to injuries *not* involving motor vehicles is the fifth leading cause of death in WNC, but the fourth leading cause of death in Clay County (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 25 plots the trend in mortality due to all other injuries for five aggregate periods. Data plotted for Clay County are all stable rates except for the 2002-2006 data point. This data shows

that the accidental injury mortality rate in the county was 8% to 13% above the comparable rates for WNC throughout the remainder of the period cited. Throughout the period cited the mean non-motor vehicle injury mortality rate in 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).

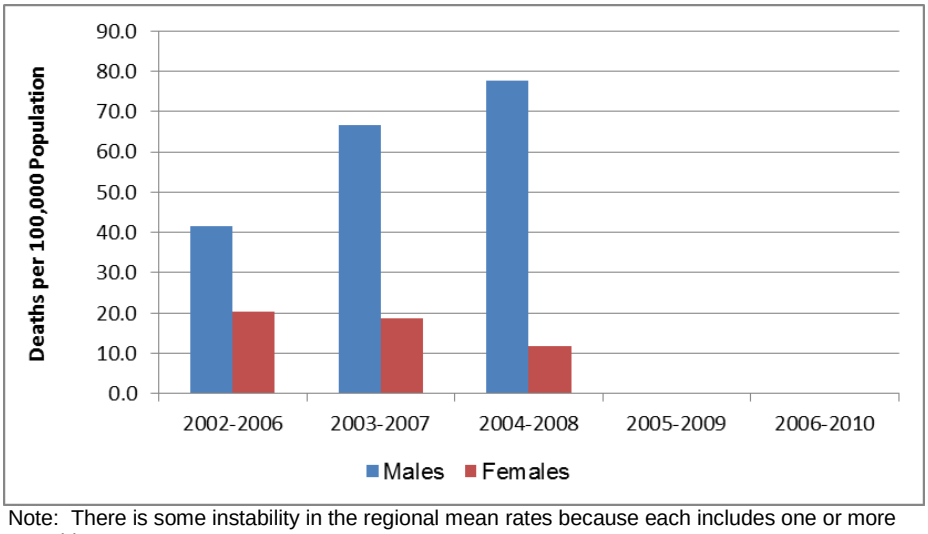
Figure 25. All Other Unintentional Injury Mortality Rate, Deaths per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)



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

In Clay County there are too few non-motor vehicle-related injury deaths stratified by gender to yield stable gender-based mortality rates, so all the rates shown in Figure 26 are unstable. In each of the periods for which the NC SCHS released rates, the mortality rate for all other unintentional injuries among males was far higher than the comparable rate among females. The rate for males appeared to increase while the rate for females decreased.

Figure 26. Gender Disparities in Mean All Other Unintentional Injury Mortality, WNC (Five-Year Aggregates, 2002-2006 through 2004-2008)



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

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

Alzheimer's Disease Mortality

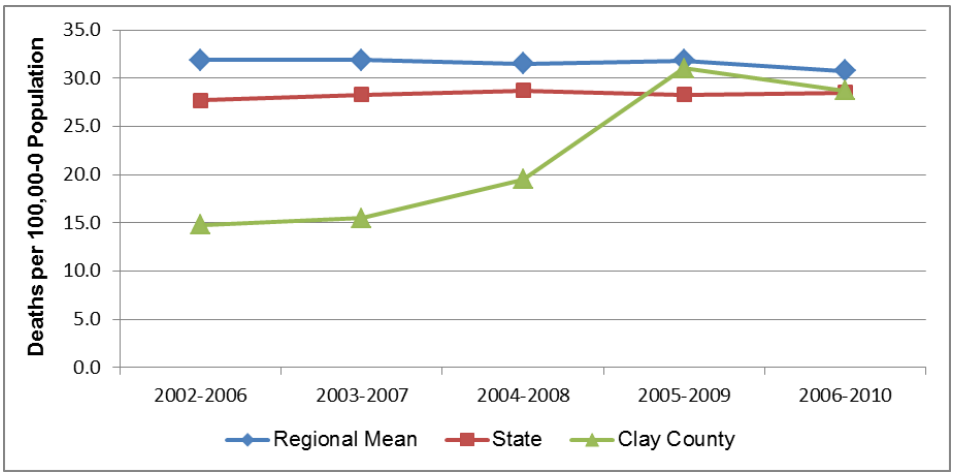
Alzheimer's disease is a progressive neurodegenerative disease affecting mental abilities including memory, cognition and language. Alzheimer's disease is characterized by memory loss and dementia. The risk of developing Alzheimer's disease increases with age (e.g., almost half of those 85 years and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

Alzheimer's disease was the sixth leading cause of death in both Clay County and WNC for the aggregate period 2006-2010 (Table 28, cited previously).

Figure 27 plots Alzheimer's disease mortality rates over several aggregate periods. Note that the first two data points for Clay County are unstable. The subsequent points, all technically

stable, show that the Alzheimer's disease mortality rate in Clay County increased to equal the NC rate. It is noteworthy that the mean Alzheimer's disease mortality rate in WNC was higher than the comparable state rate throughout the span of time cited in Figure 27, this despite the fact that the data used were 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 28.7 in Clay County, 30.7 in WNC, and 28.5 in NC.

Figure 27. Alzheimer's Disease Mortality Rate, Deaths per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)



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

Alzheimer's disease mortality has a strong gender component, with mortality rates traditionally much higher among women than among men. Stratified Alzheimer's disease deaths among Clay County men in the target period were all unstable; rates for females in the first two aggregate periods were unstable as well. The limited data plotted in Figure 28, seems to indicate that the traditional gender disparity in Alzheimer's disease mortality applied to Clay County. Further, from the last three data points for women, all of which were stable, it appears that the Alzheimer's disease mortality rate among Clay County females increased approximately 28% overall from 2004-2008 to 2006-2010.

Figure 28. Gender Disparities in Alzheimer's Disease Mortality, Clay County (Five-Year Aggregates, 2002-2006 through 2006-2010)

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

Diabetes Mellitus Mortality

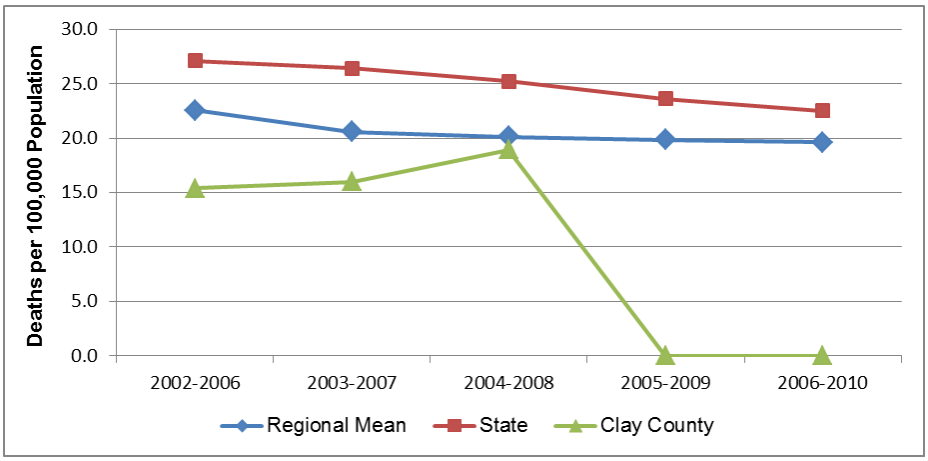
Diabetes is a disease in which the body's blood glucose levels are too high due to problems with insulin production and/or utilization. Insulin is a hormone that helps the glucose get to cells where it is used to produce energy. With type 1 diabetes, the body does not make insulin. With type 2 diabetes,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

Diabetes was the seventh leading cause of death in WNC and Clay County in the 2006-2010 aggregate period (Table 28, cited previously). Note however that the NC SCHS did not release a rate for the county in that period, due to a below threshold number of deaths.

Figure 29 plots trend data for diabetes mortality for several aggregate periods. It should be noted that all the county rates plotted are unstable due to small numbers of deaths (n=13-17 per five-year aggregate period); the "zero" rates signify that the NC SCHS did not release county

rates in those aggregate periods. According to the limited county data this figure, the diabetes mortality rate in Clay County was lower than the comparable mean WNC rate for the first three aggregate periods cited. The mean WNC was lower than the state rate throughout the period cited. Statewide, the diabetes mortality rate fell from 27.1 to 22.5 (17.0%) over the period cited in the figure. Region-wide, the diabetes mortality rate fell from 22.6 to 19.6 (13.3%).

Figure 29. 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.

The gender-stratified diabetes mortality rates for Clay County plotted in Figure 30 all are unstable. Nevertheless, this limited data would appear to indicate a significantly higher diabetes mortality rate among males than among females.

Figure 30. Gender Disparities in Diabetes Mellitus Mortality, Clay County (Five-Year Aggregates, 2002-2006 through 2004-2008)

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

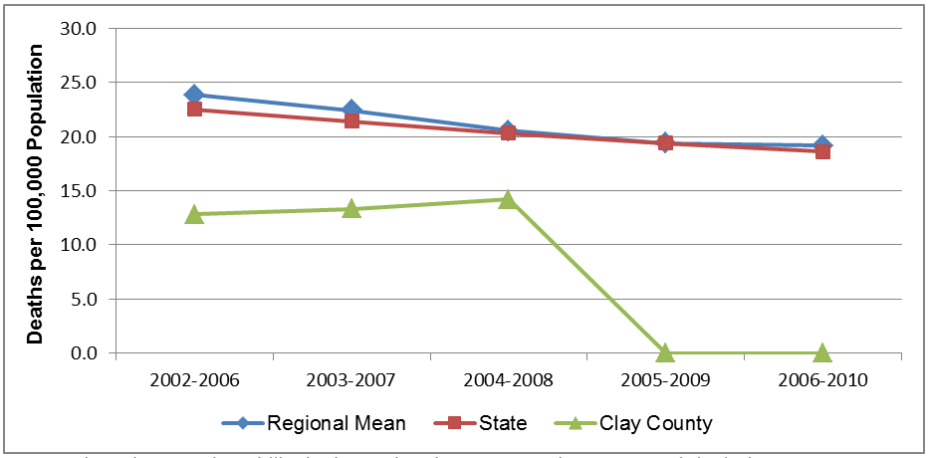
Pneumonia and Influenza Mortality

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

The joint mortality category pneumonia and influenza was the eighth leading cause of death in WNC and Clay County in the 2006-2010 aggregate period (Table 28, cited previously). Note however that the NC SCHS did not release a rate for the county in that period, due to a below threshold number of deaths.

Figure 31 plots mortality trend data for pneumonia and influenza for several aggregate periods. It should be noted that all the data points plotted for Clay County were unstable due to small numbers of deaths (n=12-14); 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 the mean pneumonia/influenza mortality rate in WNC closely paralleled the comparable NC rate throughout the period cited in the figure, and both the regional and state mortality rates decreased over the period. The mean WNC rate decreased overall from 23.8 to 19.1 (19.7%) and the comparable NC rate decreased from 22.5 to 18.6 (17.3%). The limited data for Clay County indicates that the county mortality rate was lower than the comparable WNC and NC rates for the first three aggregate periods.

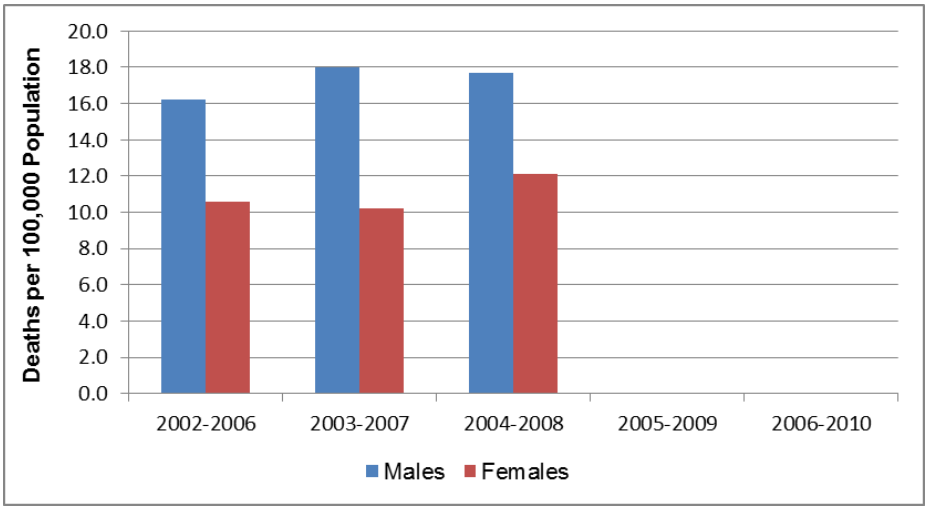
Figure 31. Pneumonia and Influenza Mortality Rate, Deaths per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)



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

The gender-stratified pneumonia/influenza mortality data for Clay County plotted in Figure 32 are all unstable; the NC SCHS did not release stratified rates for the county in the last two aggregate periods. From this limited data it does appear that males in Clay County over the period cited males had a significantly higher mortality rate than females.

Figure 32. Gender Disparities in Pneumonia and Influenza Mortality, Clay County (Five-Year Aggregates, 2002-2006 through 2004-2008)



In WNC, none of the 16 counties had large enough minority populations to yield stable pneumonia/influenza mortality rates for any minority group, so it is not possible to calculate stable mean region-wide rates for minorities. At the state level pneumonia and influenza mortality rates demonstrate moderate racial disparities. Statewide in the 2006-2010 aggregate period the highest pneumonia/influenza mortality rate (24.1) occurred among African American

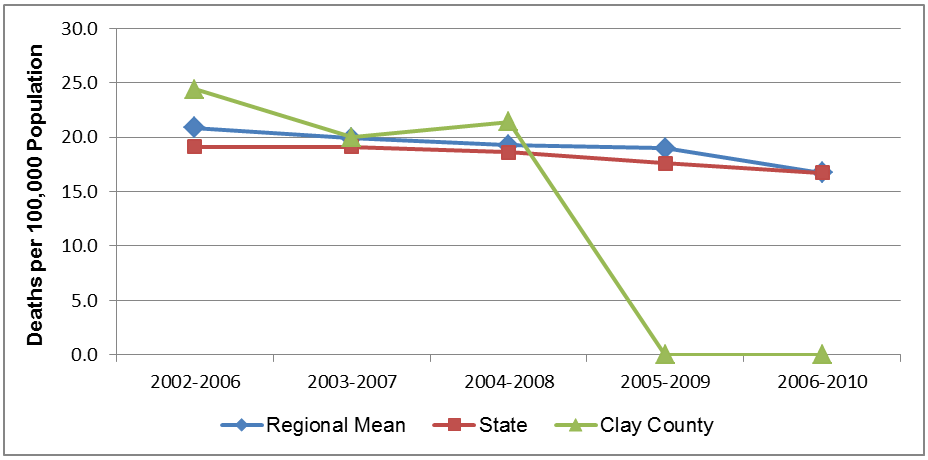
non-Hispanic males, followed in order by white non-Hispanic males (21.5), white non-Hispanic females (17.3), African American non-Hispanic females (15.8), other non-Hispanic males (11.1), and other non-Hispanic females (9.0). The Hispanic population, both male and female, experienced the lowest pneumonia and influenza mortality rates, 5.8 and 7.1, respectively (*Data Workbook*).

Unintentional Motor Vehicle Injury (UMVI) Mortality

Death due to injuries incurred in unintentional motor vehicle crashes was the ninth leading cause of death in WNC and the twelfth leading cause of death in Clay County in the 2006-2010 aggregate period (Table 28, cited previously). Note however that the NC SCHS did not release a rate for the county in that period, due to a below threshold number of deaths.

Figure 33 plots UMVI mortality rates over several aggregate periods. In Clay County there were too few deaths attributable to motor vehicle injuries (n=9-13 per five-year aggregate period) to calculate stable rates. The "zero" rates plotted for the county in the last two aggregate periods signify than the NC SCHS did not release county rates in those periods. From this data in the figure it appears that the mortality rate attributable to UMVI in WNC was slightly higher than the comparable state rate for most of the time span cited in the table. Both the regional and state UNVI mortality rates fell over the period cited in the figure. 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%). From the limited data for Clay County it appears that the county UMVI mortality rate was higher than the comparable mean WNC and NC rates over the first three aggregate periods.

Figure 33. 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.

Mortality attributable to UMVI usually demonstrates a strong gender disparity. Figure 34 plots mortality differences between Clay County men and women, despite all the rates being unstable due to small numbers of gender-stratified deaths. Note that the NC SCHS did not release stratified data for the county in the last two aggregate period. From this limited data it appears that in Clay County the UMVI mortality rate among males was significantly higher than the comparable rate among females over the period cited.

Figure 34. Gender Disparities in Unintentional Motor Vehicle Injury Mortality
Clay County
(Five-Year Aggregates, 2002-2006 through 2004-2008)

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

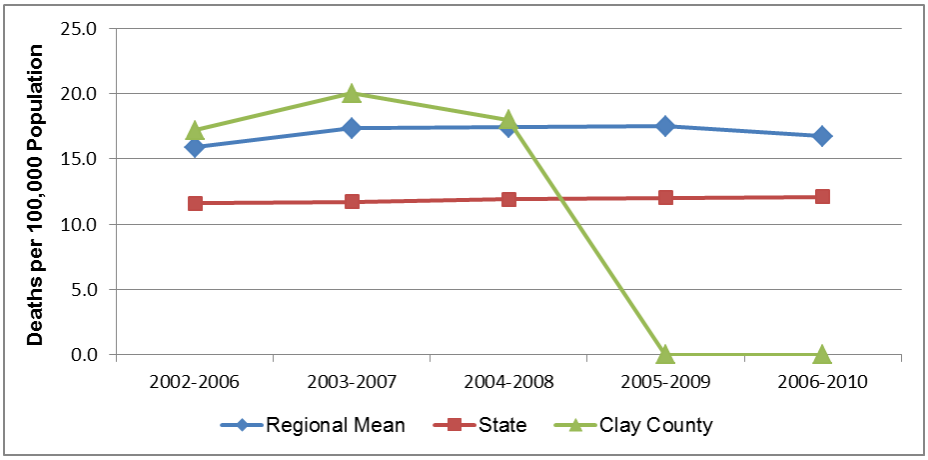
In WNC, none of the 16 counties had large enough minority populations to yield stable UMVI mortality rates for any minority group, so it is not possible to calculate stable mean region-wide rates for minorities. Statewide, disparities in UMVI mortality appear more gender-based than racially-based. At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

Suicide Mortality

Suicide was the tenth leading cause of death in WNC and the thirteenth leading cause of death in Clay County for the 2006-2010 aggregate period (Table 28, cited previously). Note however that the NC SCHS did not release a rate for the county in that period, due to a below threshold number of deaths.

Figure 35 plots suicide mortality rates for several aggregate periods. In Clay County there were too few deaths attributable to suicide (n=8-10 deaths per five-year aggregate period) to calculate stable rates. The "zero" rates plotted for the county in the last two aggregate periods signify than the NC SCHS did not release county rates in those periods. From the data in the figure it is clear that mortality due to suicide is significantly higher in WNC than in NC as a whole. The suicide mortality rate in WNC ranged from 37% to 48% higher than the state rate over the period cited in Figure 35. For the 2006-2010 aggregate period the suicide mortality rate in WNC was 16.7 and in NC it was 12.1. From the limited data available for Clay County it appears that the suicide mortality rate in the county exceeded both the mean WNC and NC rates for the period 2002-2006 through 2004-2008.

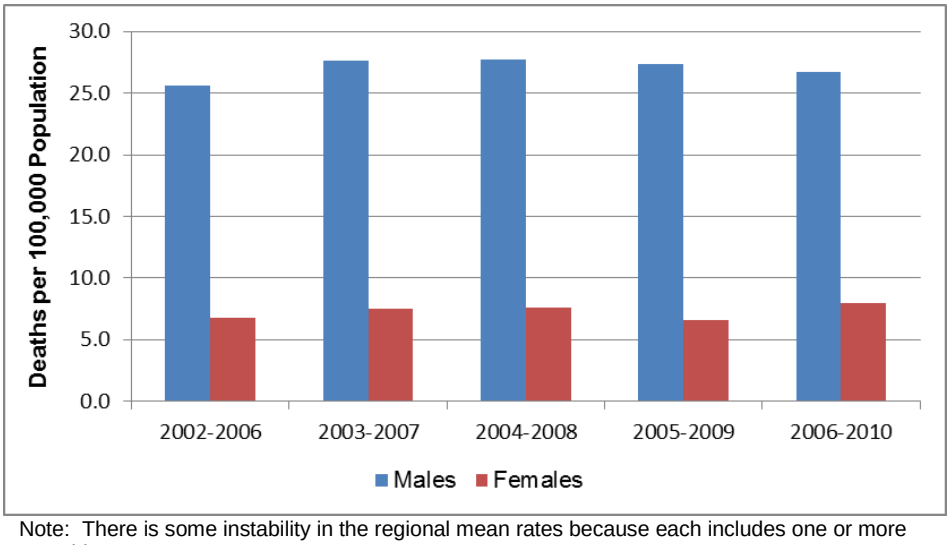
Figure 35. Suicide Mortality Rate, Deaths per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)



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

There were no suicide deaths among females in Clay County for the entire period from 2002-2006 through 2006-2010, so gender-stratified county rates are not plotted in the figure below. In WNC suicide mortality demonstrates a very pronounced gender disparity. Figure 36 plots mean suicide mortality rates for men and women in WNC for several aggregate periods. From data in this figure it is apparent that the rates for men are from 3.3 to 4.1 times higher than the rates for women over the span of years cited in the table. Although there is instability in the mean regional rate due to small numbers of events and unstable rates in county rates, the gender difference does not appear to have fluctuated dramatically over time. Since in Clay County there were 8-10 suicides per five-year aggregate period among males and none among women it is fair to say that the gender disparity in suicide noted for the region also exists in the county.

Figure 36. Gender Disparities in Mean Suicide Mortality, WNC (Five-Year Aggregates, 2002-2006 through 2006-2010)



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

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

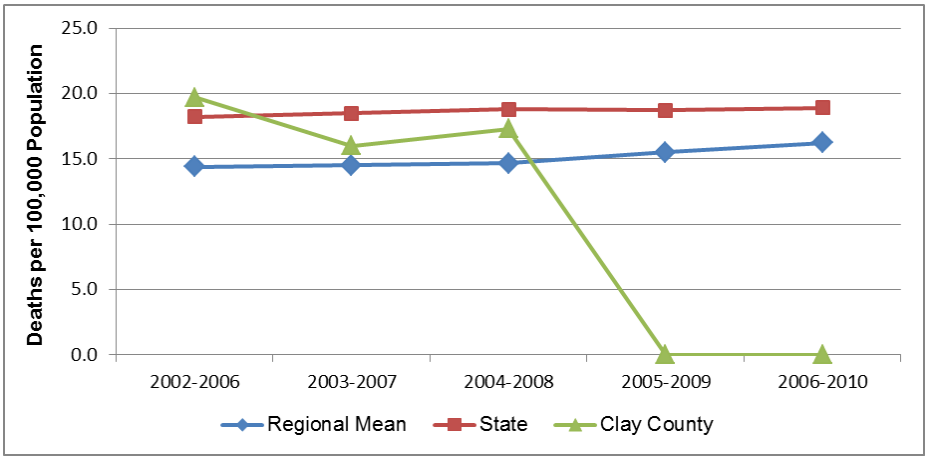
Nephritis, Nephrotic Syndrome and Nephrosis (Kidney Disease) Mortality

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

This set of kidney disorders was the eleventh leading cause of death in WNC and Clay County for the 2006-2010 aggregate period (Table 28, cited previously). Note however that the NC SCHS did not release a rate for the county in that period, due to a below threshold number of deaths.

Figure 37 plots kidney disease mortality over several aggregate periods. In Clay County there were too few deaths attributable to kidney disease (n=15-18 deaths per five-year aggregate period) to calculate stable rates. The "zero" rates plotted for the county in the last two aggregate periods signify than the NC SCHS did not release county rates in those periods. The data reveals that the mean kidney disease mortality rate in WNC was below the comparable figure for NC as a whole for the entire period cited in the figure. Between the 2002-2006 aggregate period and the 2006-2010 aggregate period the regional rate climbed from 14.4 to 16.2 (12.5%). Over the same time span the NC rate increased slightly, from 18.2 to 18.9 (3.8%). For the limited data available for Clay County it appeared that the kidney disease mortality rate there was between the mean WNC and NC rates for two of the first three aggregate periods.

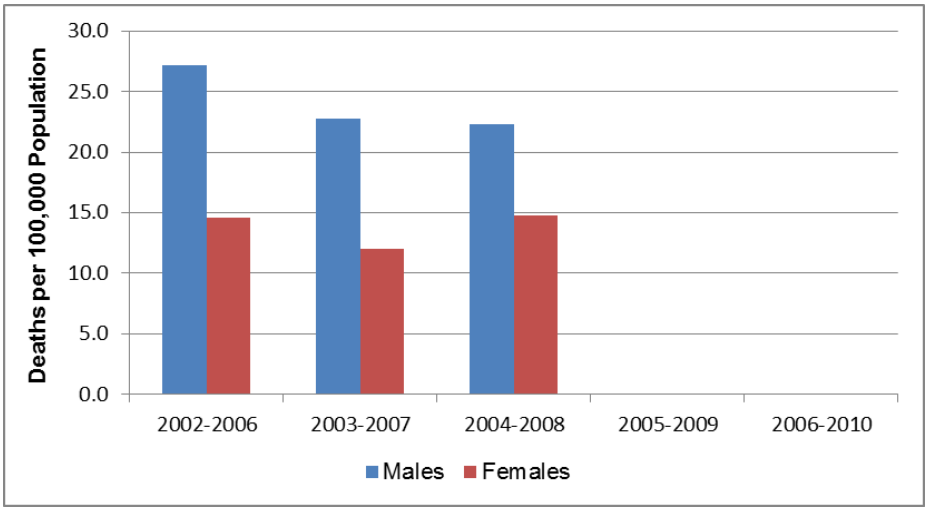
Figure 37. Kidney Disease Mortality Rate, Deaths per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)



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

Figure 38 displays gender-stratified data kidney disease mortality rates for Clay County. It should be noted that all the county rates plotted were unstable, and the NC SCHS did not release county mortality rates for the last two aggregate periods due to small numbers of deaths. This limited county data appears to demonstrate that the kidney disease mortality rate among males exceeded the comparable rate for females in each period for which there was data.

