Henderson County Community Health Assessment

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HENDERSON COUNTY COMMUNITY HEALTH ASSESSMENT

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

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EXECUTIVE SUMMARY

Overview of CHA Purpose and Process

Community health assessment (CHA) is the foundation for improving and promoting the health of county residents. Community-health assessment is a key step in the continuous community health improvement process. Local health departments across North Carolina are required to conduct a comprehensive community health assessment at least every four years. 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. In Western North Carolina, hospitals define their community as one or more counties for this process. Henderson County is included in Pardee Hospital's and Park Ridge Health's community for the purposes of community health improvement and investment, and as such, both hospitals were key partners in this local level assessment process.

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 collaborated to conduct community health (needs) assessments across Western North Carolina.

Henderson County conducted a Community Health Assessment in 2011 as required by the NC Department of Health and Human Services. Having met the state requirement, this 2012 Community Health Assessment was conducted to work with local hospitals on a Community Health Needs Assessment and to collaborate with Western North Carolina Healthy Impact's regional assessment initiative.

This Community Health Assessment report combines assessment activities and research from 2011 and 2012, and is based on both primary and secondary data sources. For the primary data collection phase of our regional efforts, a survey vendor, Professional Research Consultants, Inc., (PRC), was hired to administer a region-wide telephone survey. In the random-sample survey, 200 community members participated in a phone survey 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, eleven listening sessions were conducted in Henderson County in 2011 to identify the community's perceptions and concerns about community health and other issues important to residents. Questions were developed with the intent to discover the community's viewpoint and concerns about life in the community, health concerns, and other issues important to residents. Various partners and community members were also engaged at the local level. Secondary data was gathered from a wide range of sources.

Selected Health Priorities

In November 2011, after reviewing the surveys and considering input from the Board of Health, the three top priorities for Henderson County for 2011-2015 were selected:

- ☑ *Obesity*
- ☑ *Substance Abuse/Prescription Drug Abuse*
- ☑ *Access to Mental Health Care*

In October 2012, key leaders from the Department of Public Health, Pardee Hospital, and Park Ridge Health met to review the new data and determine if new health priorities should be identified. New data supported the need for the three priorities to remain the focus in the new Community Health Assessment. In addition to the three priorities selected in 2011, two additional priorities were also identified:

- ☑ *Prenatal and Maternal Health*
- ☑ *Need for Disease Prevention, Screening, and Early Detection*

Health officials recognized the gains made over the past few years in reducing infant mortality, reducing the number of mothers who smoked during pregnancy, and the increase in mothers receiving prenatal care during the first trimester, and wanted to continue efforts to maintain and improve these areas. Early prenatal care helps assure the healthiest pregnancies and the best birth outcomes possible. Babies of mothers who do not get prenatal care are three times more likely to have a low birth weight and five times more likely to die than those born to mothers who do get care.

There was also recognition that prevention, screening, and early detection are critical in improving morbidity and mortality. The four leading causes of death in Henderson County, heart disease, cancer, chronic lower respiratory disease, and cerebrovascular disease are related to lifestyle and behavior. Smoking, high blood pressure, and overweight-obesity are all preventable risk factors, and are responsible for the largest number of deaths in the US. Early detection of cancer greatly increases the chances for successful treatment. The breast cancer incidence rate in Henderson County rose 8.4% between 1999 and 2009, and the prostate cancer incidence rate increased 45.3% from 1999 to 2009. Prostate cancer was the third leading cause of cancer deaths between 2006 and 2010. Education and screening are the two major components of early detection.

General Review of Data and Trends

Demographics

Henderson County has a large elderly population due to a favorable climate and regional location for retirees. Twenty-two percent of the population is in the 65-and-older age group, compared to 19.0% region-wide and 12.9% statewide. While Henderson County is a retirement

mecca, the elderly, regardless of income, can be isolated and need mobile meals, services for independent living, nursing care, and socialization.