Figure 38. Gender Disparities in Kidney Disease Mortality, Clay County (Five-Year Aggregates, 2002-2006 through 2004-2008)



In WNC, none of the 16 counties has large enough minority populations to yield stable kidney disease mortality rates for any minority group, so it is not possible to calculate stable mean region-wide rates for minorities. Statewide for 2006-2010 kidney disease mortality rates demonstrate both racial and gender disparities. Men of all racial groups suffer kidney disease mortality at rates higher than their female counterparts in the same racial group, and non-Hispanic African Americans of either gender have the highest kidney disease mortality rates among their gender group. For instance, kidney disease mortality among non-Hispanic African American males in this period was 42.4, compared to 19.7 among non-Hispanic white males, 18.0 among other non-Hispanic males, and 7.1 among Hispanic males. Similarly, the kidney disease mortality rate among non-Hispanic African American females was 34.6, followed by 15.3 among other non-Hispanic females, 12.5 among non-Hispanic white females, and 5.4 among Hispanic females (*Data Workbook*).

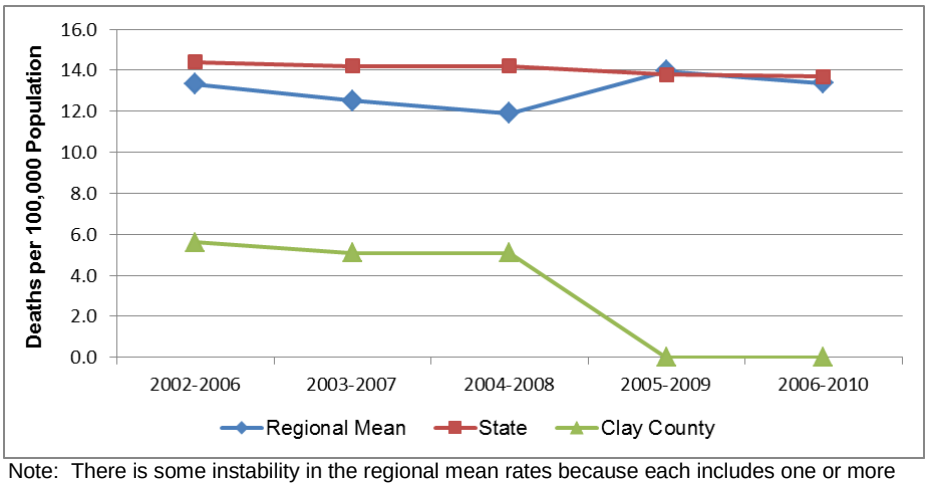
Septicemia Mortality

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

Septicemia was the twelfth leading cause of death in WNC and the tenth leading cause of death in Clay County for the aggregate period 2006-2010 (Table 28, cited previously). Note however that the NC SCHS did not release a rate for the county in that period, due to a below threshold number of deaths.

Figure 39 plots septicemia morality data for several aggregate periods. In Clay County there were too few deaths attributable to septicemia (n=5-6 deaths per five-year aggregate period) to calculate stable rates. The "zero" rates plotted for the county in the last two aggregate periods signify that the NC SCHS did not release county rates in those 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. Although all the Clay County septicemia mortality rates plotted in the figure are unstable, they were all well below the comparable rates for WNC and NC.

Figure 39. 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.

From gender-stratified data presented in Figure 40, all of which was unstable, there does not appear to be a significant gender-based difference in septicemia mortality rates in Clay County.

Figure 40. Gender Disparities in Septicemia Mortality, Clay County (Five-Year Aggregates, 2002-2006 through 2004-2008)

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

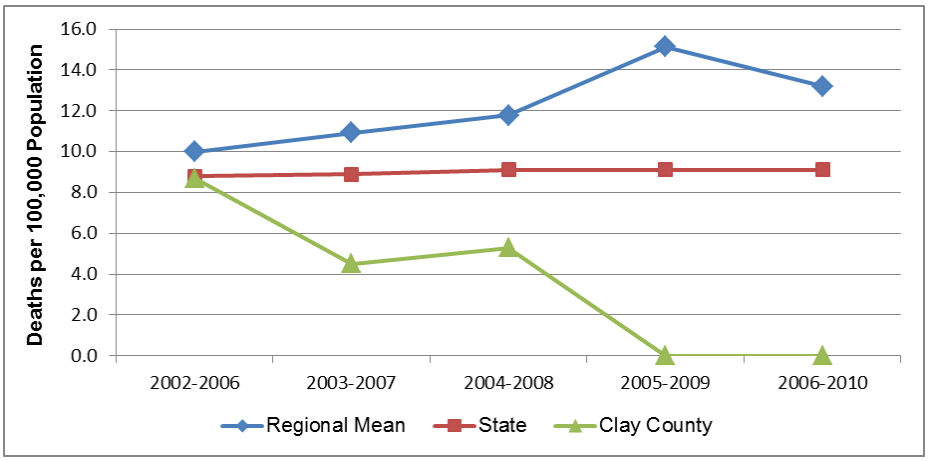
Chronic Liver Disease and Cirrhosis Mortality

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

Chronic liver disease and cirrhosis was the thirteenth leading cause of death in WNC, but the ninth leading cause of death in Clay County in the 2006-2010 aggregate period (Table 28, cited previously). Note however that the NC SCHS did not release a rate for the county in that period, due to a below threshold number of deaths.

Figure 41 plots mortality data for liver disease over several aggregate periods. In Clay County there were too few deaths attributable to liver disease (n=3-6 deaths per five-year aggregate period) to calculate stable rates. The "zeros" plotted for the county in the last two aggregate periods signify that the NC SCHS did not release rates for the county in those periods. Data in the figure show that the liver disease mortality rate in WNC exceeded the state rate throughout the period cited. It also appears that the regional rate rose over the period cited, from 10.0 for 2002-2006 to 13.2 for 2006-2010, an increase of 32%. Throughout this period the state rate was at or near 9.1. From the limited data available for Clay County it appears that the county liver disease mortality rate was lower than either the mean WNC or NC rates in the first three aggregate periods.

Figure 41. 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.

Gender-stratified liver disease mortality data for WNC shows that mean liver disease mortality among WNC men ranged from 2.6 to 3.3 times higher than comparable rates among WNC women (*Data Workbook*). Gender-stratified liver disease mortality rates for Clay County plotted in Figure 42 do *not* illustrate a similar disparity. It should be noted, however, that all the stratified county rates in the figure were unstable due to small numbers of deaths.

Figure 42. Gender Disparities in Chronic Liver Disease and Cirrhosis Mortality
Clay County
(Five-Year Aggregates, 2002-2006 through 2004-2008)

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

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

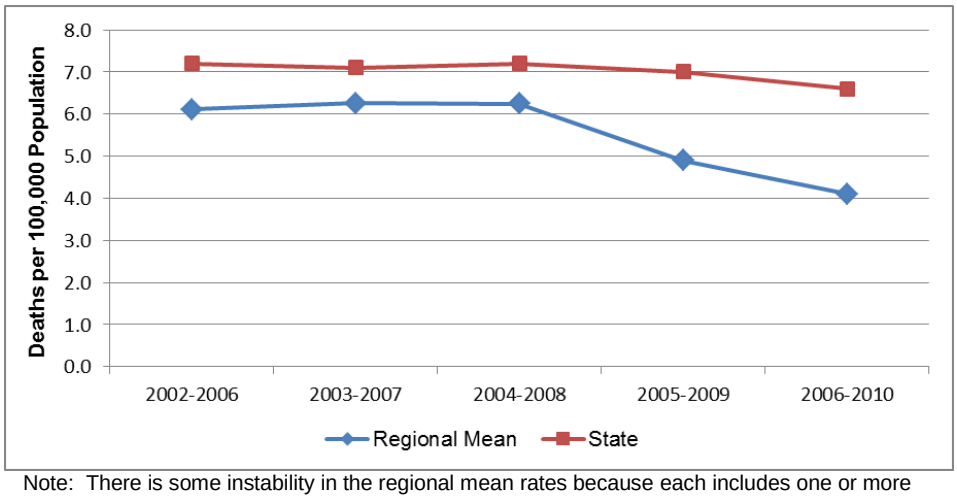
Homicide Mortality

Death by homicide was the fourteenth leading cause of death in WNC and Clay County for the 2006-2010 aggregate period (Table 28, cited previously). In Clay County there were too few deaths attributable to homicide (n=0-2 deaths per five-year aggregate period) to calculate stable rates.

Figure 43 plots homicide mortality rate trends over several aggregate periods. In Clay County there were two homicides in 2002-2006, one in 2003-2007 and none in the remaining three aggregate periods, so county data is not plotted in the figure. From other data in the figure 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 index and violent crime in WNC than in NC. The homicide rate in WNC for the 2006-2010

aggregate period was 4.1; the comparable rate for NC was 6.6. The apparent decrease in homicide mortality in recent years may be an artifact due to instability of the data attributable to small numbers of homicides.

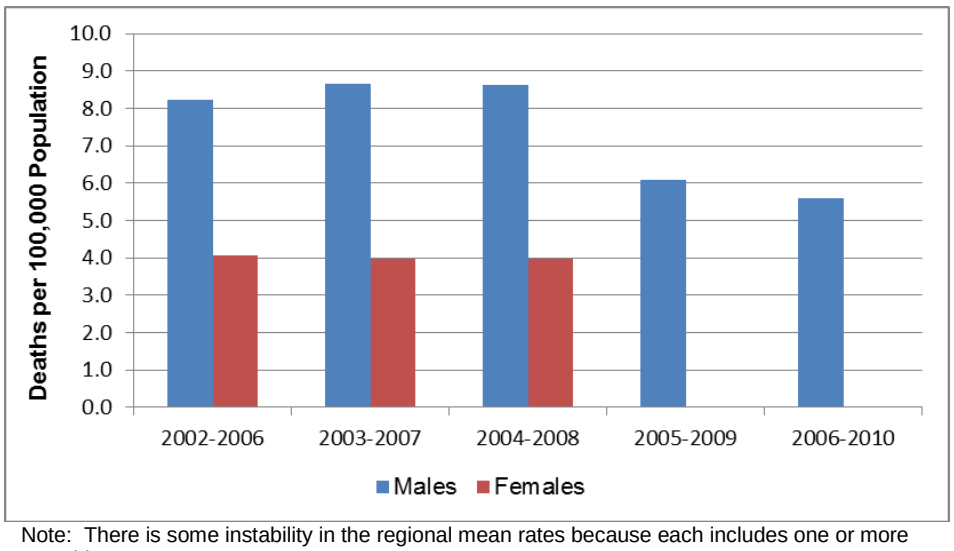
Figure 43. Homicide Mortality Rate, Deaths per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)



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

In Clay County all three of the homicides that occurred from 2002-2006 through 2006-2010 occurred among men, so gender-stratified county data is not plotted in the figure below. According to the regional data presented in Figure 44, the mean homicide mortality rate among WNC males was approximately twice the rate among WNC females.

Figure 44. Gender Disparities in Mean Homicide Mortality, WNC (Five-Year Aggregates, 2002-2006 through 2006-2010)



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

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

Acquired Immune Deficiency Syndrome (AIDS) Mortality

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

AIDS was the fifteenth leading cause of death in WNC and Clay County for the aggregate period 2006-2010 (Table 28, cited previously). In Clay County there were too few deaths attributable to AIDS (n=0-2 deaths per five-year aggregate period) to calculate stable rates.

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 Clay County and for WNC and NC as a whole. From this data it appears that females born in Clay County in the period cited could expect to live 2.8 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 Clay 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 WNC (77.0 years) is only marginally shorter than life expectancy 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
Clay County	79.2	77.9	80.7	79.8	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

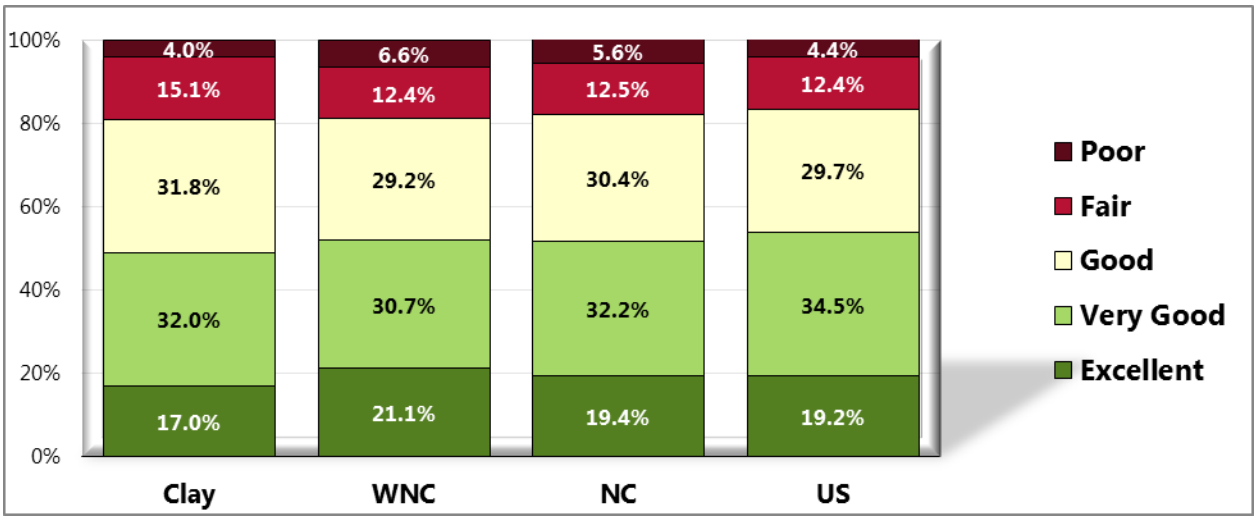
Morbidity as used in this report refers generally to the current presence of injury, sickness or disease (and sometimes the symptoms and/or disability resulting from those conditions) in the living population. In this report disability, diabetes, obesity, injury, communicable disease (including sexually-transmitted 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 45. Self-Reported Health Status (WNC Health 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.

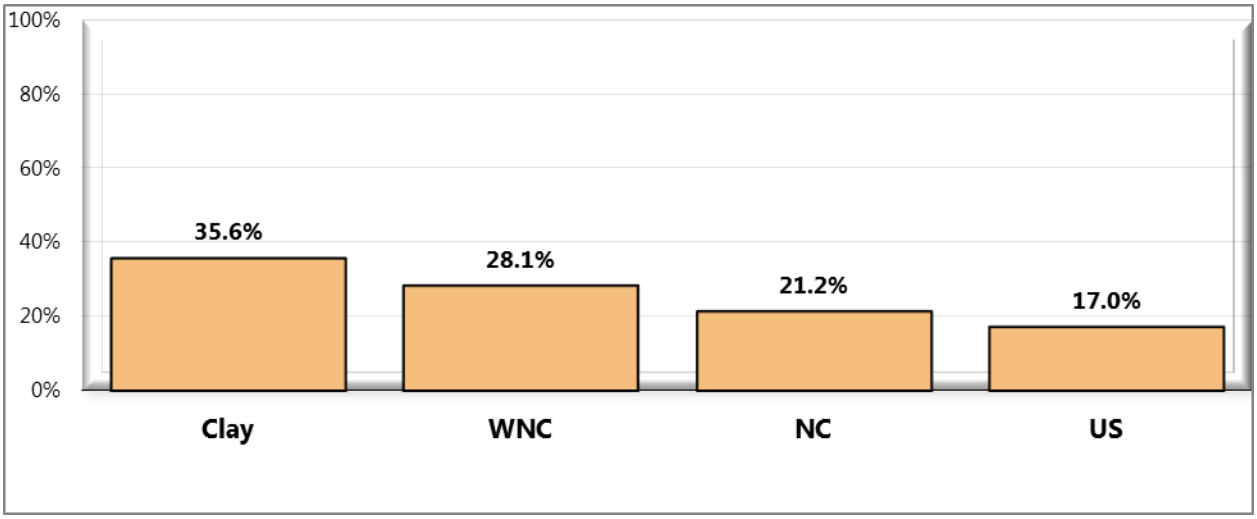
Disability and Limitations in Physical Activity

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 46. 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%)
Clay	13.2%	21.8%	14.3%	4.6%	9.4%	2.8%	0.8%	33.1%

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 Clay 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 Clay County fell from 9.0% in 2005 and 2006 to 8.1% in 2008 and 2009, a decrease of 10%. In WNC the mean percent prevalence of diagnosed diabetes among adults in WNC rose from 8.5% in 2005 to 0.0% 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	
	#	%	#	%	#	%	#	%	#	%
Clay County	876	9.0	899	9.0	884	8.6	861	8.1	897	8.1
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 Clay County residents totaled seven cases, or 0.9% 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 Clay 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.

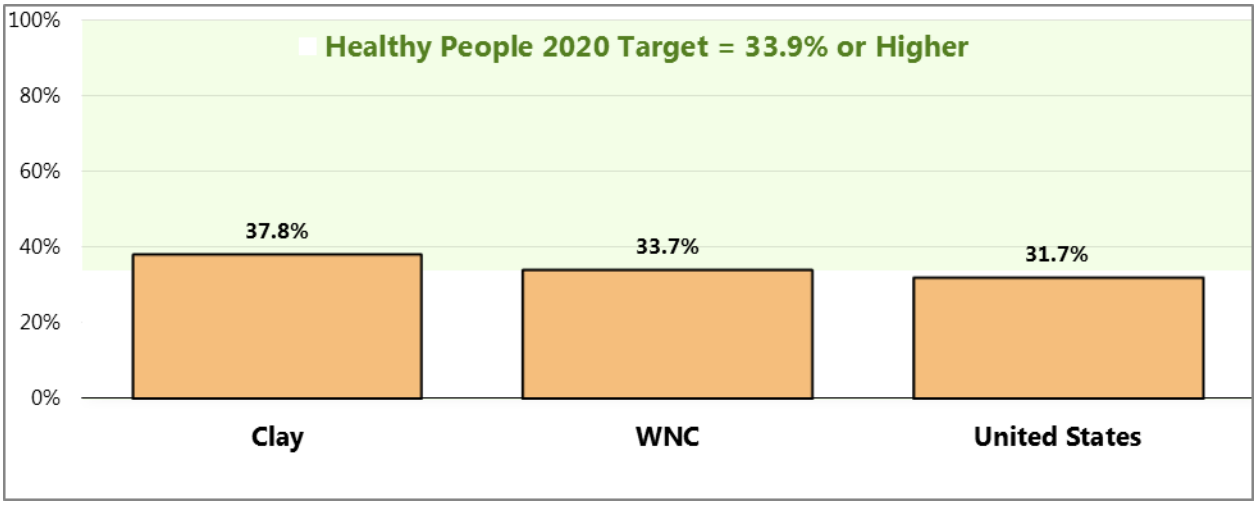
According to this data, estimated prevalence of diagnosed obesity among Clay County adults has been variable, not unusual for survey results in a small county. The estimated prevalence of diagnosed adult obesity in WNC increased annually throughout the period cited. Between 2005 and 2009 the estimated mean percent of the WNC population diagnosed as obese rose from 25.2% to 28.0%, a total increase of 11%.

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

Geography	2005		2006		2007		2008		2009	
	#	%	#	%	#	%	#	%	#	%
Clay County	1,864	24.1	2,033	25.5	2,019	25.1	2,124	26.1	2,075	25.8
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.

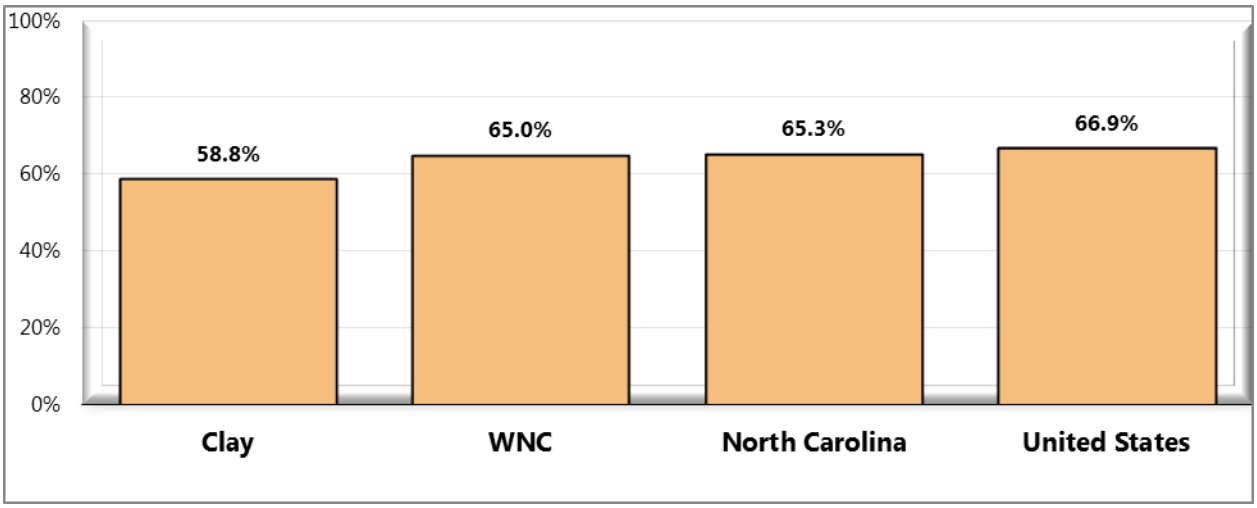
Figure 47. Healthy Weight (WNC Healthy Impact Survey)
(Percent of Adults With a Body Mass Index Between 18.5 and 24.9)



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

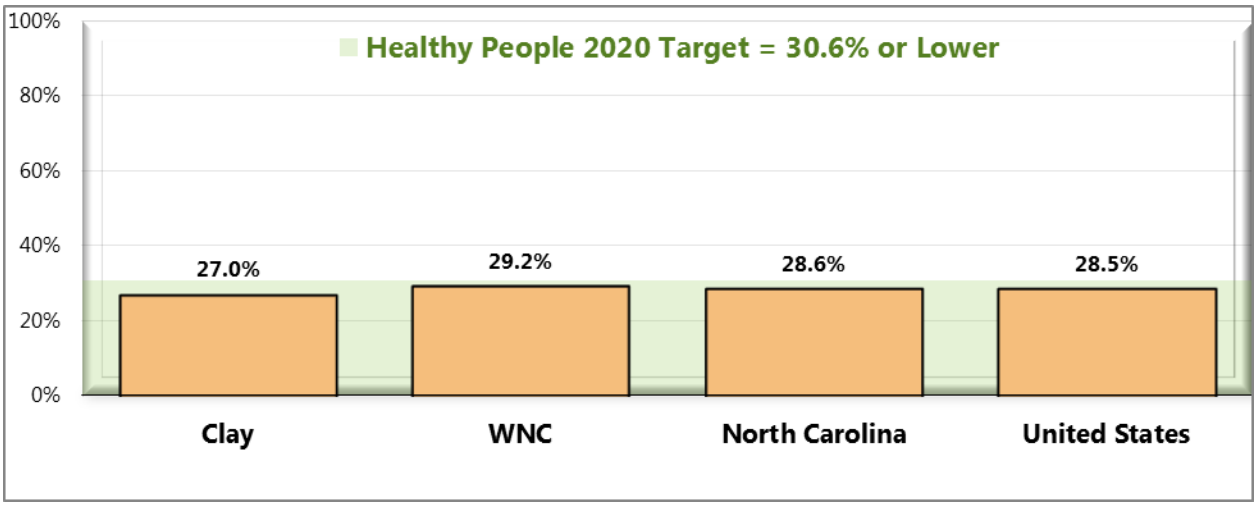


Sources:
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 85]
- 2011 PRC National Health Survey, Professional Research Consultants, Inc.
- Behavioral Risk Factor Surveillance System Survey Data. Atlanta, Georgia. United States Department of Health and Human Services, 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 49. 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 Clay County (65.9%) was higher than the comparable figures for either WNC (64.5%)

or NC (63.5%). The prevalence of *overweight* among children ages 2-4 was higher in Clay County (18.2%) than the mean for WNC (17.2%) or the comparable figure for NC as a whole (16.1%). The prevalence of *obesity* in Clay County 2-4 year-olds (13.6%) was equal to 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	
	#	#	%	#	%	#	%	#	%
Clay County	132	3	*2.3*	87	65.9	24	18.2	18	13.6
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 Clay County (72.2%) was higher than the comparable figure for WNC (63.4%) and the figure for NC (54.3%). The prevalence figure for *overweight* children ages 5-11 in Clay County was unstable due to a small number of children this age in the program, but the comparable figures for WNC and NC are 14.3% and 17.1%, respectively. The prevalence figure for *obesity* in this age group in Clay County (15.3%) was smaller than the comparable figures for both WNC (19.4%) and 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	
	#	#	%	#	%	#	%	#	%
Clay County	72	5	*6.9*	52	72.2	4	*5.6*	11	15.3
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 the prevalence children ages 12-18 in Clay County with healthy weight (59.5%) was higher than the comparable prevalence in WNC (56.3%) or NC (51.9%). In Clay County the prevalence of *overweight* children ages 12-18 was unstable, but the comparable prevalence in WNC is 19.0% and in NC as a whole it is 18.1%. The prevalence of *obesity* in this age group was higher in Clay County (26.2%) than in WNC (23.8%) but lower than the comparable rate for NC as a whole (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	
	#	#	%	#	%	#	%	#	%
Clay County	42	1	*2.4*	25	59.5	5	*11.9*	11	26.2
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*.

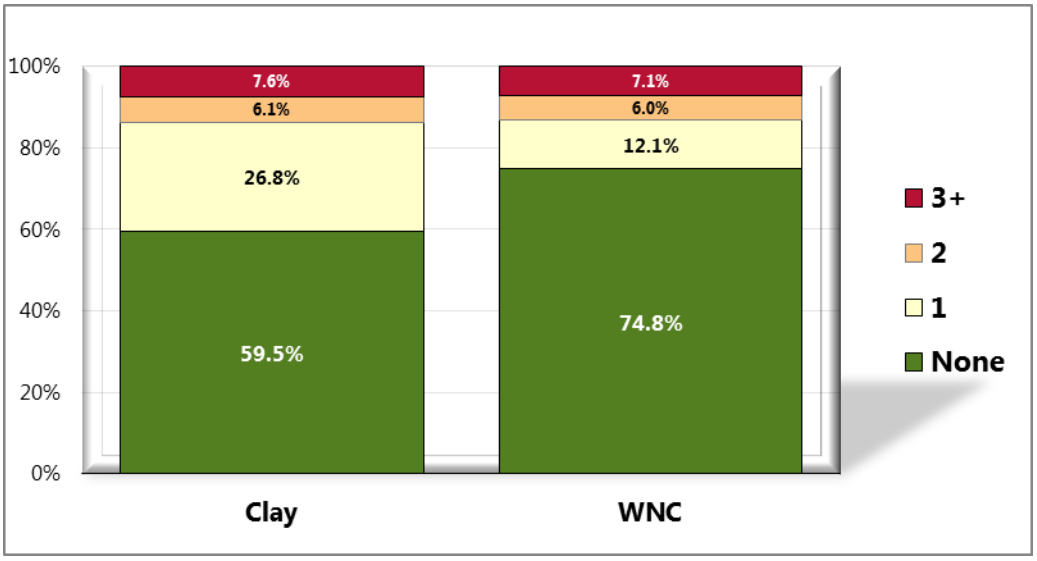
Injuries

Falls

There were eight deaths due to falls in Clay County in the period 2006-2010. Considering 2009 alone, two of them occurred in the over-65 age group (both in the age group 85+) (*Data Workbook*).

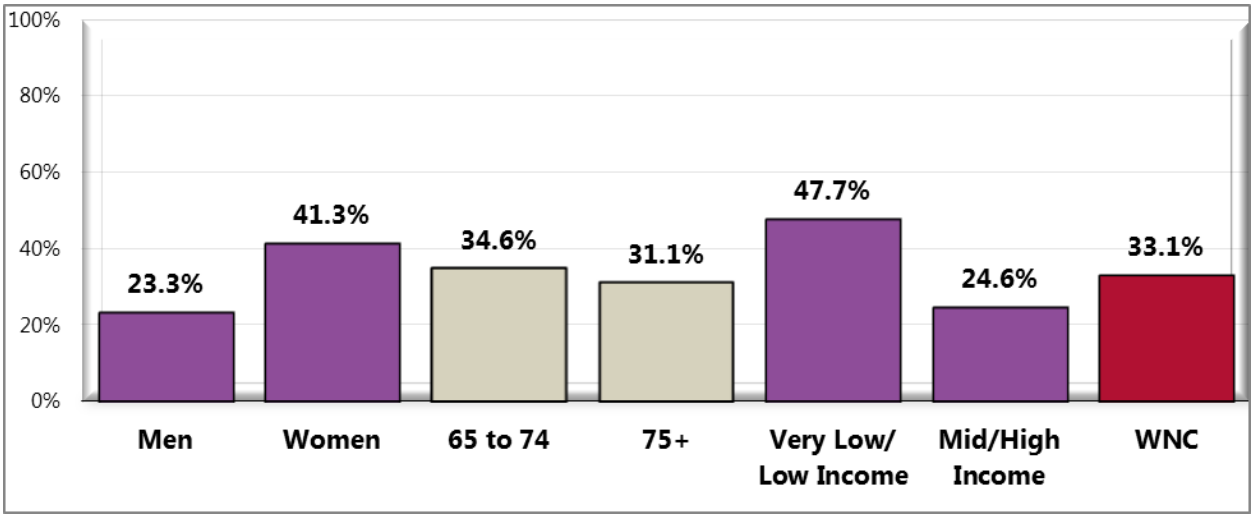
Survey respondents were also asked how many times they have fallen in the past 12 months, and how many of these falls caused an injury. Data is shown below for adults age 65 and older. Due to small county-level sample sizes, fall-related injury data is provided at the regional level.

Figure 50. 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 51. 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 Clay County was highly variable, due to small numbers of events and resulting data instability. Looking at the more stable data, it is apparent that the percentages of vehicle crashes in WNC that were alcohol-related were consistently 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 were alcohol-related decreased in WNC and NC since peaking in both 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
Clay County	164	*5.5*	162	6.8	133	9.0	136	*6.6*	152	10.5
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 Clay County the data were unstable due to small numbers of events. 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 39.

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
Clay County	83	*8.4*	67	*13.4*	2	*0.0*	152	10.5
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 Clay 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 Clay 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*).

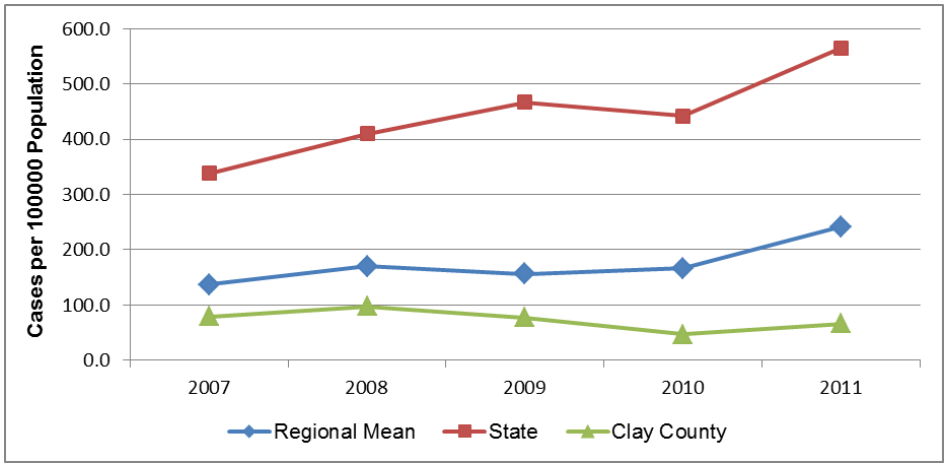
Poisonings
For the five-year aggregate period 2006-2010 there were 10 unintentional poisoning deaths in Clay County; this number was too small to calculate a stable rate. The comparable mean unintentional poisoning mortality rate for WNC was 23.1 over the same period.

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 52 plots chlamydia rates for several years. From this data is appears that chlamydia is less prevalent in Clay County than in either WNC or NC, varying between 5 and 10 cases per year 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 WNC rate rose 76.4% (from 136.9 to 241.5). In Clay County over the same period the chlamydia infection rate decreased 16.1%, from 78.8 to 66.1. Note, however, that the rates for Clay County likely are unstable due to small numbers of events in most years.

Figure 52. Chlamydia Rate, All Ages, Cases per 100,000 Population (Five Single Years, 2007-2011)

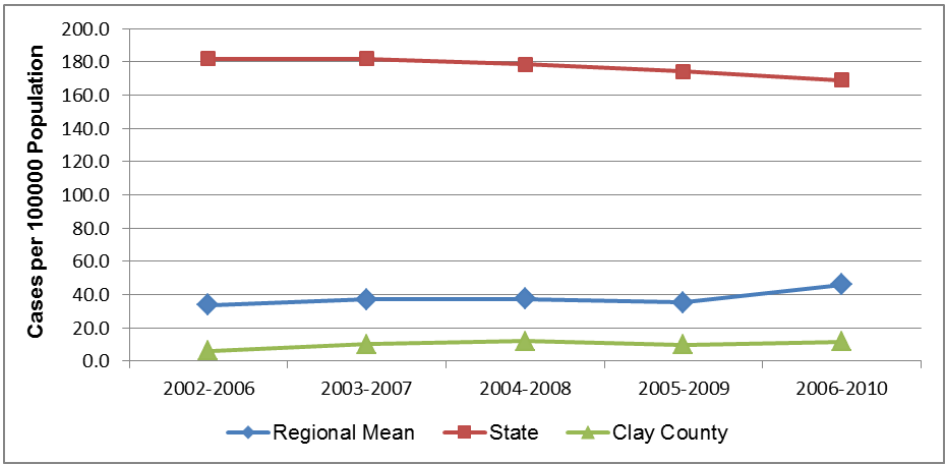


Note: There is some instability in the regional mean rates because each includes one or more unstable county rate.

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, some health researchers think gonorrhea adds to the risk of getting HIV infection (CDC, 2012).

Figure 53 plots gonorrhea rates for several aggregate periods. From this data is appears that gonorrhea is far less prevalent in Clay County than in either WNC or NC. However, the figures for Clay County are unstable due to small numbers of events in every aggregate period. The mean gonorrhea rate in WNC was only 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 53. 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.

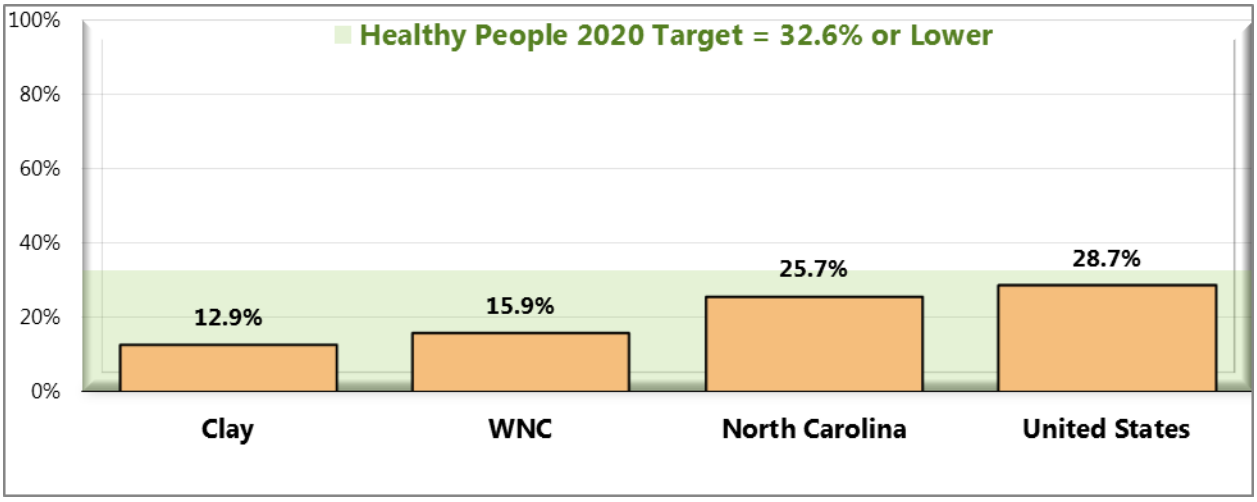
Personal, social, economic, and environmental factors all play a role in physical activity levels among youth, adults, and older adults. Factors **positively** associated with adult physical activity include: postsecondary education; higher income; enjoyment of exercise; expectation of benefits; belief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

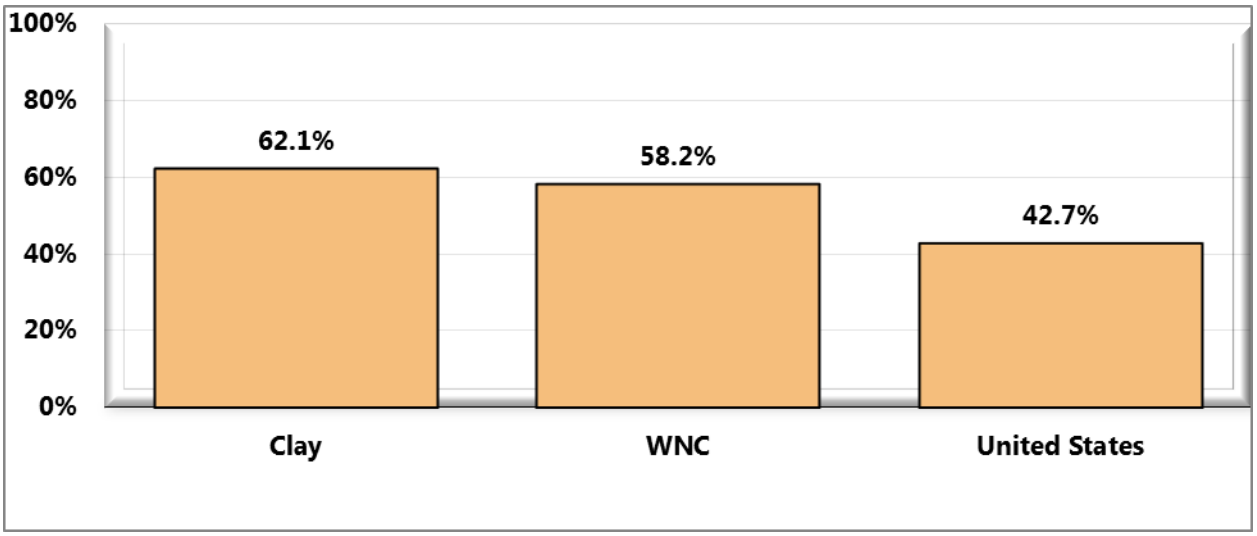
Figure 54. No Leisure-Time Physical Activity in the Past Month (WNC Healthy Impact Survey)



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.

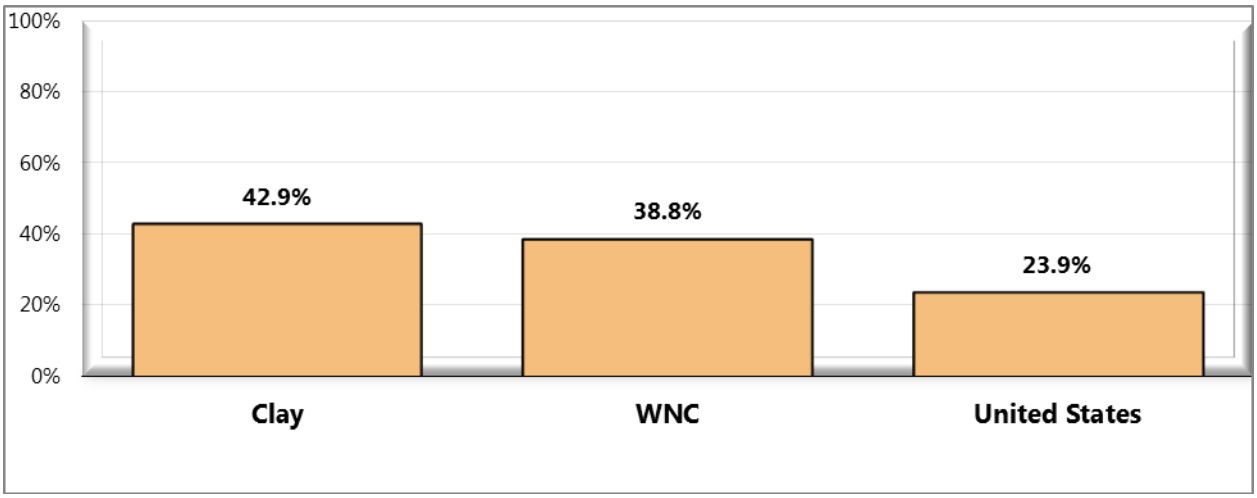
Figure 55. Meets Physical Activity Recommendations (WNC Healthy Impact Survey)



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.

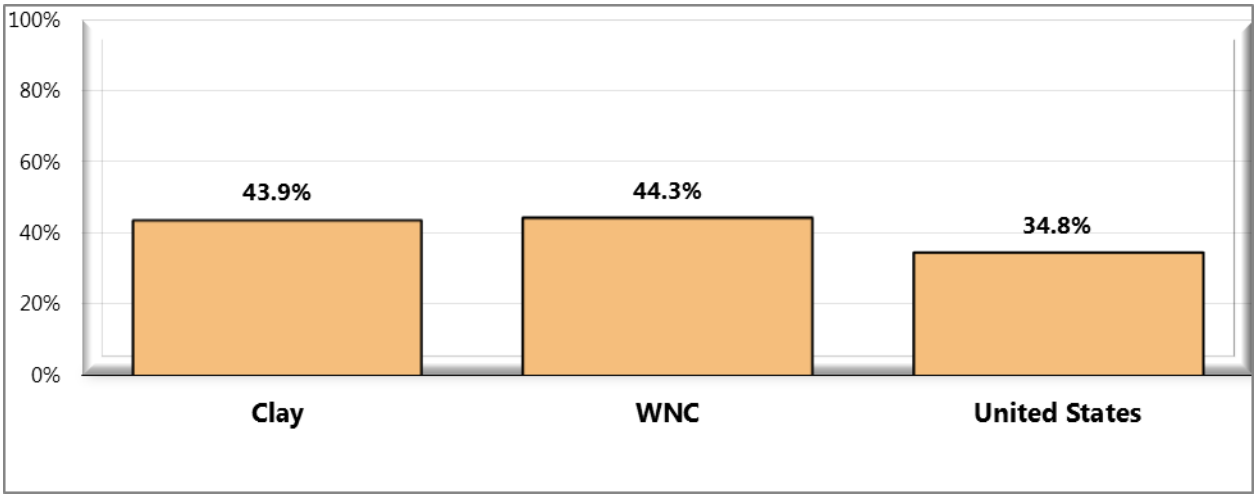
Figure 56. Moderate Physical Activity (WNC Healthy Impact Survey)



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.

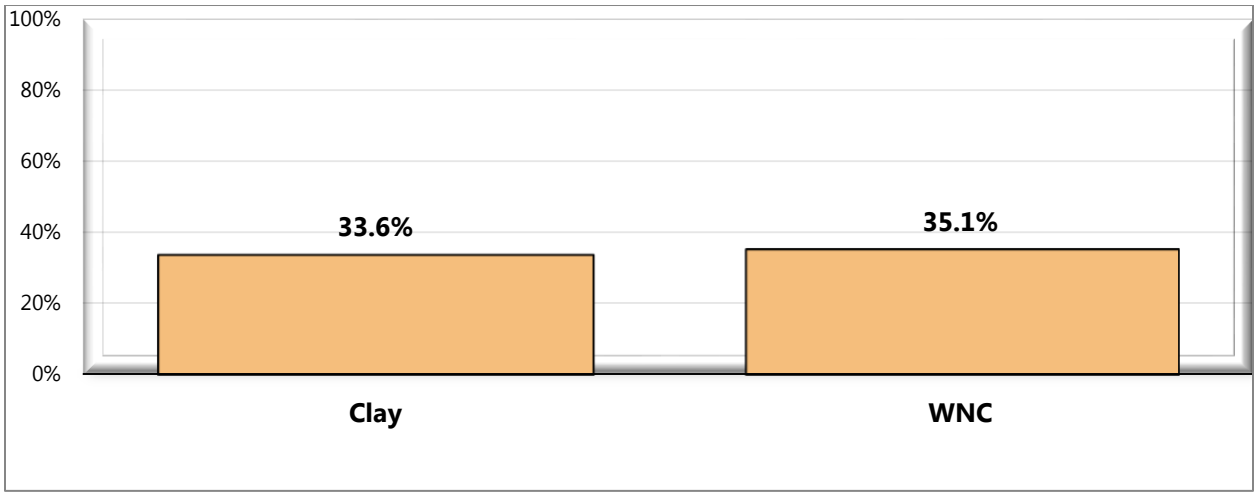
Figure 57. Vigorous Physical Activity (WNC Healthy Impact Survey)



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 58. 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

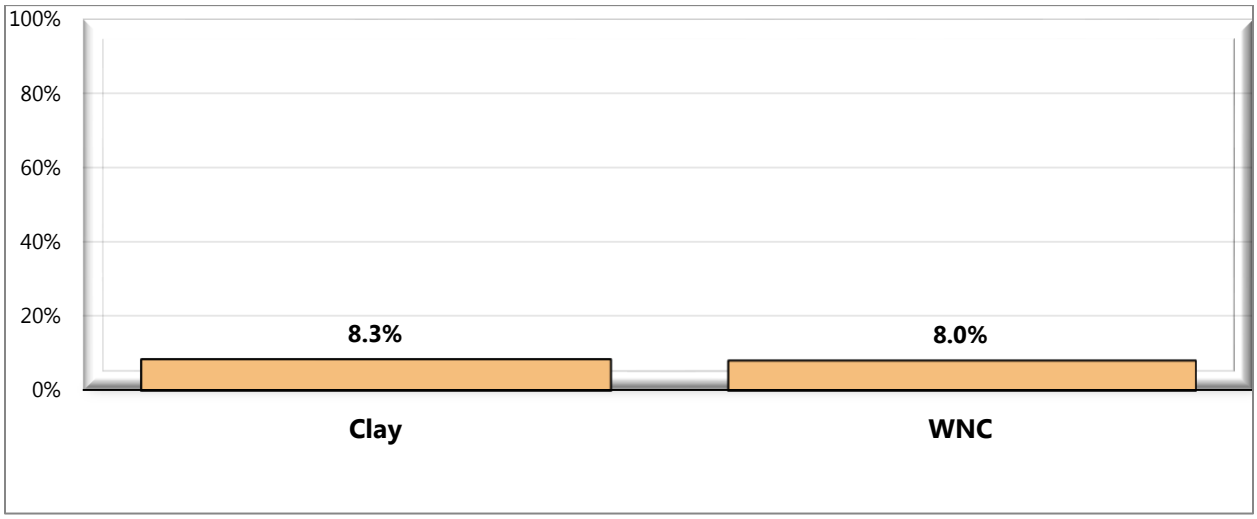
Physical Determinants of Diet.

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

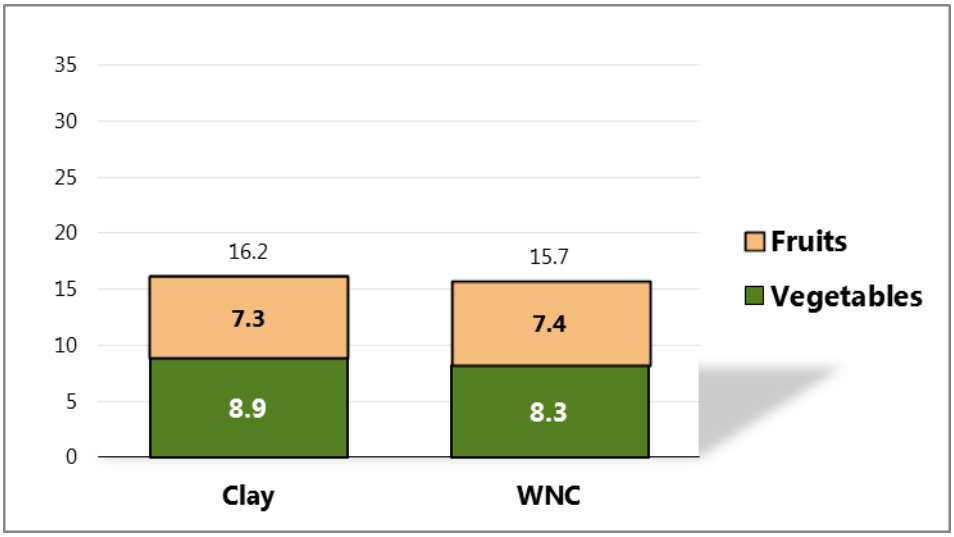
Figure 59. Had an Average of Five or More Servings of Fruits/Vegetables per Day in the Past Week (WNC Healthy Impact Survey)



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 60. 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

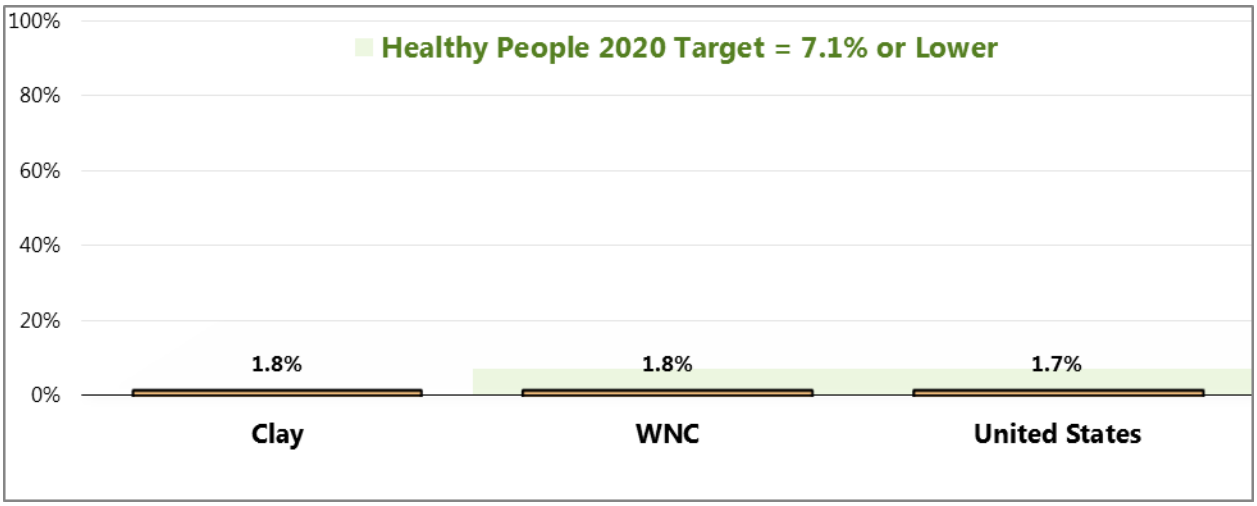
Substance abuse refers to a set of related conditions associated with the consumption of mind- and behavior-altering substances that have negative behavioral and health outcomes. Social attitudes and political and legal responses to the consumption of alcohol and illicit drugs make substance abuse one 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 61. 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]

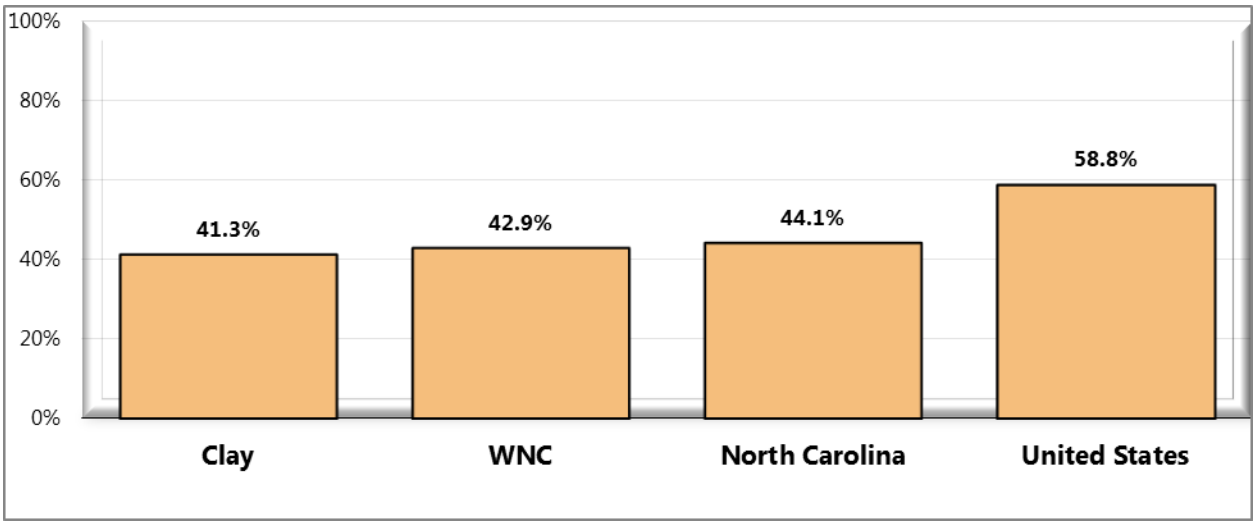
Notes:
- Asked of all respondents.

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.

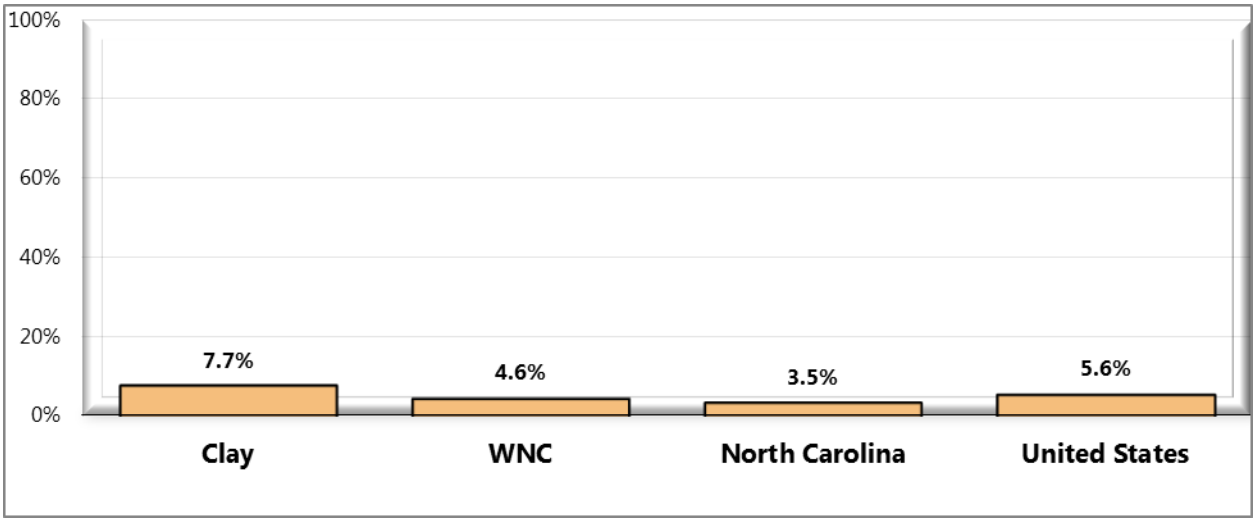
Figure 62. Current Drinkers (WNC Healthy Impact Survey)



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.

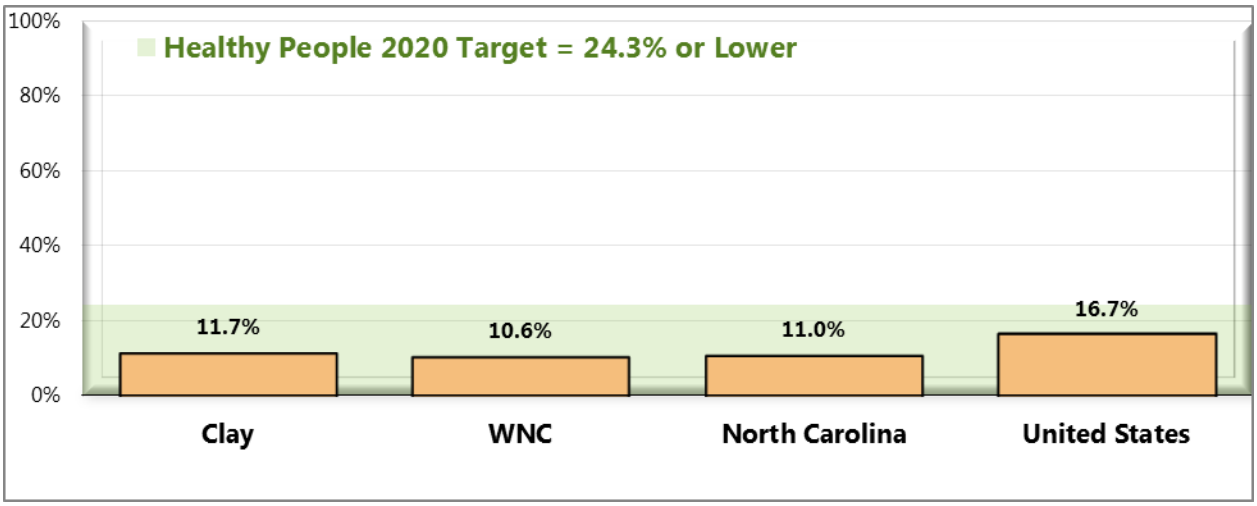
Figure 63. Chronic Drinkers (WNC Healthy Impact Survey)



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 64. 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]

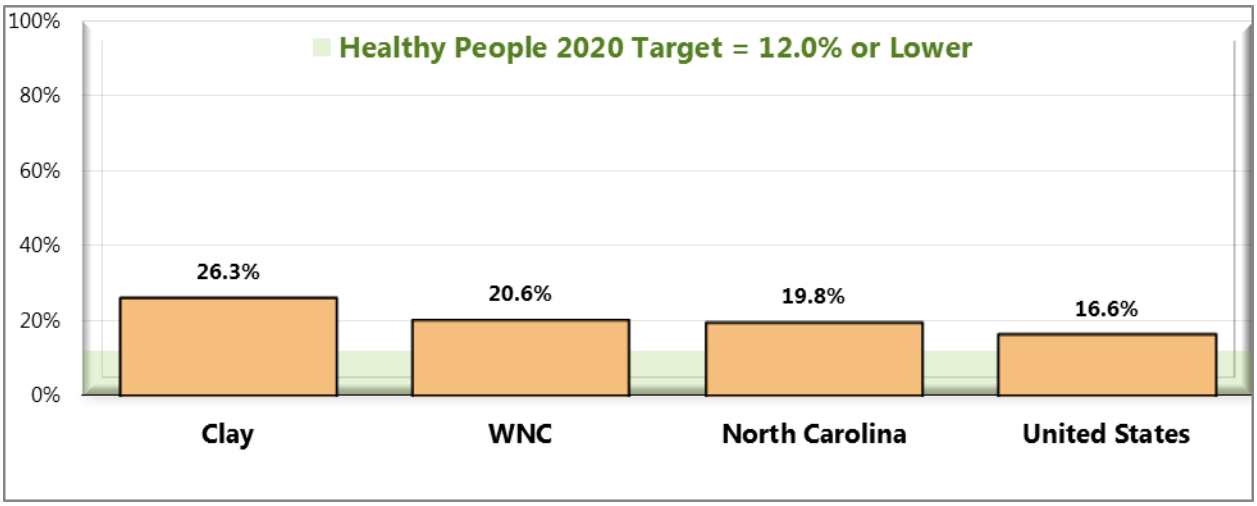
Notes:
- Asked of all respondents.
- Binge drinkers are defined as those consuming 5+ alcoholic drinks on any one occasion in the past 30 days; * note that state and national data reflect different thresholds for men (5+ drinks) and women (4+ drinks).

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).

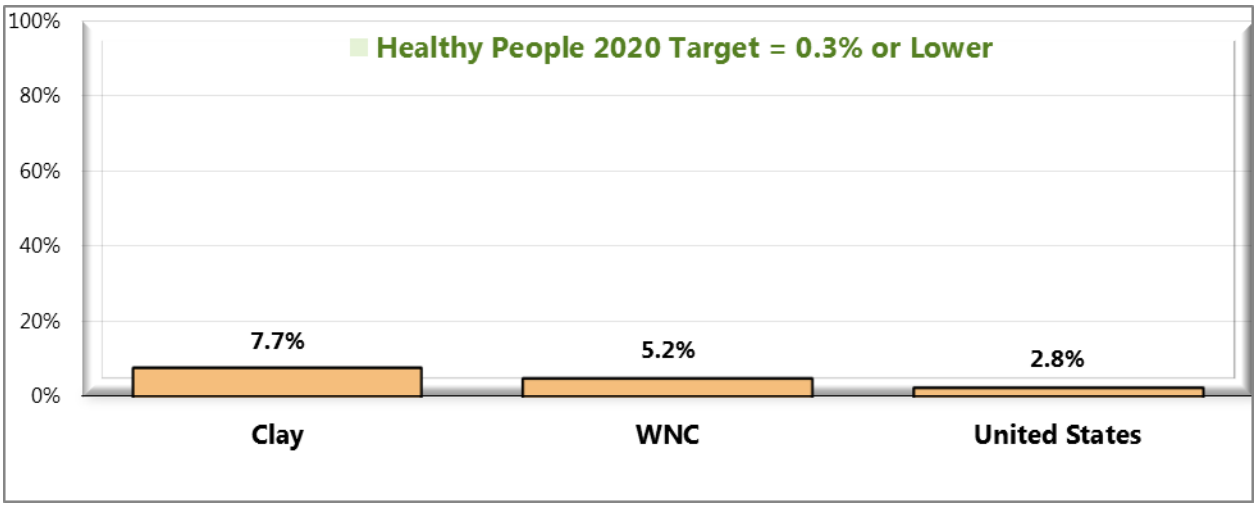
Figure 65. Current Smokers (WNC Healthy Impact Survey)



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 66. 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)

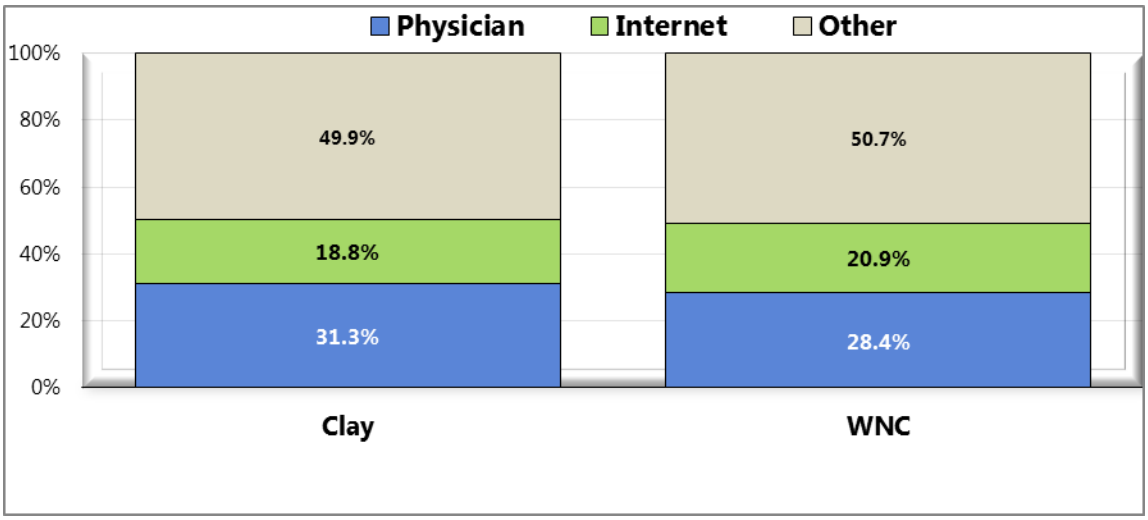
	Doctor	On My Own/Cold Turkey	Don't Know
Clay	✓	✓	✓
WNC	✓	✓	✓

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. Clay county residents were also asked about their internet access. Clay County residents were also asked about their internet access: 69.8% of Clay County residents have access to the internet for personal use at home, work, or school.

Figure 67. 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.

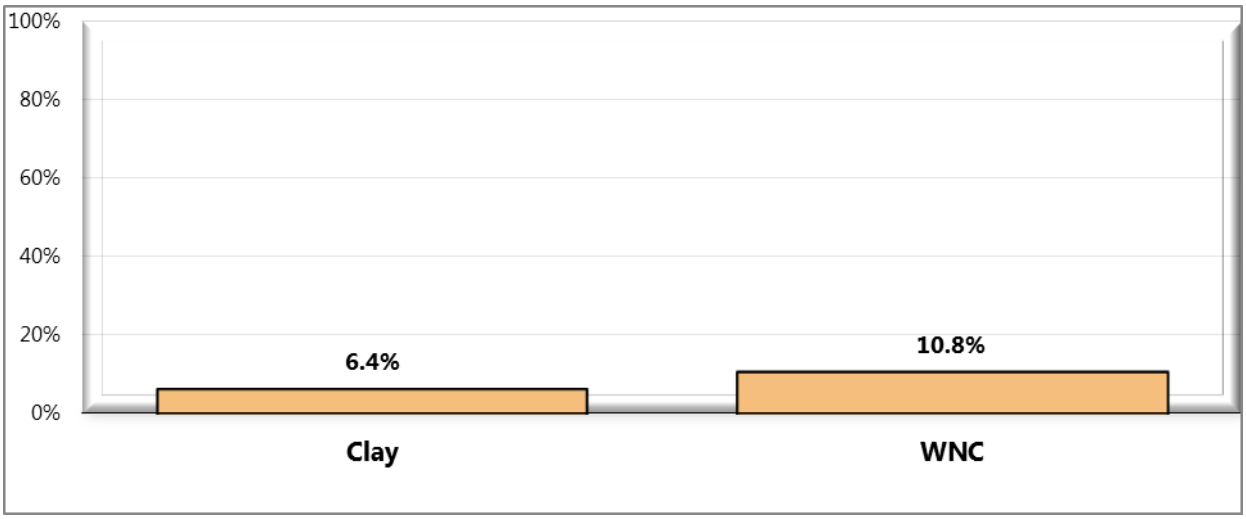
Access to health services means the timely use of personal health services to achieve the best health outcomes. It requires three distinct steps: 1) gaining entry into the health care system; 2) accessing a health care location where needed services are provided; and 3) finding a health care provider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

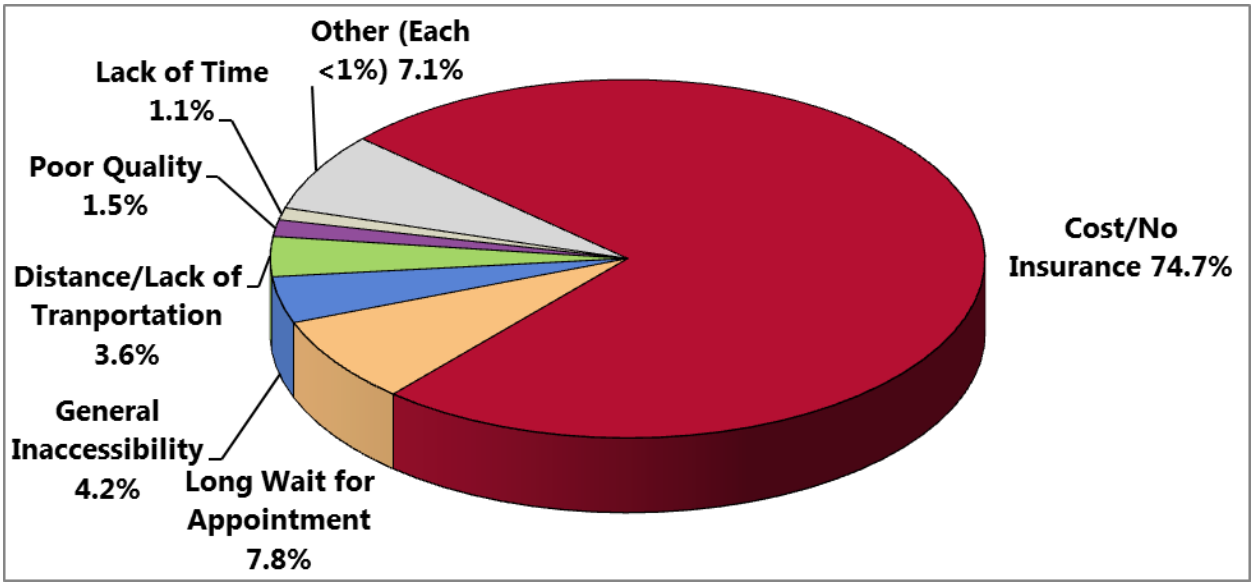
Survey respondents were also asked to indicate their agreement with the following statement: "*Considering cost, quality, number of options and availability, there is good healthcare in my county.*"

Figure 68. Was Unable to Get Needed Medical Care at Some Point in the Past Year (WNC Healthy Impact Survey)



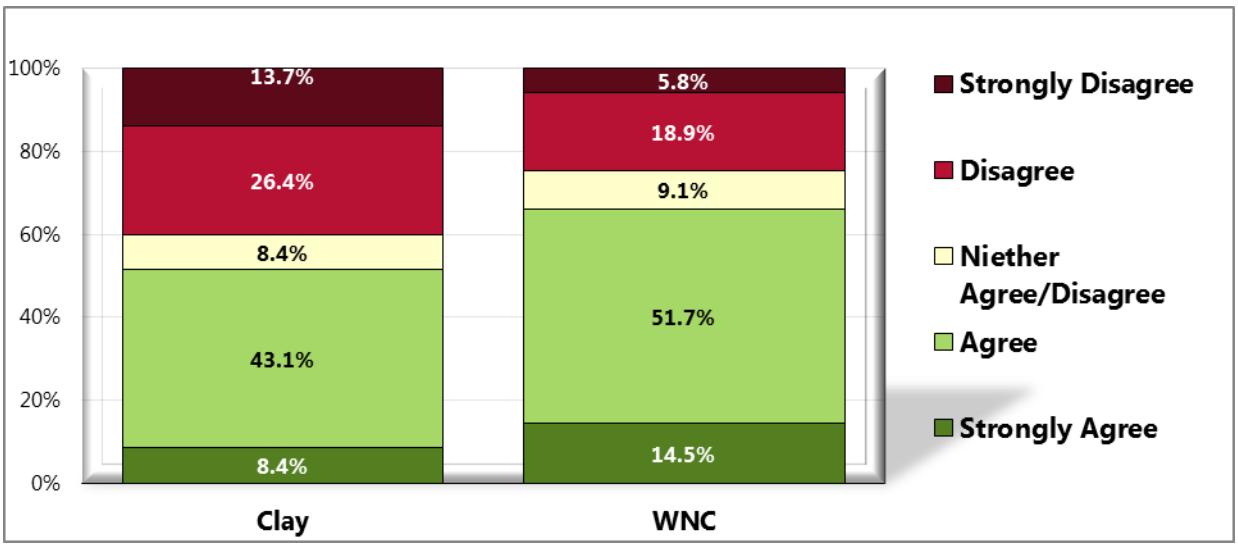
Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 13]
Notes: • Asked of all respondents.

Figure 69. Primary Reason for Inability to Get Needed Medical Care (WNC Healthy Impact Survey)
(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 70. "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 Clay 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 every category for Clay County than for WNC, NC, or the US. In 2010, the ratios for two medical professions in Clay County (physicians and primary care physicians) were 30% or less of the comparable regional or state averages. It should be noted that the average ratios for WNC also are lower than the comparable state averages in every professional category listed in the table. The state averages for primary care physicians, registered nurses and pharmacists exceeded the comparable national averages in both 2008 and 2010.

Table 42. Active Health Professionals per 10,000 Population (2006, 2008 and 2009)

Geography	2008					2010				
	Phys	Primary Care Phys	Dents	RNs	Pharms	Phys	Primary Care Phys	Dents	RNs	Pharms
Clay County	6.8	5.8	3.9	47.5	6.8	3.8	2.8	3.8	48.0	7.5
Regional Average	15.0	8.9	3.4	75.3	7.0	14.8	8.9	3.4	74.9	6.9
State Average	21.2	9.0	4.3	95.1	9.3	21.7	9.4	4.4	97.4	9.2
National Average	23.2*	8.5*	4.9	91.4	8.0	22.7**	8.2**	5.7	92.0	8.3

* Data are for 2006
** Data are for 2008

Providers by Specialty

Table 43 lists the number of active health care professionals in Clay County and WNC, by specialty, for 2010. From these data it is apparent that there are several categories of professionals absent from Clay County, among them general practitioners, internal medicine specialists, obstetricians and gynecologists, pediatricians and psychologists.

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

Category of Professionals	Clay County	WNC Total
Physicians		
Primary Care Physicians	3	813
Family Practice	3	368
General Practice	0	10
Internal Medicine	0	240
Obstetrics/Gynecology	0	85
Pediatrics	0	110
Other Specialties	1	853
Dentists and Dental Hygienists		
Dentists	4	342
Dental Hygienists	10	479
Nurses		
Registered Nurses	51	7,981
Nurse Practitioners	5	316
Certified Nurse Midwives	0	28
Licensed Practical Nurses	18	1,854
Other Health Professionals		
Chiropractors	1	192
Occupational Therapists	1	242
Occupational Therapy Assistants	1	99
Optometrists	1	84
Pharmacists	8	669
Physical Therapists	1	511
Physical Therapy Assistants	2	309
Physician Assistants	0	290
Podiatrists	0	24
Practicing Psychologists	0	201
Psychological Assistants	2	87
Respiratory Therapists	0	370

Uninsured Population

Table 44 presents periodic biennial data on the proportion of the non-elderly population (ages 19-64) without health insurance of any kind. While there was a 21.0% increase in the percent of the uninsured at the state level from 2006-2007 to 2009-2010, the percent of uninsured adults in Clay County as well as WNC decreased from one biennial period to the next throughout the span of years shown in the table. In Clay County the decrease was 12.4%, 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
Clay County	24.2	24.3	21.2
Regional Arithmetic Mean	23.4	22.3	22.0
State Total	19.5	23.2	23.6

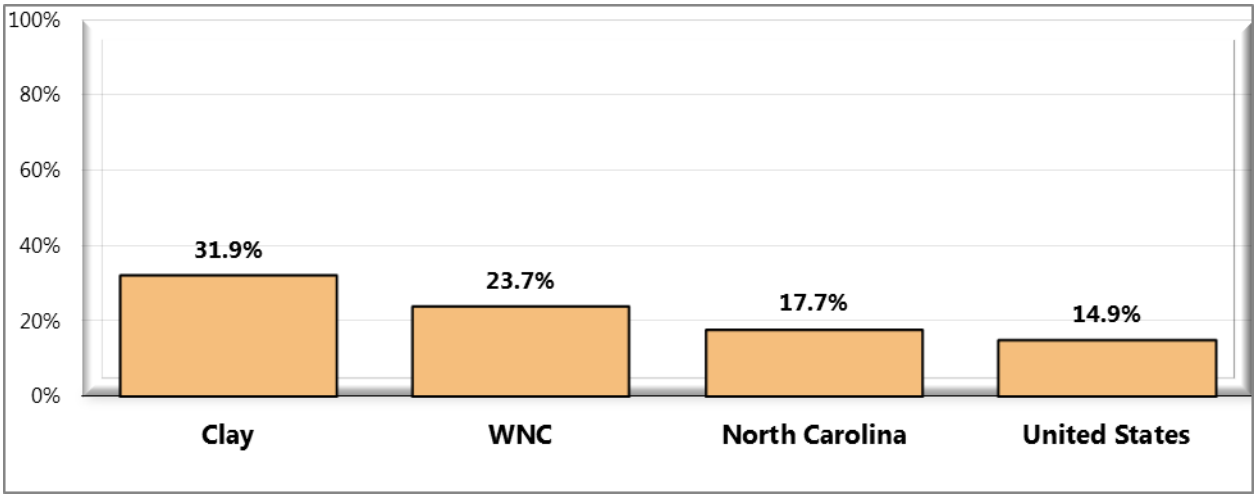
Table 45 shows the percent uninsured for one biennium (2009-2010) stratified by age. This data makes it clear that in Clay County as well as in WNC and NC as a whole, insurance coverage is better for children, among whom the percentage uninsured is less than half the percentage uninsured among the 19-64 age group. For both age categories cited, the percent uninsured is lower in Clay 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)
Clay County	9.1	21.2	18.1
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 71. 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 Clay County the number and percent of Medicaid-eligible persons have increased every year from SFY2004 to SFY2006 before falling. 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 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	
	#	%	#	%	#	%	#	%	#	%
Clay County	1,833	19.57	1,957	20.35	2,069	20.95	1,975	19.47	2,096	20.30
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

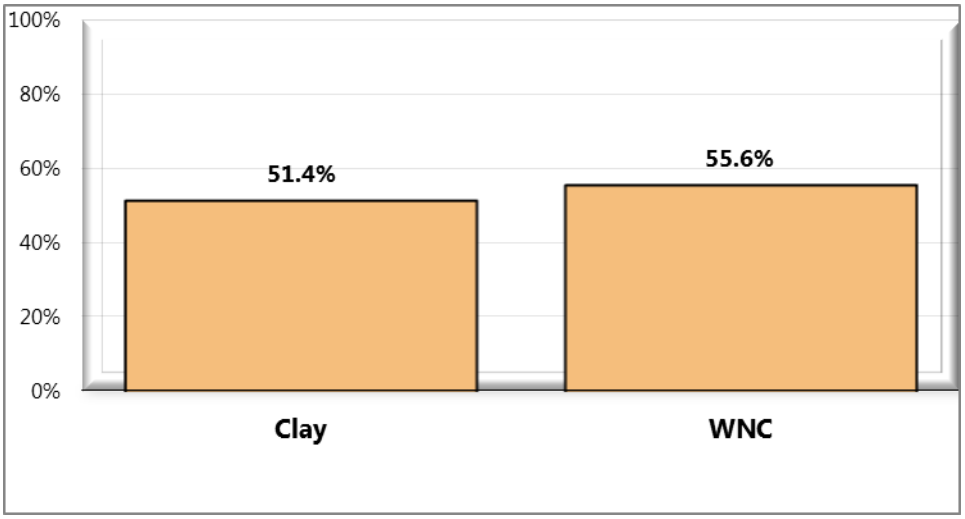
Diabetes mellitus occurs when the body cannot produce or respond appropriately to insulin. Insulin is a hormone that the body needs to absorb and use glucose (sugar) as fuel for the body's cells. Without a properly functioning insulin signaling system, blood glucose levels become elevated and other metabolic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

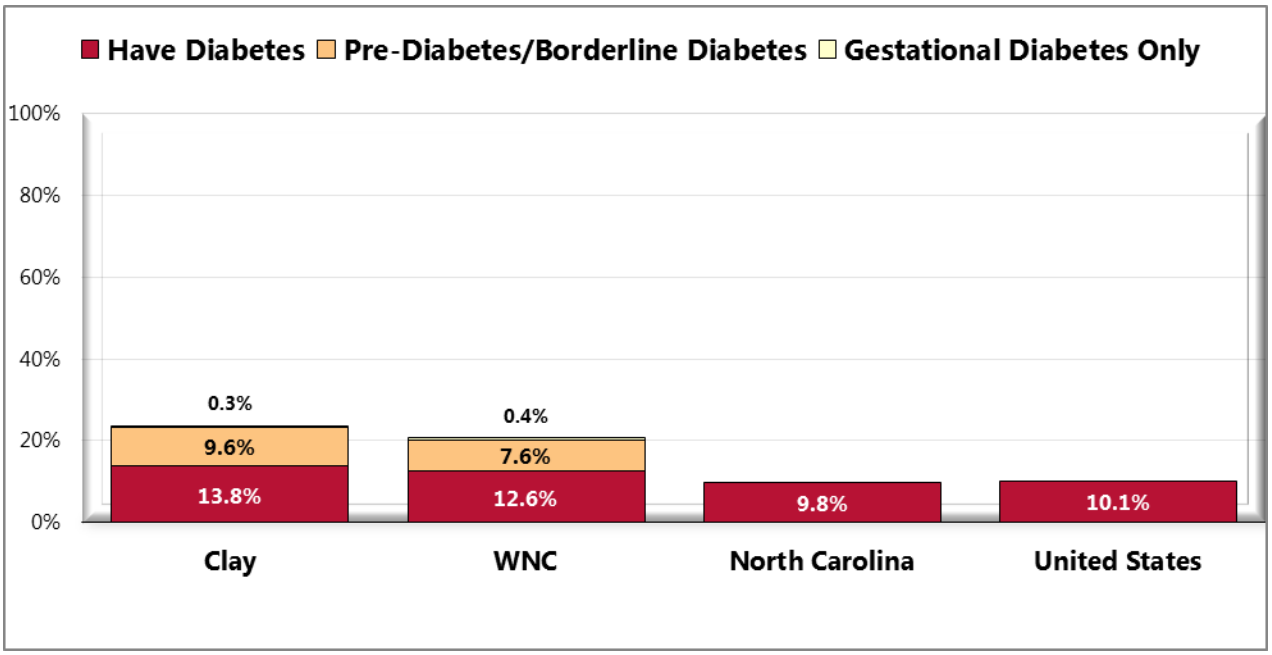
People from minority populations are more frequently affected by type 2 diabetes. Minority groups constitute 25% of all adult patients with diabetes in the US and represent the majority of children and adolescents with type 2 diabetes. Lifestyle change has been proven effective in preventing or delaying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

Figure 72. Tested for Diabetes in the Past Three Years (WNC Healthy Impact Survey)
(Among Adults Who Have Not Been Diagnosed With Diabetes)



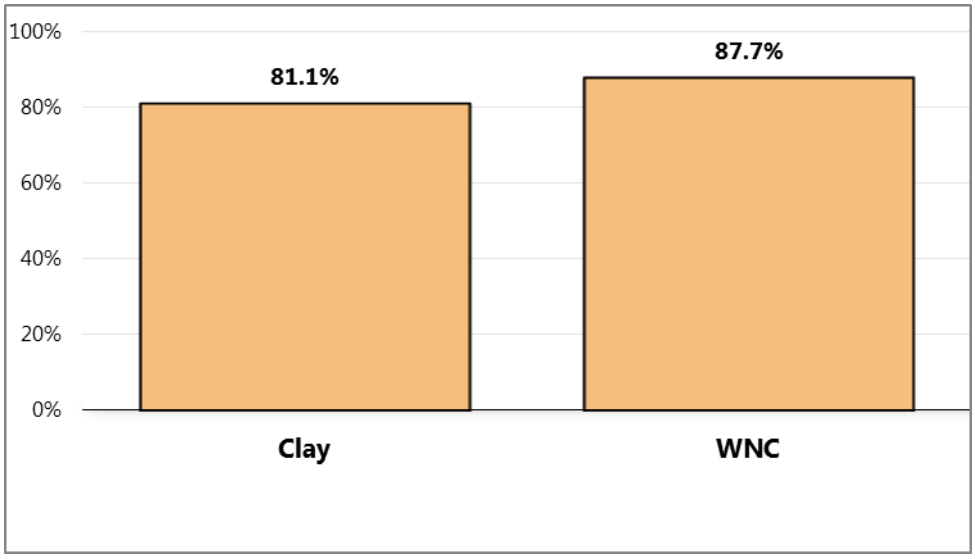
Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 19]
Notes: ● Asked of respondents who have never been diagnosed with diabetes; also includes women who have only been diagnosed when pregnant.

Figure 73. 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 74. Taking Action to Control Diabetes or Prediabetes (WNC Healthy Impact Survey)
(Among Adults Diagnosed with Diabetes or Prediabetes/Borderline Diabetes)



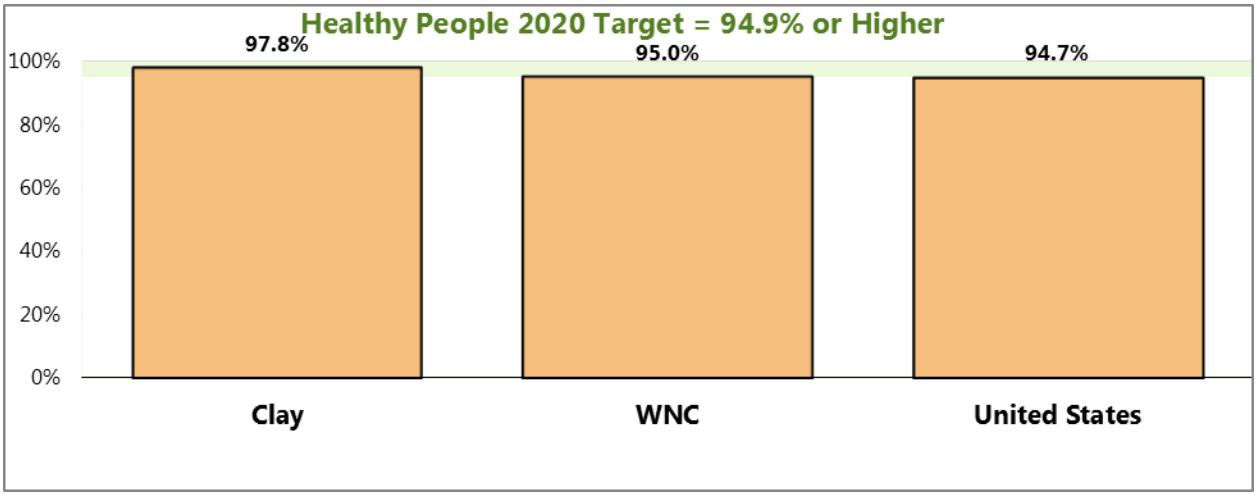
Sources:
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 21]

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).

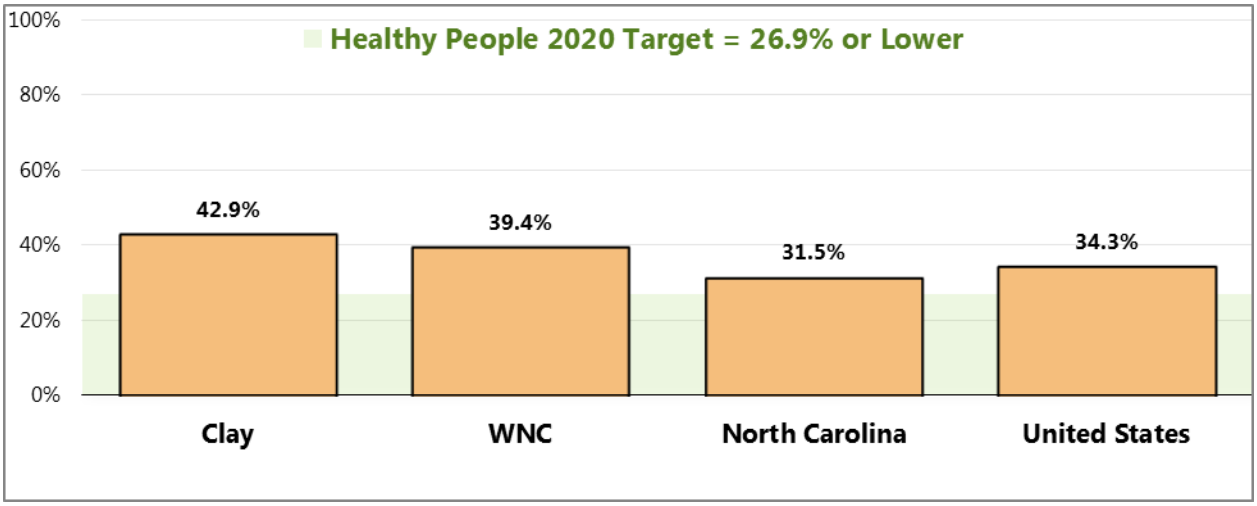
Figure 75. Have Had Blood Pressure Checked in the Past Two Years (WNC Healthy Impact Survey)



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.

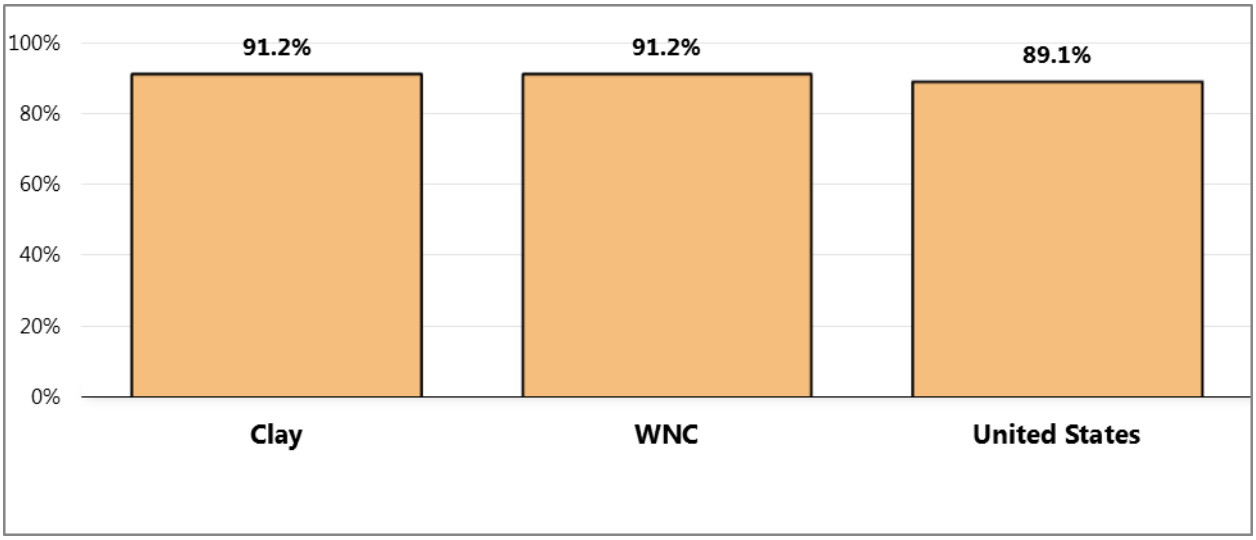
Figure 76. Prevalence of High Blood Pressure (WNC Healthy Impact Survey)



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



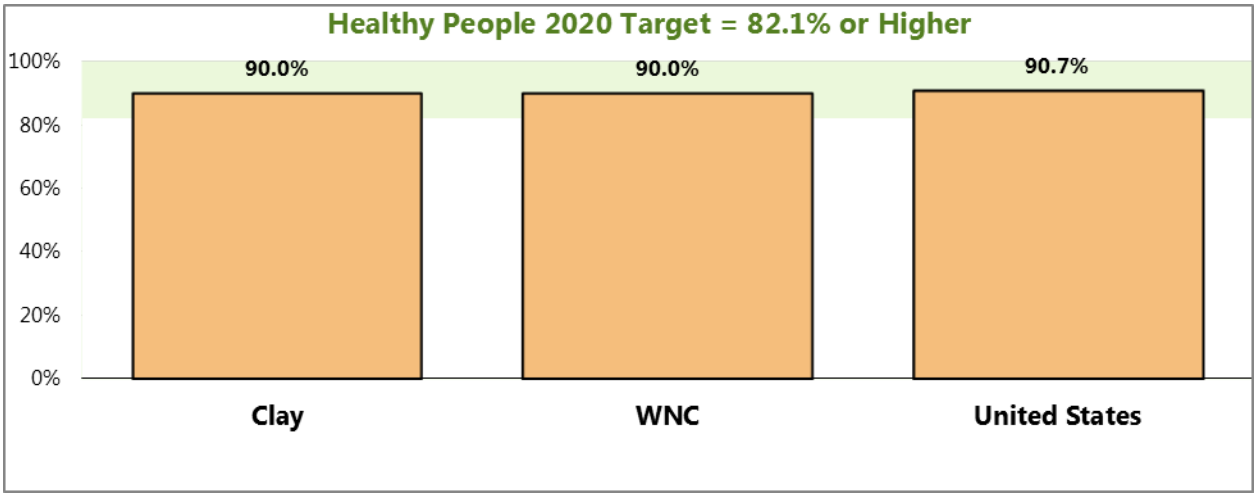
Sources:
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 23]
- 2011 PRC National Health Survey, Professional Research Consultants, Inc.

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.

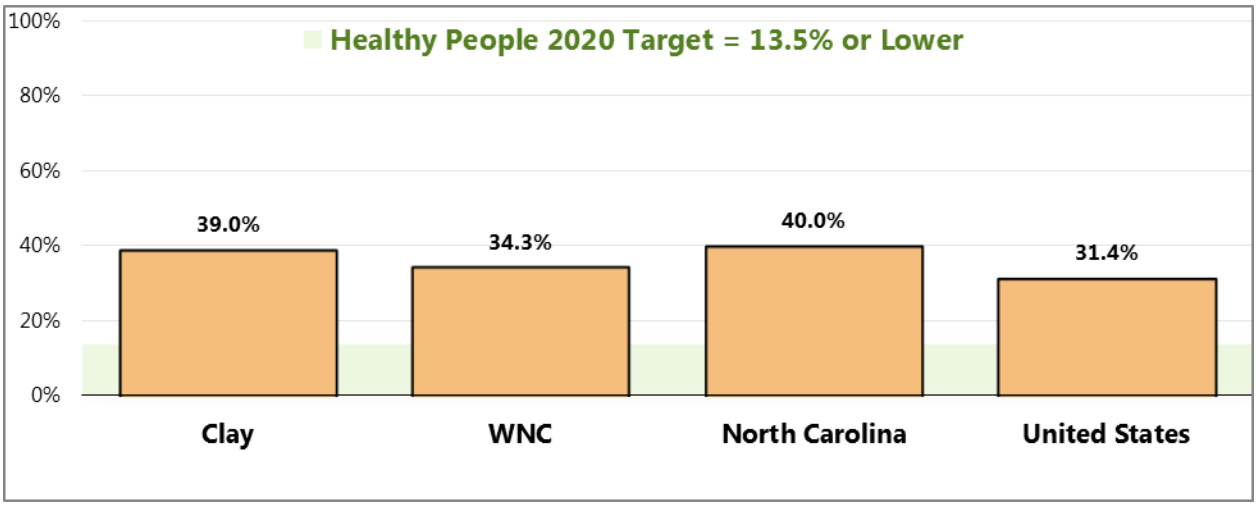
Figure 78. Have Had Blood Cholesterol Levels Checked in the Past Five Years (WNC Healthy Impact Survey)



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.

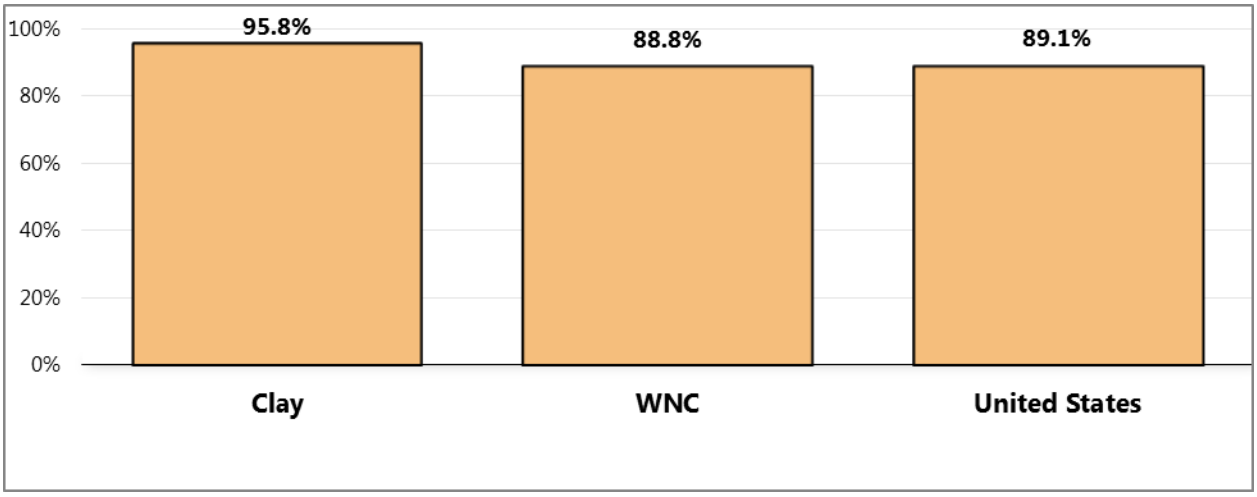
Figure 79. Prevalence of High Blood Cholesterol (WNC Healthy Impact Survey)



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 80. 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

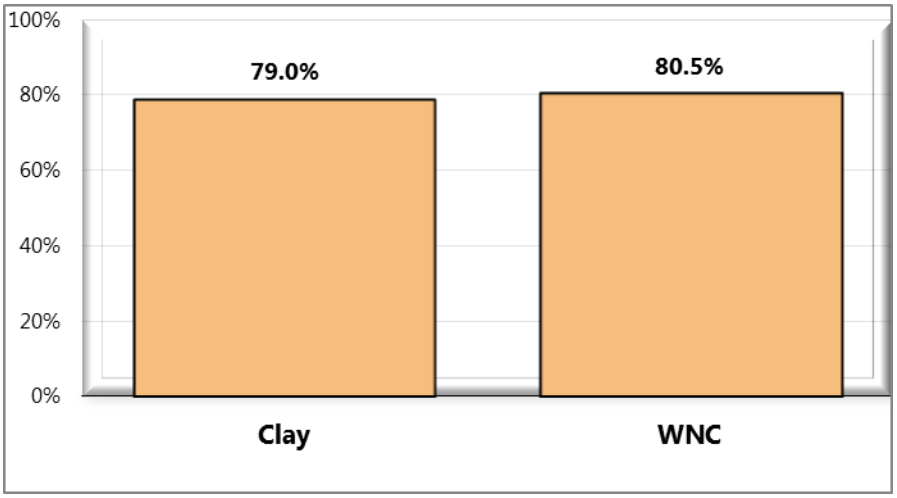
Routine Medical Care

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

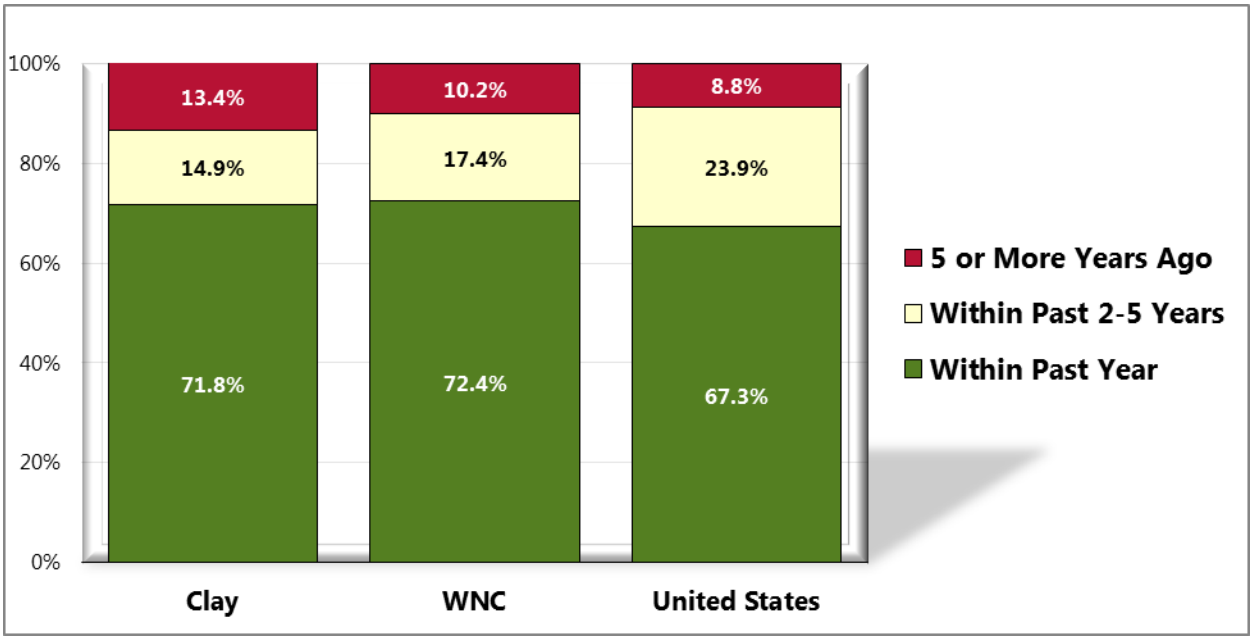
Improving health care services includes increasing access to and use of evidence-based preventive services. Clinical preventive services are services that: **prevent** illness by detecting early warning signs or symptoms before they develop into a disease (primary prevention); or **detect** a disease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

Figure 81. 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 82. Length of Time Since Last Routine Check-Up (WNC Healthy Impact Survey)



Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 15]
● 2011 PRC National Health Survey, Professional Research Consultants, Inc.
Notes: ● Asked of all respondents.

Emergency Department Utilization

According to data in Table 47, the diagnoses associated with the highest frequency of emergency department visits in Clay County in 2010 were lower respiratory disorders (11.63% of all ED visits), followed by chest pain/ischemic heart disease (11.49%) and psychiatric disorders (10.36%). 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	Clay County		WNC Mean
	#*	%	%
Chest pain/ischemic heart disease	307	11.49	11.83
Heart failure	104	3.89	2.58
Cardiac arrest	S**	S	0.14
Lower respiratory disorders	311	11.63	9.48
Diabetes	268	10.03	8.80
Neoplasms	71	2.66	1.57
Dental problems	37	1.38	1.85
Stroke/TIA	17	0.64	0.62
Traumatic brain injury	S	S	0.30
Psychiatric disorders	277	10.36	10.98
Substance abuse	65	2.43	2.99
Total ED Visits	2,673	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 WNC 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 Clay County residents was cardiovascular and circulatory diseases (including heart disease and cerebrovascular disease), which accounted for 120 hospitalizations. The next highest number of hospitalizations (107) was for digestive system diseases, including chronic liver disease and cirrhosis, followed by respiratory diseases, including pneumonia and influenza and chronic obstructive pulmonary disease (103 hospitalizations).

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

Diagnostic Category	Total # Cases		
	Clay County	Region	North Carolina
INFECTIOUS & PARASITIC DISEASES	47	2,741	41,705
-- Septicemia	37	1,604	27,412
-- AIDS	1	41	1,456
MALIGNANT NEOPLASMS	26	2,599	31,225
-- Colon, Rectum, Anus	2	324	3,770
-- Trachea, Bronchus, Lung	3	346	4,541
-- Female Breast	1	157	1,498
-- Prostate	4	192	2,505
BENIGN, UNCERTAIN & OTHER NEOPLASMS	3	650	8,948
ENDOCRINE, METABOLIC & NUTRITIONAL DISEASES	31	2,905	40,208
-- Diabetes	7	1,240	18,101
BLOOD & HEMOPOETIC TISSUE DISEASES	6	770	14,011
NERVOUS SYSTEM & SENSE ORGAN DISEASES	10	1,597	19,315
CARDIOVASCULAR & CIRCULATORY DISEASES	120	12,961	162,327
-- Heart Disease	96	9,006	108,060
-- Cerebrovascular Disease	14	2,259	29,429
RESPIRATORY DISEASES	103	8,683	93,891
-- Pneumonia/Influenza	38	3,089	29,852
-- Chronic Obstructive Pulmonary Disease	15	2,557	30,832
DIGESTIVE SYSTEM DISEASES	107	8,527	95,068
-- Chronic Liver Disease/Cirrhosis	3	178	2,361
GENITOURINARY DISEASES	45	4,123	45,978
-- Nephritis, Nephrosis, Nephrotic Synd.	11	1,036	14,368
PREGNANCY & CHILDBIRTH	35	7,921	125,271
SKIN & SUBCUTANEOUS TISSUE DISEASES	4	1,287	17,734
MUSCULOSKELETAL SYSTEM DISEASES	85	5,950	58,753
-- Arthropathies and Related Disorders	46	3,155	30,683
CONGENITAL MALFORMATIONS	5	294	3,318
PERINATAL COMPLICATIONS	n/a	198	4,035
SYMPTOMS, SIGNS & ILL-DEFINED CONDITIONS	23	3,916	48,299
INJURIES & POISONING	84	7,474	78,637
OTHER DIAGNOSES (INCL. MENTAL DISORDERS)	27	7,329	84,657
ALL CONDITIONS	761	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.

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
Clay County	1,235	564	45.7	1,047	270	25.8
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, 40% 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
Clay County	356	155	43.5
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 Clay County (1.84 per child) was 22% higher than the state average (1.50) but 16% lower than the WNC mean (2.18).

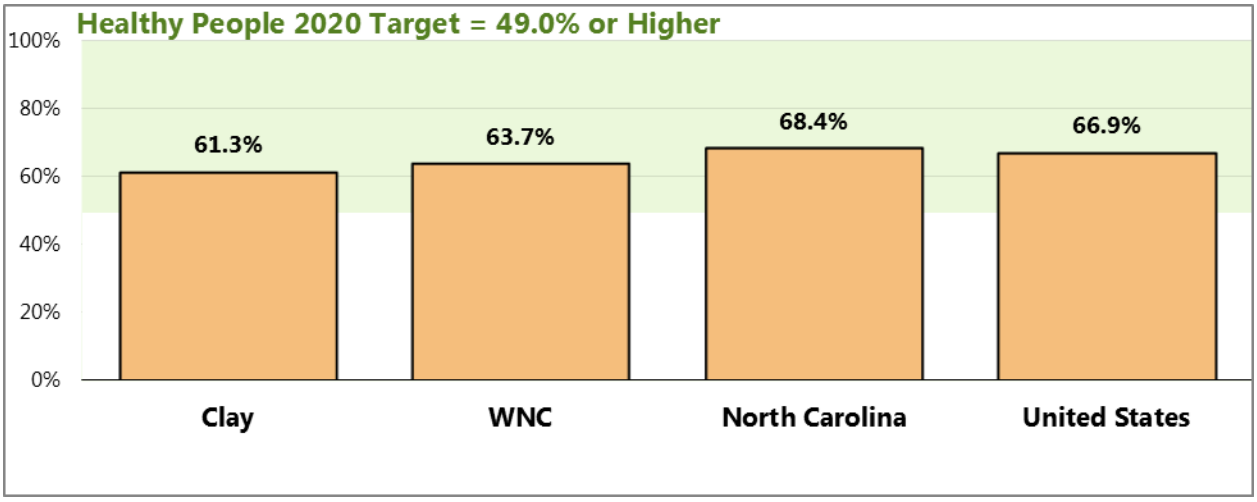
Table 52. Dental Screening Results, Kindergarteners (2009)

Geography	Average # Decayed, Missing or Filled Teeth
Clay County	1.84
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 83. 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
Clay County	488	539	600	274	288
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. No clear pattern of facility utilization is apparent in Clay County due to low numbers. 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 is a 23% increase in persons being served between 2009 and 2010.

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
Clay County	8	4	4	1	6
Regional Total	664	604	774	751	921
State Total	4,003	3,733	4,284	4,812	4,483

Table 55 presents figures on the numbers of persons receiving services in NC state psychiatric hospitals. The figures for Clay County are small and variable. This time, however, the number of WNC persons receiving services demonstrates a distinct and steady downward trend. The number of persons receiving these services in 2010 (564) was only 37% of the number receiving 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.

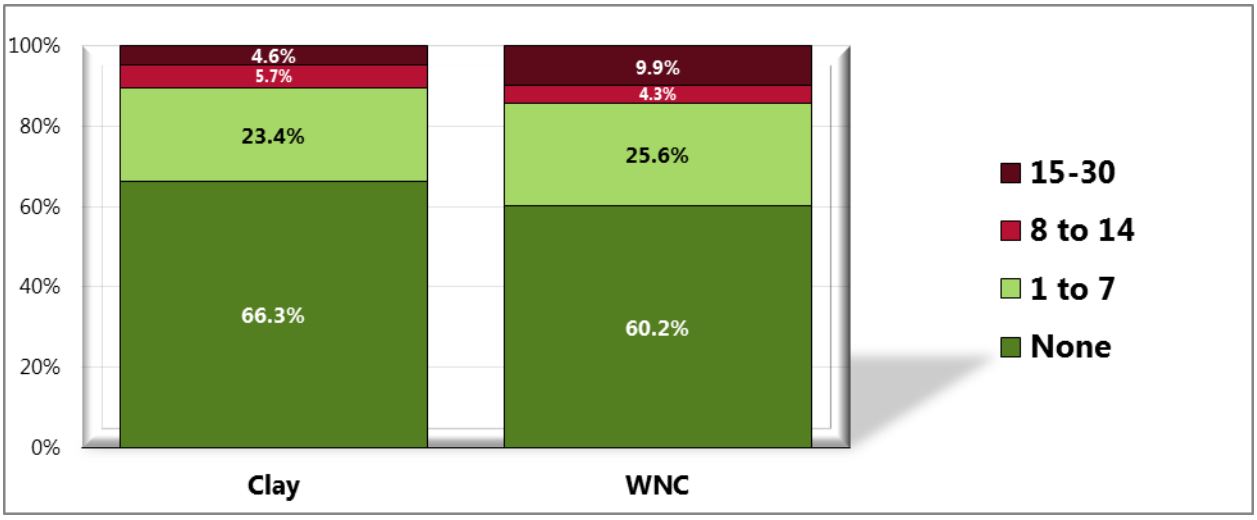
Table 55. Persons Served in NC State Psychiatric Hospitals (2006-2010)

Geography	# Persons Served in NC State Psychiatric Hospitals				
	2006	2007	2008	2009	2010
Clay County	9	15	10	5	5
Regional Total	1,509	1,529	1190	818	564
Regional Arithmetic Mean	94	96	74	51	35
State Total	18,292	18,498	14643	9,643	7,188

Poor Mental Health Days

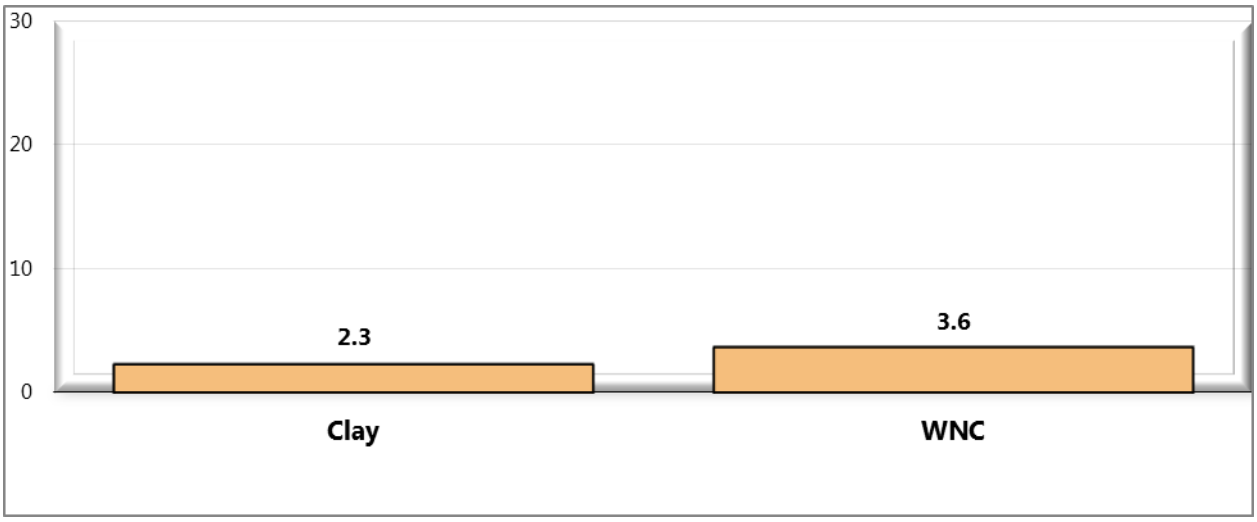
Survey respondents were asked, "Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many of the past 30 days was your mental health not good?"

Figure 84. 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 85. Average Number of the Past 30 Days on Which Mental Health Was Not Good (WNC Healthy Impact Survey)

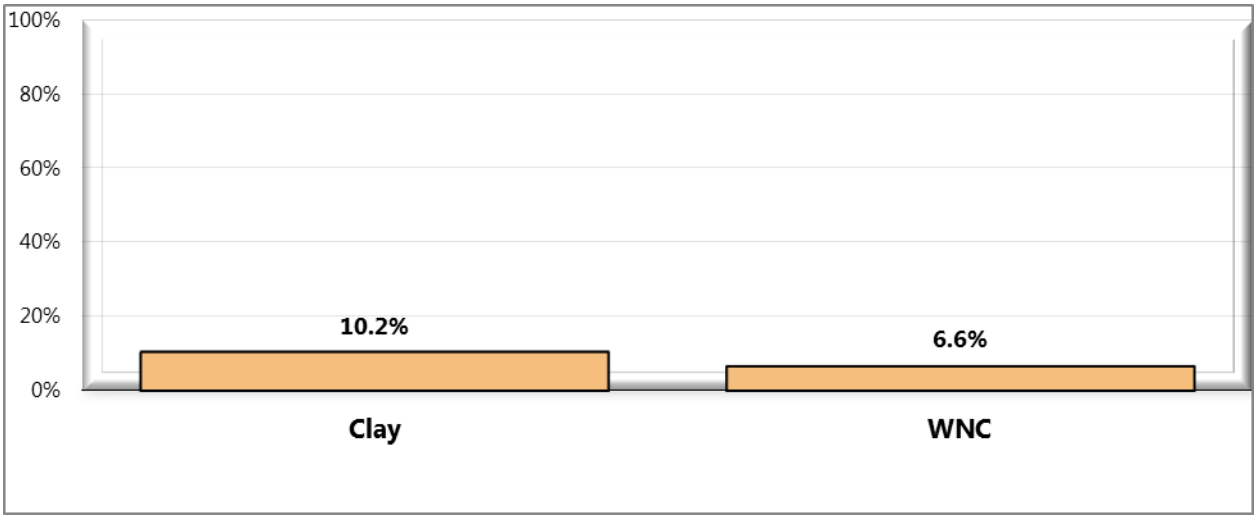


Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 64]
Notes: ● Asked of all respondents.

Access to Mental Health Services

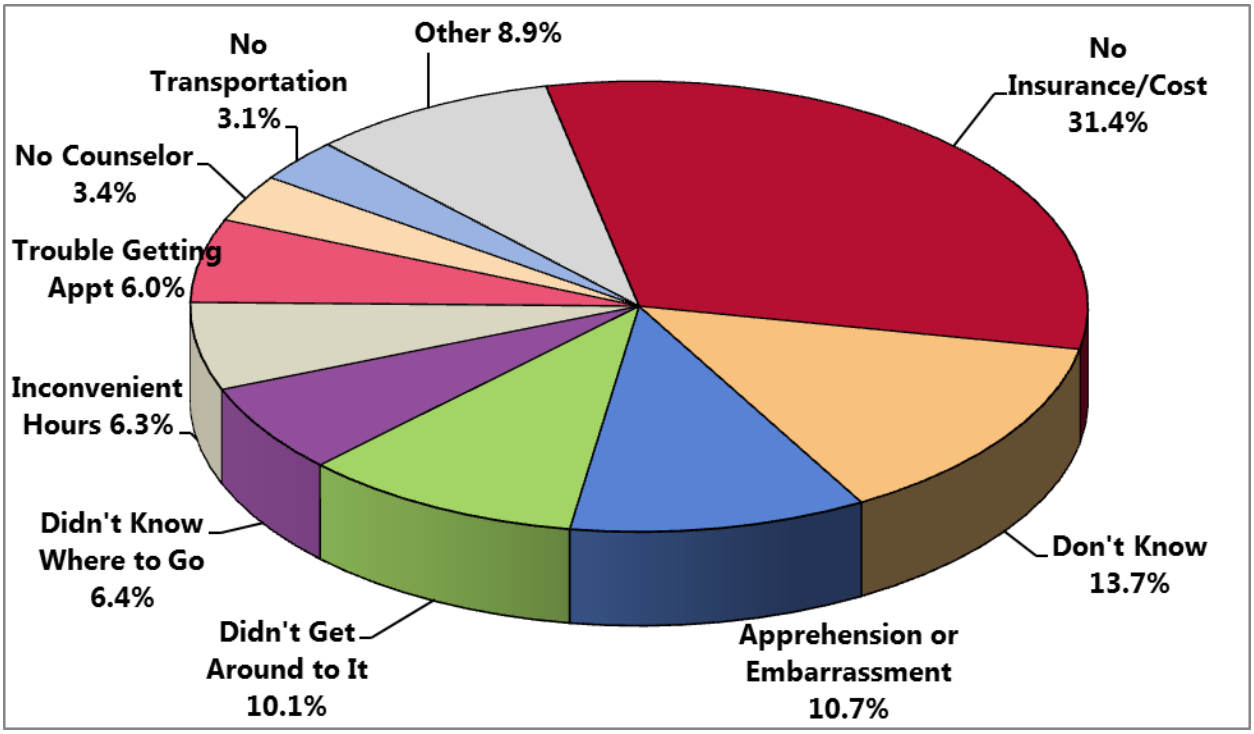
Survey respondents were asked if they had a time in the past year when they needed mental health care or counseling, but did not get it at that time. Those who responded, "yes," were asked to name the main reason they did not get mental health care or counseling. Due to small county-level sample sizes,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

Figure 86. 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 87. Primary Reason for Inability to Access Mental Health Services (WNC Healthy Impact Survey)
(Unable to Get Needed Mental Health Care in the Past Year)
(Western North Carolina, 2012)

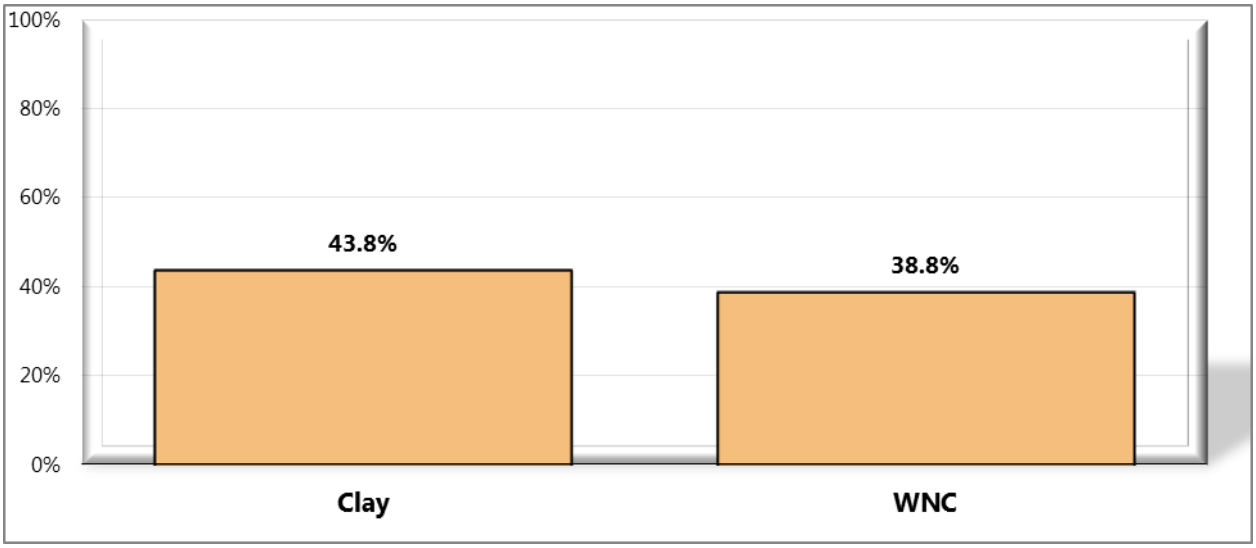


Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 66]
Notes: ● Asked of those respondents who were unable to get needed mental health care in the past year.

Advance Directives

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

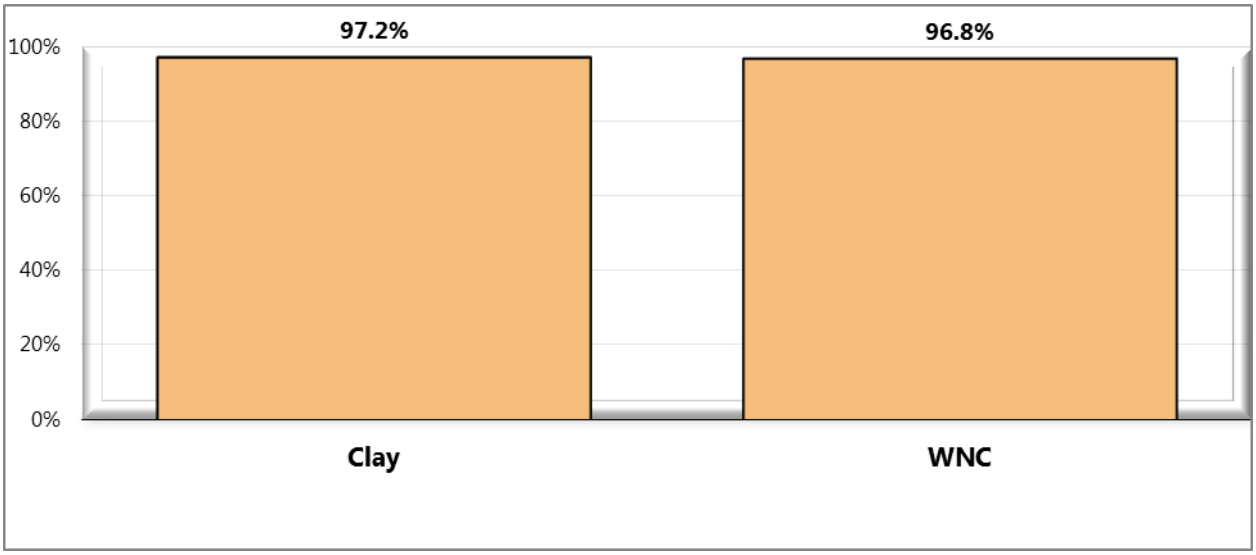
Figure 88. Have Completed Advance Directive Documents (WNC Healthy Impact Survey)



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

Figure 89. Have Communicated Health Care Decisions to Family or Doctor (WNC Healthy Impact Survey)

(Among Respondents with Advance Directive Documents)

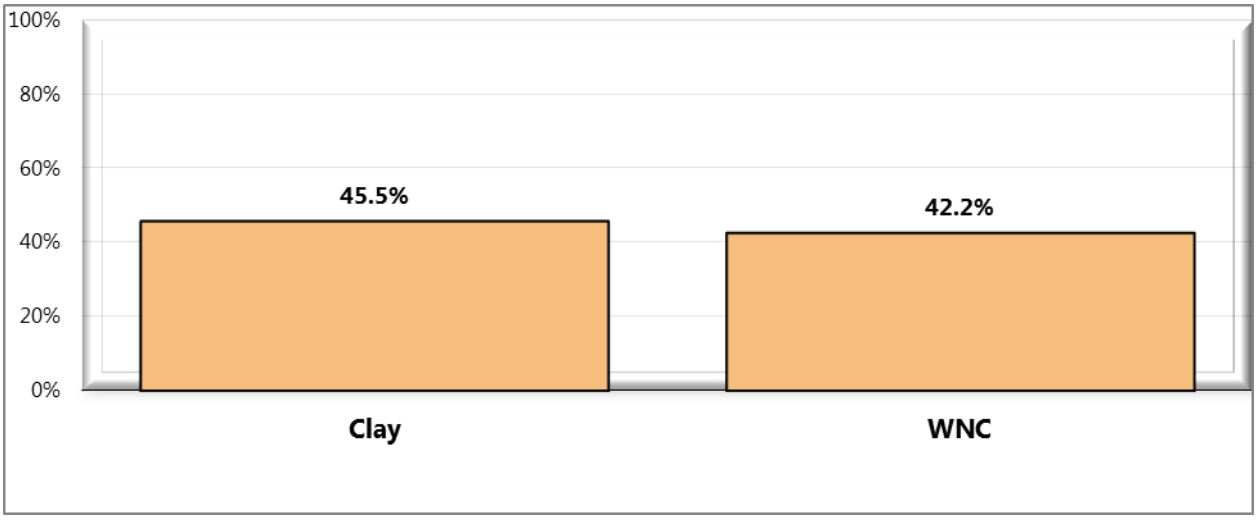


Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 35]
Notes: ● Asked of respondents with completed advance directive documents

Care-giving

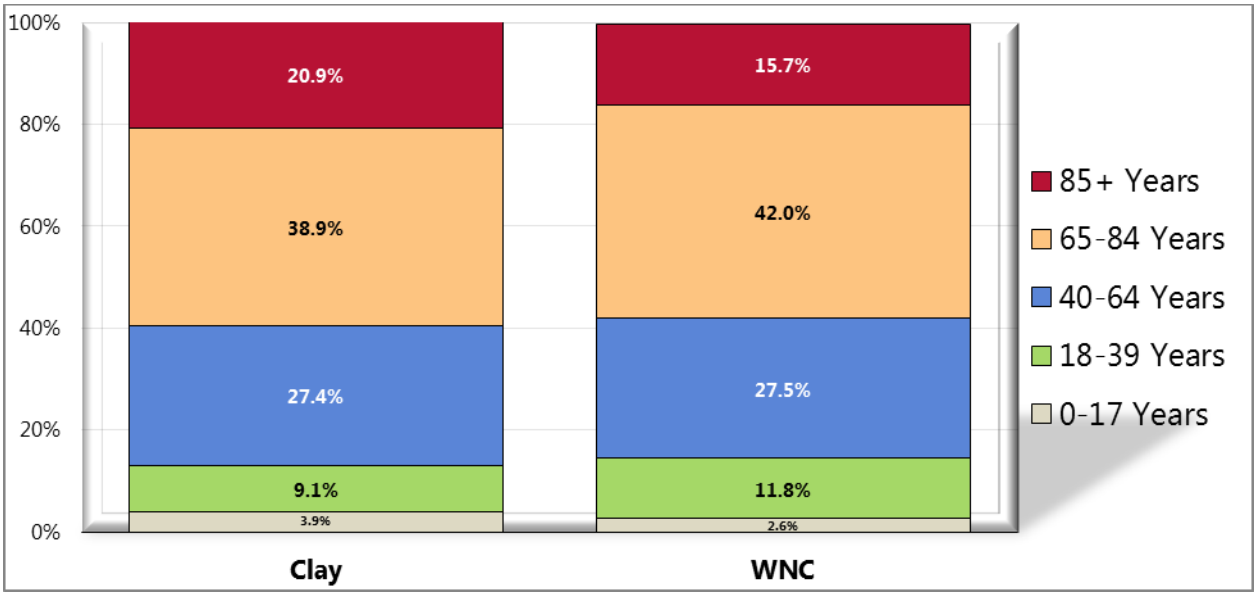
People may provide regular care or assistance to a friend or family member who has a health problem, long-term illness, or disability. Respondents were asked, "During the past month, did you provide any such care or assistance to a friend or family member?" Those who answered, "yes," were asked for the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

Figure 90. 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 91. 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
Clay	7.9%	4.9%	12.0%	4.4%	4.3%	11.9%	4.8%	42.6%	7.2%
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
Clay	1.4%	1.4%	2.4%	12.4%	16.5%	15.5%	19.2%	31.0%
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. There are no monitoring sites in Clay County. The figures presented in Tables 59 and 60 below represent the arithmetic means of the values for the nine monitored counties in WNC. 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 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 pollutant was ozone (O_3).

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).

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.

Clay County is not ranked among the 86 NC counties listed in 2010.

Indoor Air Quality

Environmental tobacco smoke

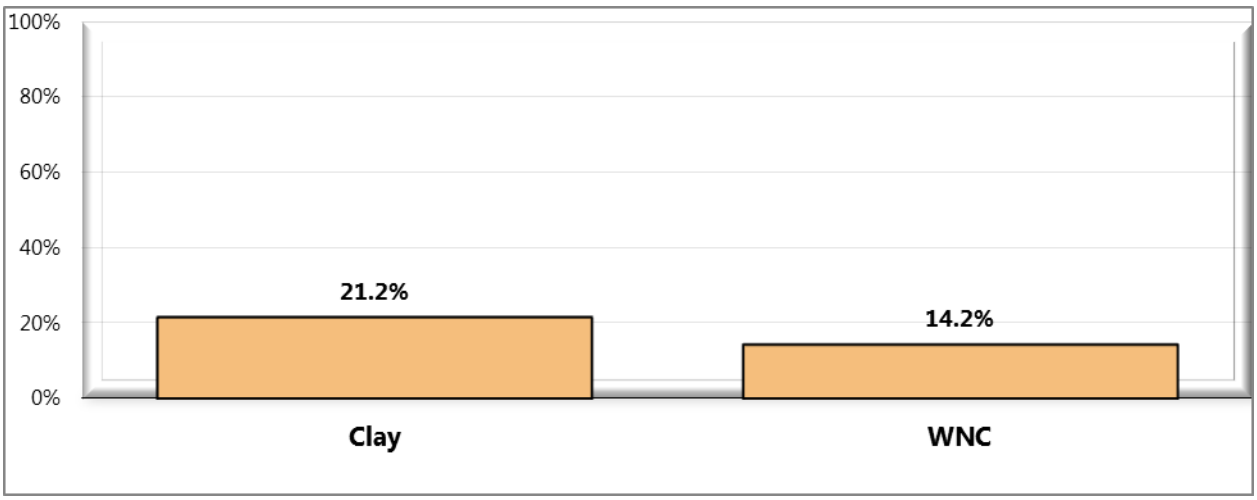
Tobacco smoking has long been recognized as a major cause of death and disease, responsible for hundreds of thousands of deaths each year in the U.S. Smoking is known to cause lung cancer in humans, and is a major risk factor for heart disease. However, it is not only active smokers who suffer the effects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

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

smoke that is inhaled, the higher the level of these harmful chemicals will be in the body (American Cancer Society, 2011).

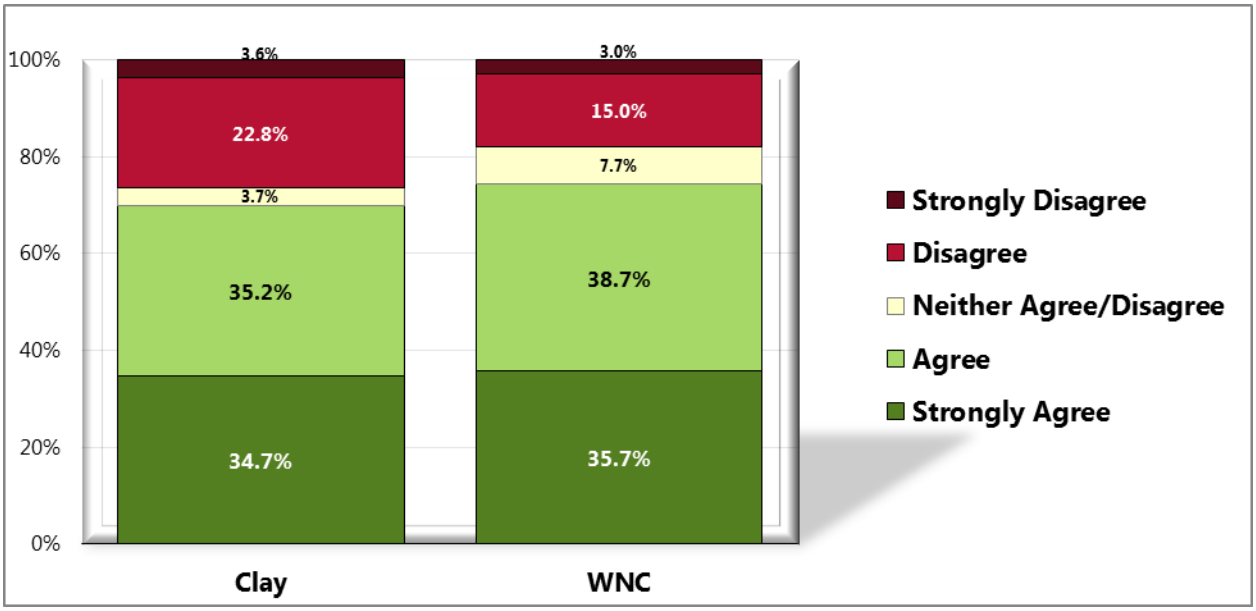
Survey respondents were asked about their second-hand smoke exposure in their workplace. Specifically, they were asked, "During how many of the past 7 days, at your workplace, did you breathe the smoke from someone who was using tobacco?" In order to evaluate community members' perceptions about environmental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

Figure 92. Have Breathed Someone Else's Cigarette Smoke at Work in the Past Week (WNC Healthy Impact Survey)
(Among Employed Respondents)



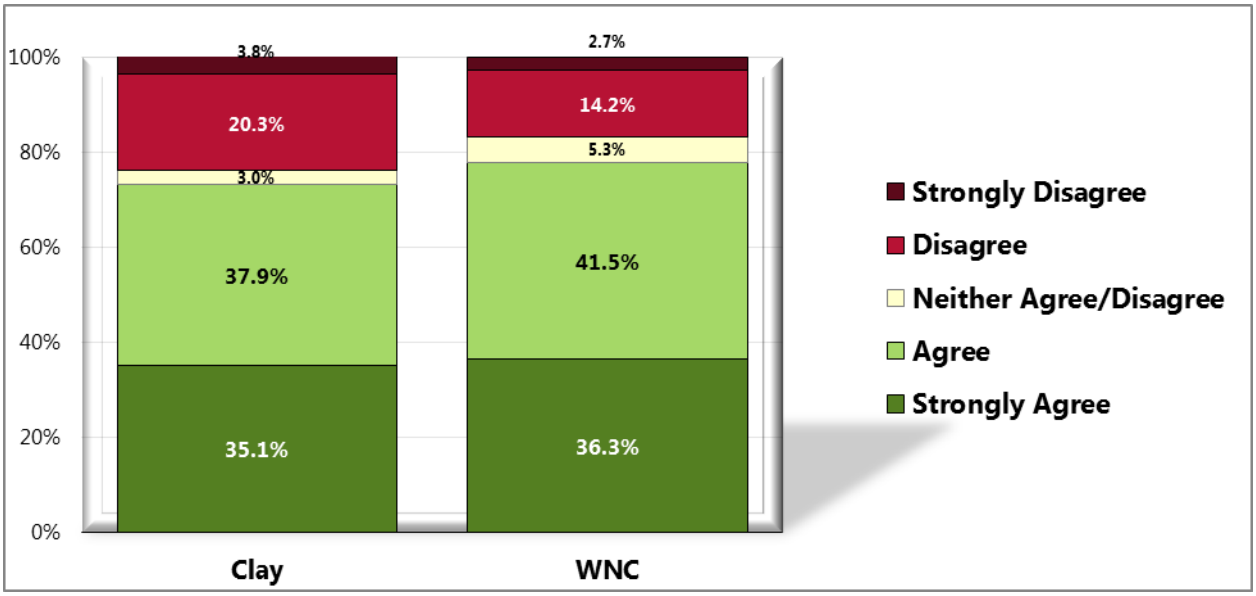
Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 44]
Notes: ● Asked of employed respondents.

Figure 93. "I believe it is important for universities and colleges to be 100% tobacco-free" (WNC Healthy Impact Survey)



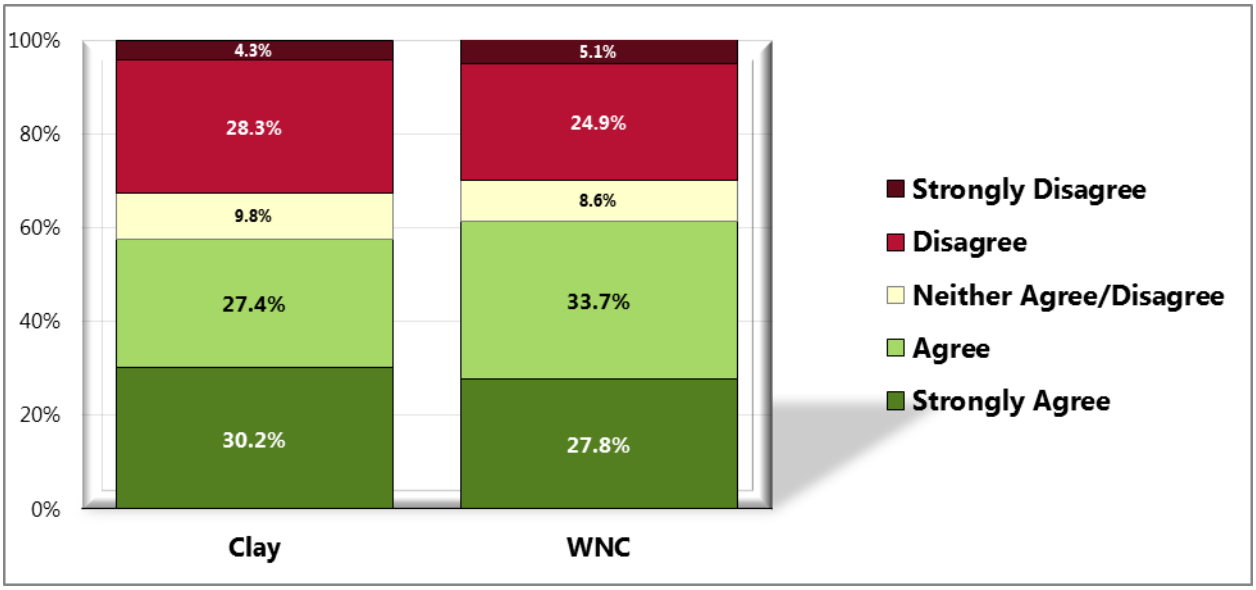
Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 45]
Notes: ● Asked of all respondents.

Figure 94. "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 95. "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 Clay County, 1,893 of 10,587 county residents, or 18%, were being served by community water systems in February of 2012. (Note that this is the lowest value in WNC.) Presumably the remaining 82% 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 traditionally 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 is 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 Clay County was 4.5 pCi/L, over three 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, "walkabilty", and "bikability" (Wikipedia, 2012).

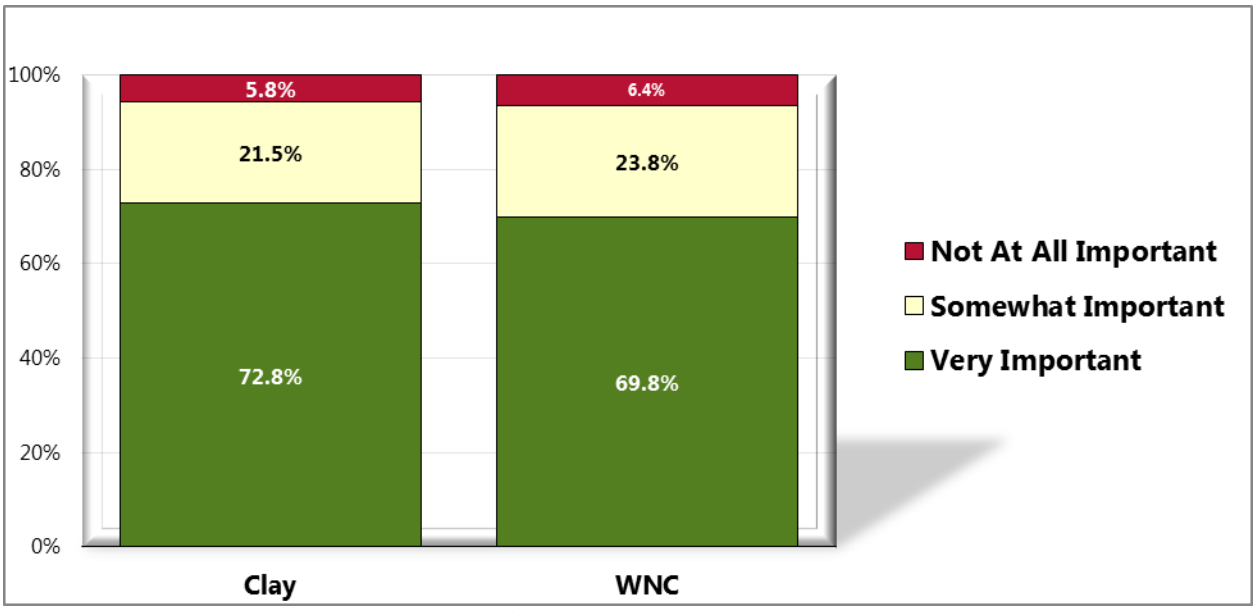
Access to Farmers' Markets and Grocery Stores

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%. In Clay County there was only one farmers' market 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 Clay County there was one grocery store in both 2007 and 2009 (*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 96. 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 Clay County the number of fast food restaurants increased from 2 to 3 over the same period (*Data Workbook*).

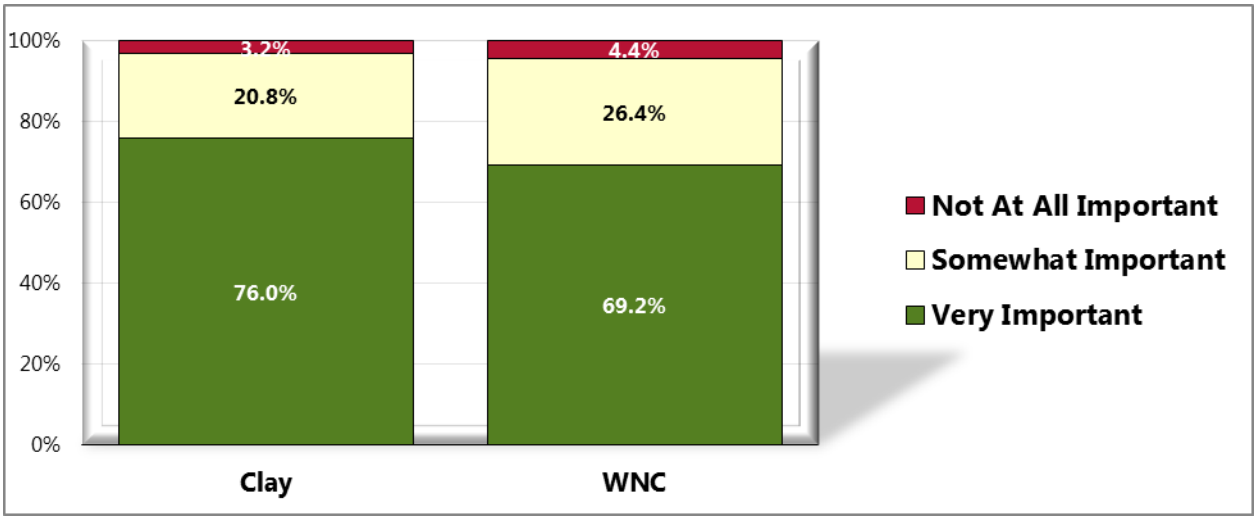
Also according to the USDA, mean per capita fast food expenditures in WNC rose 45% (from $514 to $746) between 2002 and 2007, and mean per capita restaurant expenditures in WNC also rose 45% (from $449 to $665) over the same period (*Data Workbook*).

Access to Recreational Facilities

According to the same source cited above, there were a total of 81 recreation and fitness facilities in the 16 WNC counties in 2007. This number was reported to have dropped by 26, to a total of 55a total of 55, in 2009, a decrease of 32%. The same source reports there was only one recreation or fitness facility in Clay County over the same period (*Data Workbook*).

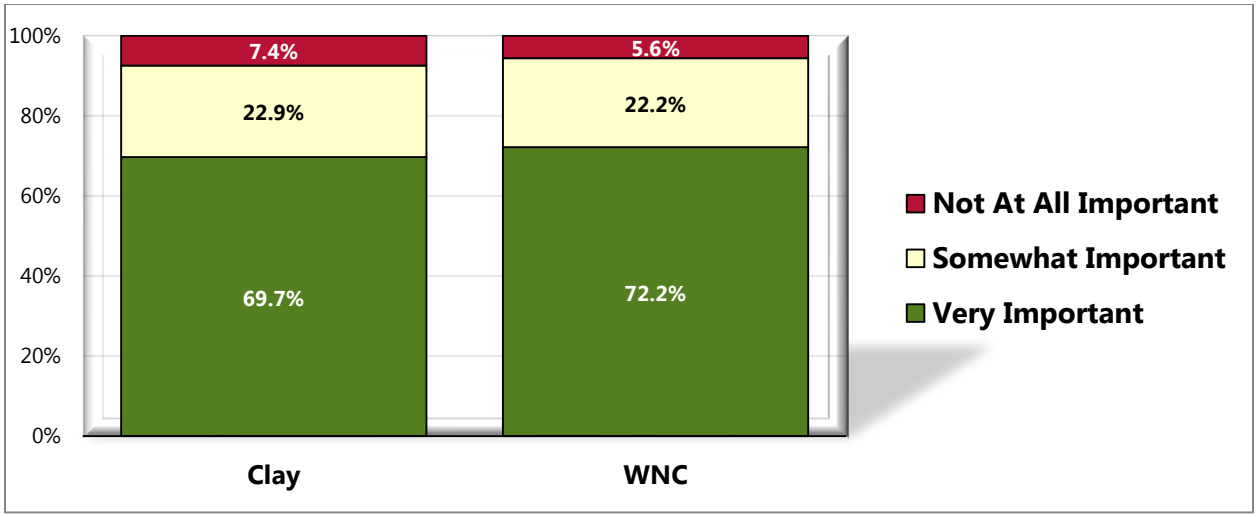
Survey respondents were asked whether they feel it is important for community organizations to explore ways to increase the public's access to physical activity spaces during off-times, as well as whether it is important for communities to improve access to trails, parks, and greenways. Survey respondents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

Figure 97. Importance That Community Organizations Make Physical Activity Spaces Available for Public Use After Hours (WNC Healthy Impact Survey)



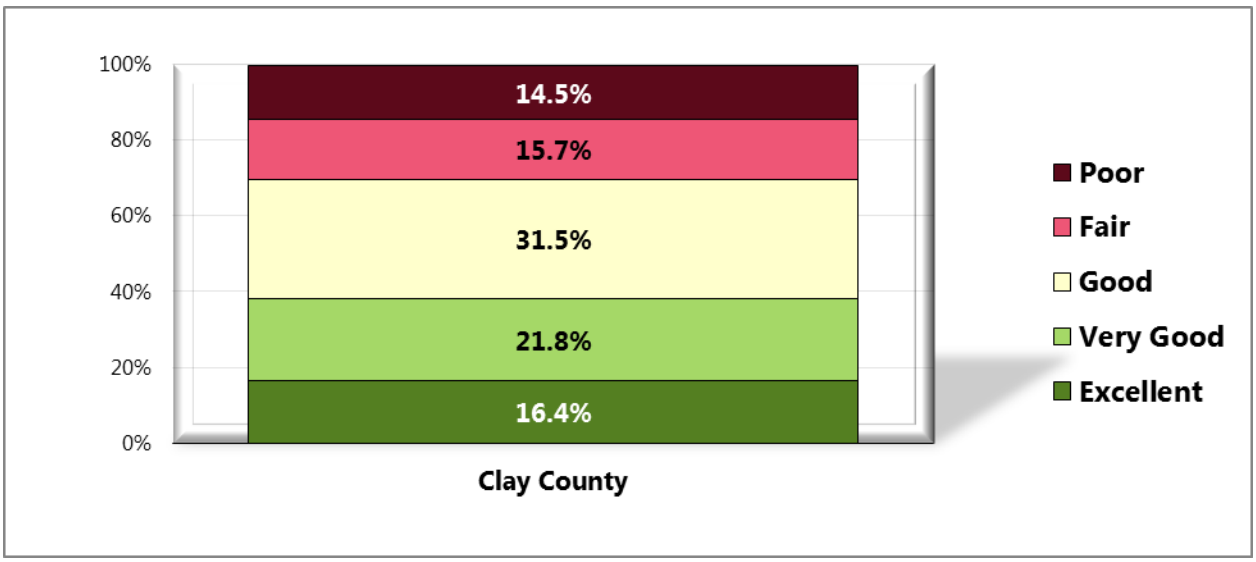
Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 60]
Notes: ● Asked of all respondents.

Figure 98. Importance That Communities Improve Access to Trails, Parks, and Greenways (WNC Healthy Impact Survey)



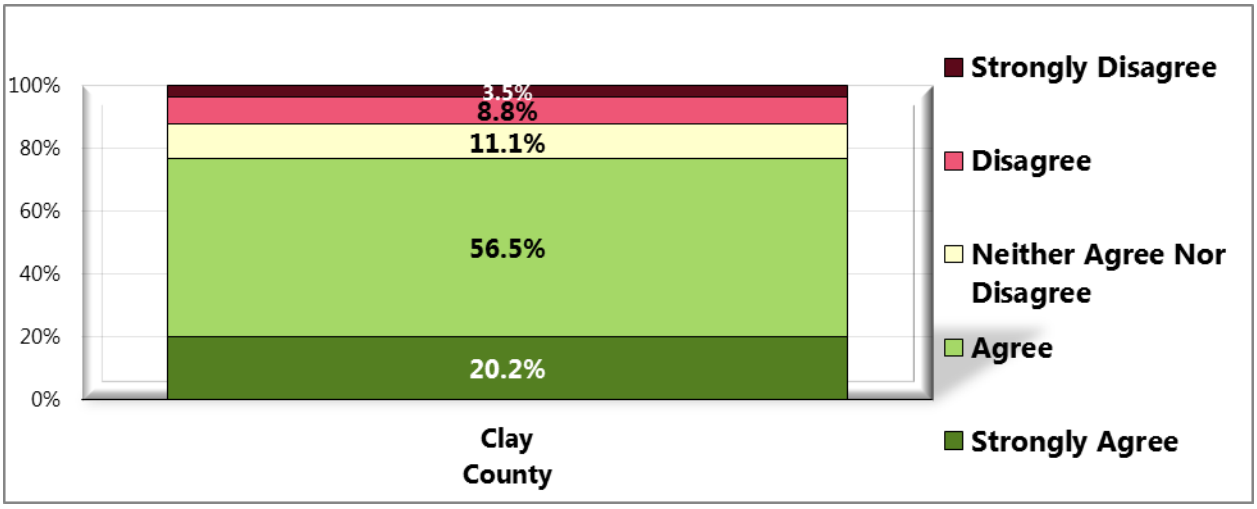
Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 61]
Notes: ● Asked of all respondents.

Figure 99. Evaluation of the Recreational Options Available to Community Residents Throughout the Year (WNC Healthy Impact Survey)



Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 117]
Notes: ● Asked of all respondents.

Figure 100. "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)



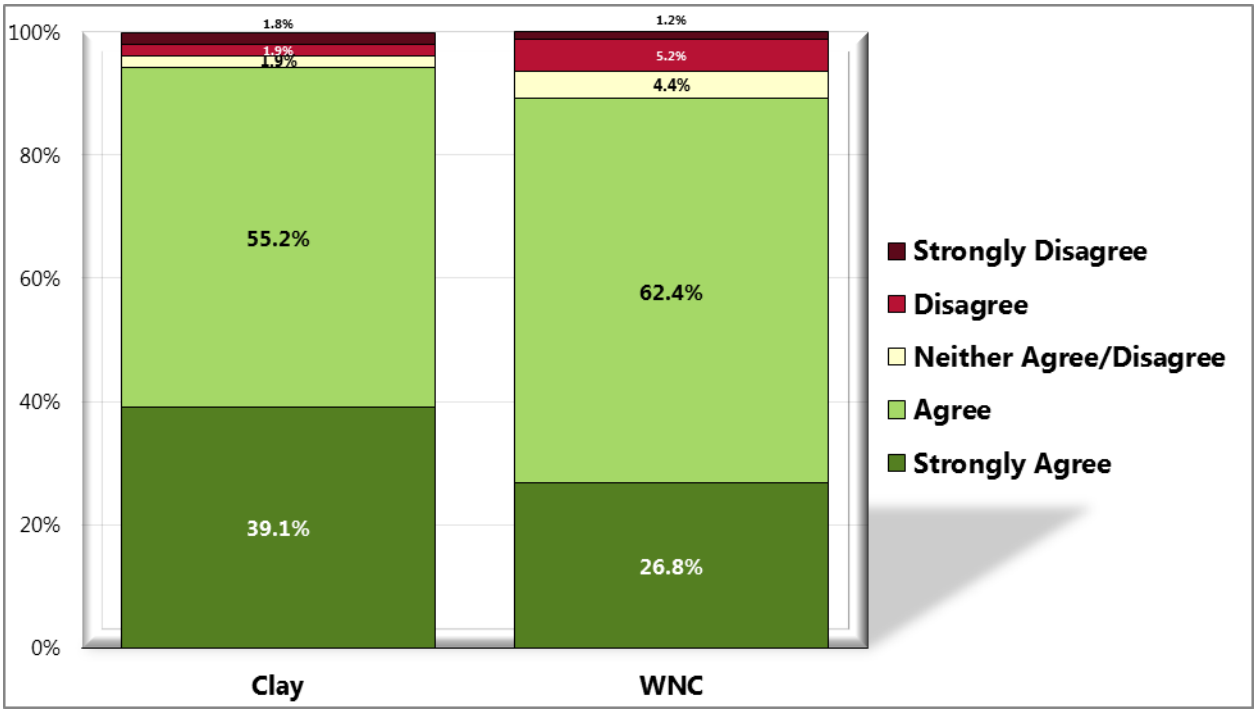
Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 118]
Notes: ● Asked of all respondents

CHAPTER 7 – QUALITY OF LIFE

Perception of County

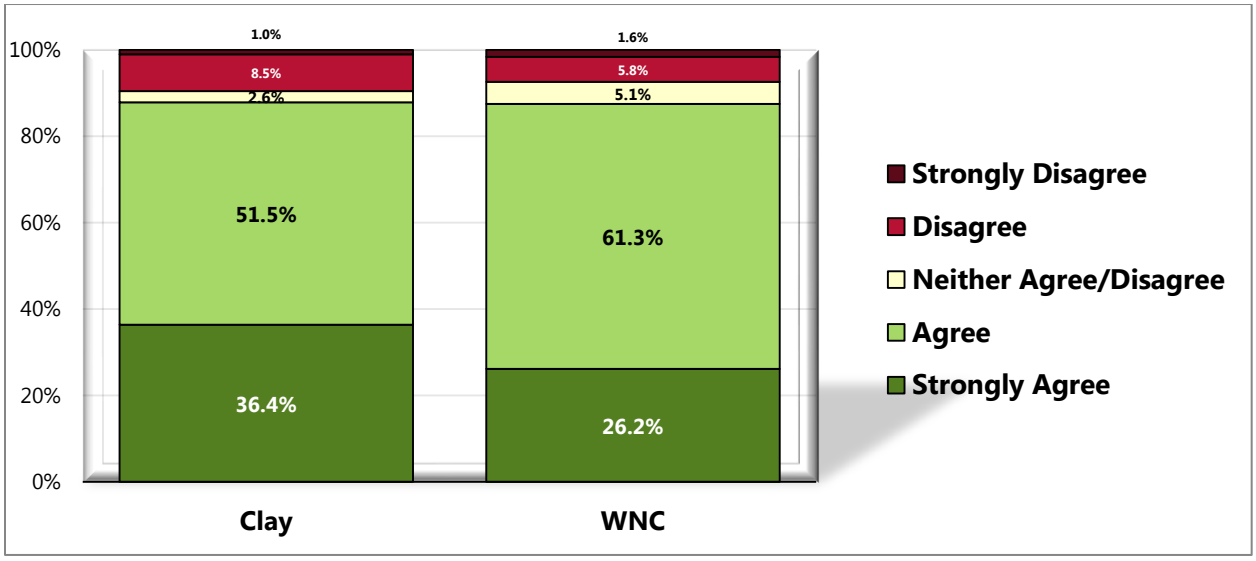
In order to evaluate community members' perceptions about the quality of life in western North Carolina (WNC), survey respondents were given a series of three statements regarding life in their county (my county is a good place to raise children, my county is a good place to grow old, and there is plenty 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 one issue which has the most negative impact on the quality of life in their county.

Figure 101. "My county is a good place to raise children"
(WNC Healthy Impact Survey)



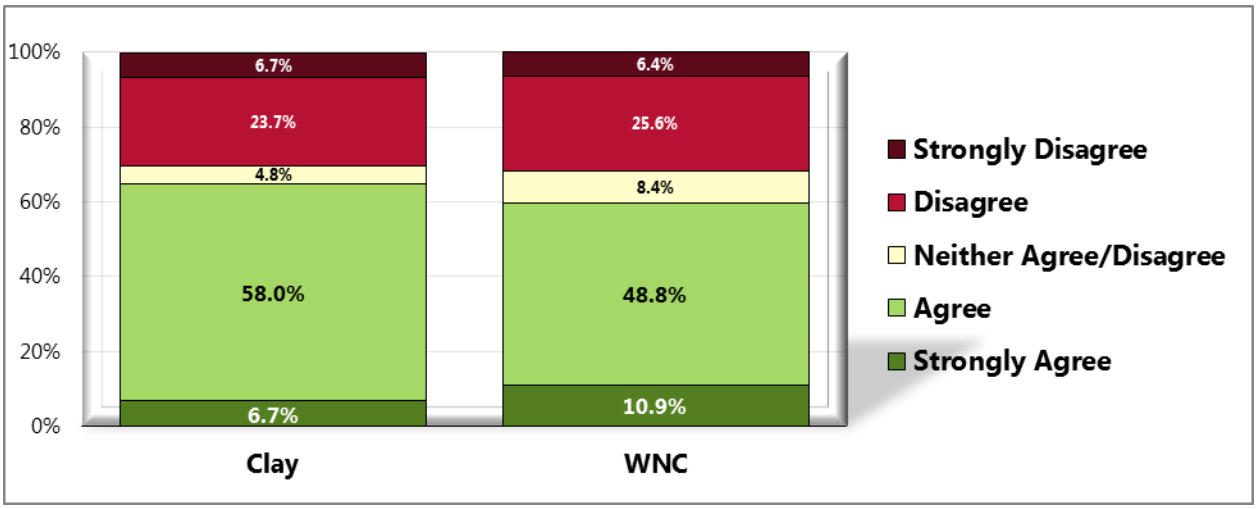
Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 5]
Notes: ● Asked of all respondents.

Figure 102. "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 103. "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 61. 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
Clay	✓	✓		✓		
WNC	✓	✓	✓			

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

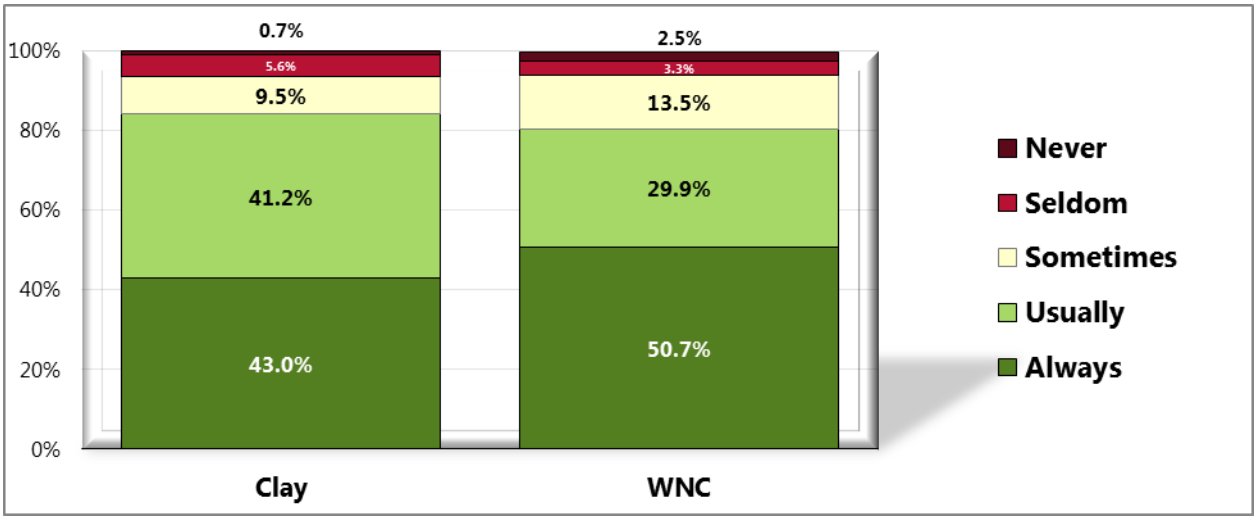
Table 62. Top Three Neighborhood/Community Issues Perceived as in Most Need of Improvement (WNC Healthy Impact Survey)

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

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

Social and Emotional Support

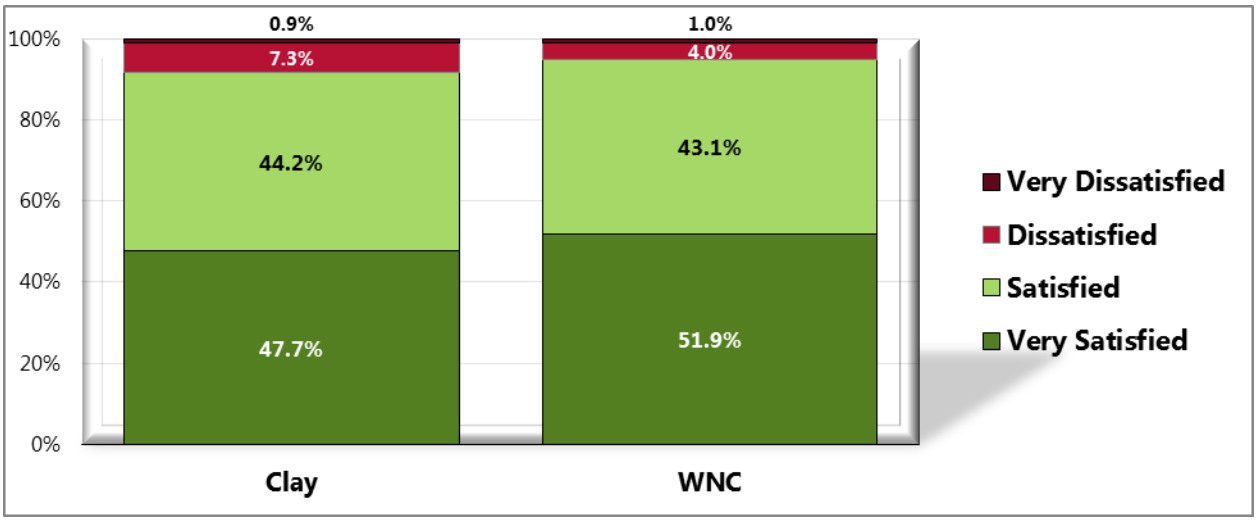
Figure 104. Frequency of Getting Needed Social/Emotional Support (WNC Healthy Impact Survey)



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

Satisfaction with Life

Figure 105. 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 Clay County to respond to the health needs of the community.

Resource Gaps

We are limited in mental health services. When individuals do have issue with mental health and substance abuse, we have very little resources to offer them. Services are at least an hour away and transportation is an issue. Lack of health insurance creates a barrier for people who need care but can't afford it.

We do have a small Hispanic population so trying to get their input was a challenge because of the language barrier.

CHAPTER 9 - HEALTH PRIORITIES & NEXT STEPS

Prioritization Process & Criteria

After conducting listening sessions and meeting with our Board of Health, we determined our health priorities. Each group reviewed all the data and was given an opportunity for input.

Priority Health Issues

Our last Community Health Assessment was conducted in 2008. In response to the assessment and related health concerns, the Clay County Healthy Carolinians Partnership recommends exploration and evaluation of number potential responses. Develop community initiatives and incentive programs to increase the numbers of people who exercise regularly. These can be fun ideas such as a walk-around-the-world campaign, or a biggest loser contest. Promote the concept of parents and children exercising together to produce new generations of more active people. Encourage employers to get involved, perhaps by providing incentives for workers to make better lifestyle choices. Develop a chronic disease management program, particularly targeting diabetes. Such programs often require a grant or other funding, but they save acute health care costs by helping those with diabetes manage their illnesses better at home, with fewer hospital and doctor visits. Promote the importance of knowing your cholesterol number, and provide opportunities for cholesterol testing at low or no cost. Increase awareness that the health department provides cholesterol testing at minimal cost. Encourage healthier food options, perhaps through a community-wide cook-off or recipe contest. This would be a great activity for churches and civic organizations that often host pot-luck events. Enforce existing laws on under-age purchases and use of tobacco. Work with Clay County Schools to develop and improve health education that is more effective in reducing the rate of obesity, increasing the frequency of exercise and avoiding tobacco and other risky substances. Expand the health curriculum to after-school programs at school and church. Collaborate with physicians to support preventative health screenings in the community. Reinvent the health fair to make it cool, a fun and memorable community. Promote access to mammograms among women at risk. For example, increase awareness of free baseline mammograms available at Murphy Medical Center.

As a result from the 2012 Community Health Assessment, The Clay County Health Department along with our partners has determined our top three priorities that we will work on diligently throughout the next three years.

1. Access to Care
2. Chronic Disease Control and Prevention
3. Reduce all forms of Tobacco Use / Substance Abuse

Next Steps

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

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

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

The Clay 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 Clay County Department of Health's role.
- Formal presentation of the role of relevant partners in implementing the plan and a demonstration of the organization's commitment to these roles.
- An emphasis on evidence-based strategies.
- A general plan for sustaining action (NACCHO, 2012)

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

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

REFERENCES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

West Virginia Health Statistics Center. (2006, September 12). *Chronic lower respiratory disease, a National burden*. Retrieved July 10, 2012, from:

http://www.wvdhhr.org/bph/hsc/pubs/other/clrd/national.htm

Wikipedia. (2012, June). *Definition of Built Environment*. Retrieved August 1, 2012, from http://en.wikipedia.org/wiki/Built_environment

APPENDICES

Appendix A – Data Collection Methods & Limitations
Appendix B – WNC Healthy Impact Survey Instrument
Appendix C – Health Resource Inventory
Appendix D – Listening Sessions (if applicable)

APPENDIX A - DATA COLLECTION METHODS & LIMITATIONS

Secondary Data

Secondary Data Methodology

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

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

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

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

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

usage; nevertheless they are used so readers may track a particular piece of information directly back to the source.

Data Definitions

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

Health data, which composes a large proportion of the information included in this report, employs a series of very specific terms which are important to interpreting the significance of the data. While these technical health data terms are defined in the report at the appropriate time, there are some data caveats that should be applied from the onset.

Error

First, readers should note that there is some error associated with every health data source. Surveillance systems for communicable diseases and cancer diagnoses, for instance, rely on reports submitted by health care facilities across the state and are likely to miss a small number of cases, and mortality statistics are dependent on the primary cause of death listed on death certificates without consideration of co-occurring conditions.

Age-adjusting

Secondly, since much of the information included in this report relies on *mortality* data, it is important to recognize that many factors can affect the risk of death, including race, gender, occupation, education and income. The most significant factor is age, because an individual's risk of death inevitably increases with age. As a population ages, its collective risk of death increases; therefore, an older population will automatically have a higher overall death rate just because of its age distribution. At any one time some communities have higher proportions of "young" people, and other communities have a higher proportion of "old" people. In order to compare mortality data from one community with the same kind of data from another, it is necessary first to control for differences in the age composition of the communities being compared. This is accomplished by *age-adjusting* the data. Age-adjustment is a statistical manipulation usually performed by the professionals responsible for collecting and cataloging health data, such as the staff of the NC State Center for Health Statistics (NC SCHS). It is not necessary to understand the nuances of age-adjustment to use this report. Suffice it to know that age-adjusted data are preferred for comparing most health data from one population or community to another and have been used in this report whenever available.

Rates

Thirdly, it is most useful to use *rates* of occurrence to compare data. A rate converts a raw count of events (deaths, births, disease or accident occurrences, etc.) in a target population to a ratio representing the number of same events in a standard population, which removes the variability associated with the size of the sample. Each rate has its own standard denominator that must be specified (e.g., 1,000 women, 100,000 persons, 10,000 people in a particular age group, etc.) for that rate.

While rates help make data comparable, it should be noted that small numbers of events tend to yield rates that are highly unstable, since a small change in the raw count may translate to a large change in rate. To overcome rate instability, another convention typically used in the presentation of health statistics is *data aggregation*, which involves combining like data gathered over a multi-year period, usually three or five years. The practice of presenting data that are aggregated avoids the instability typically associated with using highly variable year-by-year data, especially for measures consisting of relatively few cases or events. The calculation is performed by dividing the sum number of cases or deaths in a population due to a particular cause over a period of years by the sum of the population size for each of the years in the same period. Health data for multiple years or multiple aggregate periods is included in this report wherever possible. Sometimes, however, even aggregating data is not sufficient, so the NC SCHS recommends that any rate based on fewer than 20 events—whether covering an aggregate period or not—be considered *unstable*. In fact, in some of its data sets the NC SCHS no longer calculates rates based on fewer than 20 events. To be sure that unstable data do not become the basis for local decision-making, this report will highlight and discuss primarily rates based on 20 or more events in a five-year aggregate period, or 10 or more events in a single year. Where exceptions occur, the text will highlight the potential instability of the rate being discussed.

Regional arithmetic mean

Fourthly, sometimes in order to develop a representative regional composite figure from 16 separate county measures the consultants calculated a *regional arithmetic mean* by summing the available individual county measures and dividing by the number of counties providing those measures. It must be noted that when regional arithmetic means are calculated from *rates* the mean is not the same as a true average rate but rather an approximation of it. This is because most rates used in this report are age-adjusted, and the regional mean cannot be properly age-adjusted.

Describing difference and change

Fifthly, in describing differences in data of the same type from two populations or locations, or changes over time in the same kind of data from one population or location—both of which appear frequently in this report—it is useful to apply the concept of *percent* difference or change. While it is always possible to describe difference or change by the simple subtraction of a smaller number from a larger number, the result often is inadequate for describing and understanding the *scope* or *significance* of the difference or change. Converting the amount of difference or change to a percent takes into account the relative size of the numbers that are changing in a way that simple subtraction does not, and makes it easier to grasp the meaning of the change. For example, there may be a rate of for a type of event (e.g., death) that is one number one year and another number five years later. Suppose the earlier figure is 12.0 and the latter figure is 18.0. The simple mathematical difference between these rates is 6.0. Suppose also there is another set of rates that are 212.0 in one year and 218.0 five years later. The simple mathematical difference between these rates also is 6.0. But are these same simple numerical differences really of the same significance in both instances? In the first example, converting the

6 point difference to a percent yields a relative change factor of 50%; that is, the smaller number increased by half, a large fraction. In the second example, converting the 6 point difference to a percent yields a relative change factor of 2.8%; that is, the smaller number increased by a relatively small fraction. In these examples the application of percent makes it very clear that the difference in the first example is of far greater degree than the difference in the second example. This document uses percentage almost exclusively to describe and highlight degrees of difference and change, both positive (e.g., increase, larger than, etc.) and negative (e.g., decrease, smaller than, etc.)

Data limitations

Some data that is used in this report may have inherent limitations, due to the sample size, its geographic focus, or its being out-of-date, for example, but it is used nevertheless because there is no better alternative. Whenever this kind of data is used, it will be accompanied by a warning about its limitations.

Gaps in Available Information

People in Clay County face some different health issues than people who live in towns and cities. Getting health care can be a problem when you live in a rural area. Clay County does not have a hospital in the county. Residents also might not want to travel long distances to get routine checkups and screenings. Rural areas often have fewer doctors and dentists, and certain specialists might not be available at all.

Because it can be hard to get care, health problems in rural residents may be more serious by the time they are diagnosed. People in rural areas of the United States have higher rates of chronic disease than people in urban areas.

We do have a small minority population and communication can be a factor in assessing their health needs.

Health insurance coverage limits our access to health information and stands in the way of individuals receiving care. Over 30 percent of our residents do have any form of health insurance. This can limit us in gathering health data.

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

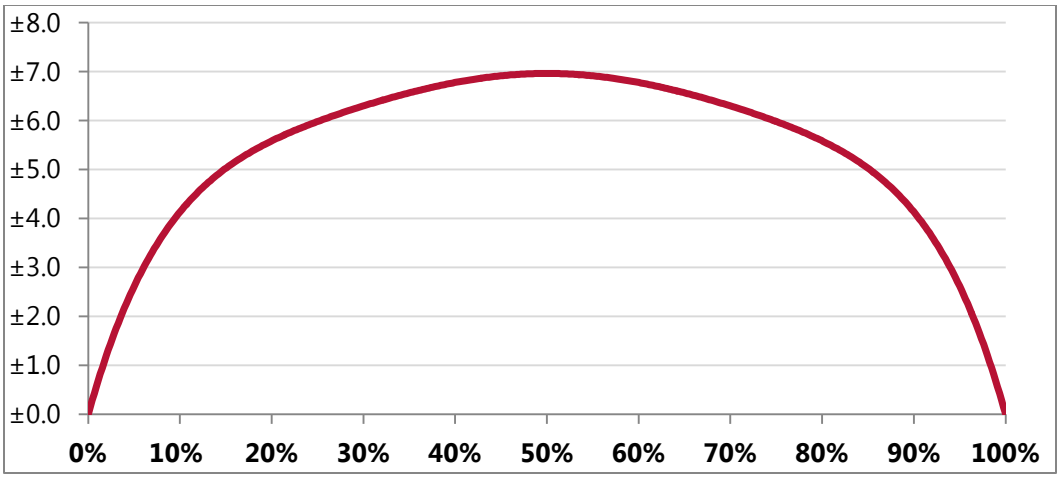
To ensure the best representation of the population surveyed, a telephone interview methodology (one that incorporates both landline and cell phone interviews) was employed. The primary advantages of telephone interviewing are timeliness, efficiency and random-selection capabilities.

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.

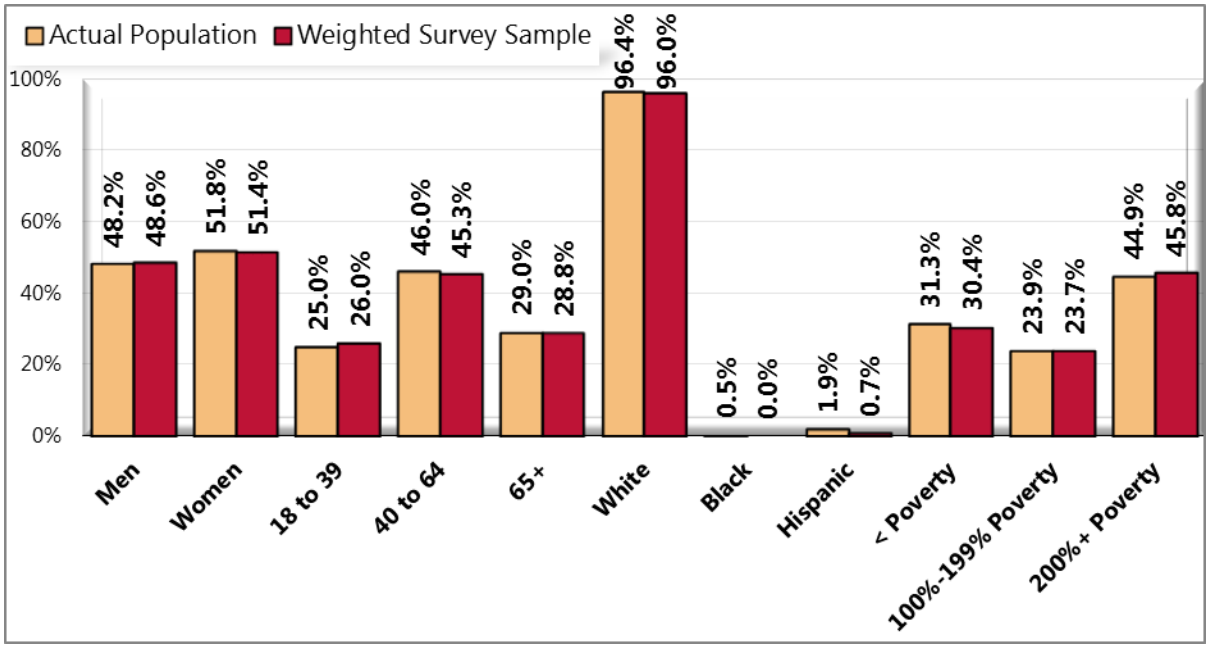
Sample Characteristics

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 and Sample Characteristics

(Clay County, 2012)



Sources:
- Census 2010, Summary File 3 (SF 3). U.S. Census Bureau.
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc.

Notes:
- Hispanics can be of any race. Other race categories are non-Hispanic categorizations (e.g., "White" reflects non-Hispanic White respondents).

Poverty descriptions and segmentation used in this report are based on administrative poverty thresholds determined by the US Department of Health & Human Services. These guidelines define poverty status by household income level and number of persons in the household *(e.g., the 2012 guidelines place the poverty threshold for a family of four at $23,050 annual household income or lower)*. In sample segmentation: "very low income" refers to community members living in a household with defined poverty status; "low income" refers to households with incomes just above the poverty level, earning up to twice the poverty threshold; and "mid/high income" refers to those households living on incomes which are twice or more the federal poverty level.

The sample design and the quality control procedures used in the data collection ensure that the sample is representative. Thus, the findings may be generalized to the total population of community members in the defined area with a high degree of confidence.

Benchmark Data

North Carolina Risk Factor Data

Statewide risk factor data are provided where available as an additional benchmark against which to compare local survey findings; these data are reported in the most recent *BRFSS (Behavioral Risk Factor Surveillance System) Prevalence and Trend Data* published by the Centers for Disease Control and Prevention and the US Department of Health & Human Services.

Nationwide Risk Factor Data

Nationwide risk factor data, which are also provided in comparison charts where available, are taken from the *2011 PRC National Health Survey*; the methodological approach for the national study is identical to that employed in this assessment, and these data may be generalized to the US population with a high degree of confidence.

Healthy People 2020

Healthy People provides science-based, 10-year national objectives for improving the health of all Americans. The Healthy People initiative is grounded in the principle that setting national objectives and monitoring progress can motivate action. For three decades, Healthy People has established benchmarks and monitored progress over time in order to:

- Encourage collaborations across sectors.
- Guide individuals toward making informed health decisions.
- Measure the impact of prevention activities.

Healthy People 2020 is the product of an extensive stakeholder feedback process that is unparalleled in government and health. It integrates input from public health and prevention experts, a wide range of federal, state and local government officials, a consortium of more than

2,000 organizations, and perhaps most importantly, the public. More than 8,000 comments were considered in drafting a comprehensive set of Healthy People 2020 objectives.

Survey Administration

Pilot Testing & Quality Assurance

Before going into the field in the latter half of May, PRC piloted 30 interviews across the region with the finalized survey instrument. After this phase, PRC corrected any process errors that were found, and discussed with the consulting team any substantive issues that needed to be resolved before full implementation.

PRC's methods and survey administration comply with current research methods and industry standards. To maximize the reliability of research results and to minimize bias, PRC follows a number of clearly defined quality control protocols. PRC uses a telephone methodology for its community interviews, in which the respondent completes the questionnaire with a trained interviewer, not through an automated touch-tone process.

With more than 700 full- and part-time interviewers who work exclusively with healthcare and health assessment projects, PRC uses a state-of-the-art, automated CATI interviewing system that assures consistency in the research process. Furthermore, PRC maintains the resources to conduct all aspects of this project in-house from its headquarters in Omaha, Nebraska, assuring the highest level of quality control.

Random-Digit Dialing

PRC employs the latest CATI (computer-aided telephone interviewing) system technology in its interviewing facilities. The system PRC uses is a hybrid variation of a commercial application enhanced with internally developed software applications designed to specifically meet the needs of its health care client base. Since 1998 PRC has maintained, refined and developed proficiency in using this CATI system.

The CATI system automatically generates the daily sample for data collection using a random-digit dialing technique, retaining each telephone number until the Rules of Replacement (see description, below) are met. Up to five call attempts are made on different days and at different times to reach telephone numbers for which there is no answer. Systematic, unobtrusive electronic monitoring is conducted regularly by supervisors throughout the data collection phase of the project.

Rules of Replacement

Replacement means that no further attempts are made to connect to a particular number, and that a replacement number is drawn from the sample. To retain the randomness of the sample, telephone numbers drawn for the sample are not discarded and replaced except under very specific conditions.

Minimizing Potential Error

In any survey, there exists some degree of potential error. This may be characterized as sampling error (because the survey results are not based on a complete census of all potential respondents within the population) or non-sampling error (e.g., question wording, question sequencing, or through errors in data processing). Throughout the research effort, Professional Research Consultants makes every effort to minimize both sampling and non-sampling errors in order to assure the accuracy and generalizability of the results reported.

Noncoverage Error. One way to minimize any effects of underrepresentation of persons without telephones is through poststratification. In poststratification, the survey findings are weighted to key demographic characteristics, including gender, age, race/ethnicity and income.

Sampling Error. Sampling error occurs because estimates are based on only a sample of the population rather than on the entire population. Generating a random sample that is representative and of adequate size can help minimize sampling error. Sampling error, in this instance, is further minimized through the strict application of administration protocols. Poststratification, as mentioned above, is another means of minimizing sampling error.

Measurement Error. Measurement error occurs when responses to questions are unduly influenced by one or more factors. These may include question wording or order, or the interviewer's tone of voice or objectivity. Using a tested survey instrument minimizes errors associated with the questionnaire. Thorough and specific interviews also reduce possible errors. The automated CATI system is designed to lessen the risk of human error in the coding and data entry of responses.

Information Gaps

While this assessment is quite comprehensive, it cannot measure all possible aspects of health in the community, nor can it adequately represent all possible populations of interest. It must be recognized that these information gaps might in some ways limit the ability to assess all of the community's health needs.

For example, certain population groups (such as the homeless, institutionalized persons, or those who only speak a language other than English or Spanish) are not represented in the survey data. Other population groups (for example, pregnant women, lesbian/gay/bisexual/transgender residents, undocumented residents, and members of certain racial/ethnic or immigrant groups) might not be identifiable or might not be represented in numbers sufficient for independent analyses.

In terms of content, this assessment was designed to provide a comprehensive and broad picture of the health of the overall community. However, there are certainly a great number of medical conditions that are not specifically addressed.

Listening Sessions (if applicable) (Primary Data)

In addition, in our county, community members and partners were involved in:

- Three meetings of the Clay County Healthy Carolinians Partnership Steering Committee.
- Board of Health
- Three community listening sessions:

-Clay County School Health Advisory Committee
-Daycare Workers
-Community health providers including physicians, and representatives of the county health department, mental health, Murphy Medical Center and elder services.

Concerns about access to care were the most predominant issue in all listening sessions. More thirty-percent of our population does not have any form of health insurance. It is the working poor that are affected the most. Self-employed workers cannot afford health insurance so they take their chances and hope for the best.

Children eating habits and what their parents pack for the kids' lunch and snacks were a concern. Need more education for parents on childhood obesity and how what they eat affects their overall health. Need to get kids more physically active.

Grandparents' raising their grandkids is an issue in our area. The breakdown of the "traditional" family has put a strain on families. Kids suffer the consequences and concern about how children are being cared for or the lack of care they are receiving. We will continue to work with our local Communities in School, DSS, and school nurses to identify the kids who need help.

Health Resource Inventory

A list of available health and human services was obtained via 2-1-1

Calls were requesting information about foster care and temporary shelter for animals. Others asked about how to get in contact with the local homeless shelter. There were requests for housing expense assistance and utility services payment assistance.

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 <u>not</u> to be used for interviewing in its current form. The notes in this survey do not have supporting logic, and this survey did not receive the review that the individual child surveys received from quality assurance.

Version:(1.0) 6/14/2012 1

APPENDIX C - HEALTH RESOURCE INVENTORY

Attached is a copy of our Health Resource Inventory List, and greater details on these services can be accessed by calling 2-1-1 to speak to a trained staff person or visiting www.NC211.org.

APPENDIX D - LISTENING SESSION AND/OR KEY INFORMANT INTERVIEW GUIDE (IF APPLICABLE)

In addition, in our county, community members and partners were involved in:

- Three meetings of the Clay County Healthy Carolinians Partnership Steering Committee.
- Board of Health
- Three community listening sessions:

-Clay County School Health Advisory Committee
-Daycare Workers
-Community health providers including physicians, and representatives of the county health department, mental health, Murphy Medical Center and elder services.

Concerns about access to care were the most predominant issue in all listening sessions. More thirty-percent of our population does not have any form of health insurance. It is the working poor that are affected the most. Self-employed workers cannot afford health insurance so they take their chances and hope for the best.

Children eating habits and what their parents pack for the kids' lunch and snacks were a concern. Need more education for parents on childhood obesity and how what they eat affects their overall health. Need to get kids more physically active.

Grandparents' raising their grandkids is an issue in our area. The breakdown of the "traditional" family has put a strain on families. Kids suffer the consequences and concern about how children are being cared for or the lack of care they are receiving. We will continue to work with our local Communities in School, DSS, and school nurses to identify the kids who need help.