In terms of racial and ethnic diversity, Henderson County is slightly more diverse than WNC but less diverse than NC as a whole. In Henderson County the population is 88.9% white/Caucasian and 11.1% non-white. The proportion of the population that self-identifies as Hispanic or Latino of any race is 9.8% in Henderson County, 5.4% region-wide, and 8.4% statewide.

According to the US Census, between 2000 and 2010 the population of Henderson County grew by 16.5% and the population of Western North Carolina grew by 13.0% . The rate of growth in the county is projected to remain about the same over the next 10 years before slowing to 13.9% in the decade following that.

Health Rankings

In the county health rankings, the Robert Wood Johnson Foundation/University of Wisconsin Population Health Institute initiative, Henderson County ranked 17 out of 100 counties in North Carolina. Counties are ranked on both health outcomes (how healthy they are) and health factors (how healthy they can be). The county has moved up in the rankings from 33 in 2010 and 28 in 2011.

Mortality

Life expectancy overall in Henderson County (78.4 years) is 1.4 years longer than the life expectancy in WNC (77.0 years), where life expectancy is 0.3 years shorter than for the state as a whole (77.3 years).

The five leading causes of death by rank order in Henderson County are heart disease, total cancer, chronic lower respiratory disease, cerebrovascular disease, and Alzheimer's disease. These match the rank order for WNC from the first through the fourth positions. Four of the first seven county mortality rates (for heart disease, total cancer, cerebrovascular disease, and pneumonia/influenza) are lower than the comparable rates for the state.

Henderson County is a relatively healthy county and has death rates lower than the region and the state in the following areas: heart disease, cancer, lung cancer, breast cancer, prostate cancer, colorectal cancer, cerebrovascular disease, diabetes, pneumonia and influenza, unintentional motor vehicle deaths , kidney disease, and septicemia. In addition, lung cancer and colorectal incidence rates are also lower than the region and the state.

Health concerns where Henderson County is higher than the region and the state include Alzheimer's disease deaths, cancer incidence as a whole, and breast and prostate cancer incidence.

The infant mortality rate for Henderson County was lower than the comparable rate in WNC and NC, and improved overall from 6.4 in the 2002-2006 period to 5.7 in the 2006-2010 period, a decrease of 10.9%.

Morbidity

Morbidity 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. The parameter most frequently used to describe the current extent of any condition of morbidity in a population is *prevalence*.

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 in the US 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. The estimated prevalence of diagnosed obesity among adults in Henderson County rose from 24.1% in 2005 to a high of 26.6% in 2007 and dropped to 24.3% in 2009, with prevalence percentages in the 26% range in the three intervening years.

The prevalence of *overweight* among children ages 2-4 was higher in Henderson County (18.2%) than in WNC (17.2%) or NC as a whole (16.1%). The prevalence of *obesity* in Henderson County 2-4 year-olds (14.1%) was higher than the mean prevalence in WNC (13.6%) but lower than the prevalence in NC as a whole (15.6%).

The estimated prevalence of diagnosed diabetes among adults in Henderson County rose overall from 7.3% in 2005 to 7.9% in 2009, an increase of 8.2%. In WNC the estimated mean percent prevalence of diagnosed diabetes among adults rose from 8.5% in 2005 to 9.0% in 2009, an increase of 5.9%.

It is estimated that there are approximately 2.8 million new cases of chlamydia in the US each year. Chlamydia infection is far less prevalent in Henderson County than in NC, and slightly less prevalent than in WNC. In WNC, the mean chlamydia infection rate, which varied between 136.9 and 241.5, was 57% to 66% lower than the comparable rate for NC as a whole between 2007-11. 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 Henderson County over the same period the chlamydia infection rate increased 24.9%, from 156.0 to 194.9.

Gonorrhea is the second most commonly reported bacterial sexually transmitted infections in the US. The gonorrhea incidence rate in Henderson County was much lower than the NC rate, but slightly higher than the mean WNC rate. In Henderson County the gonorrhea infection rate decreased 15.7% between 2002 and 2010, falling from 57.9 to 48.8.

Gonorrhea infection displays a strong racial disparity in Henderson County. In Henderson County between 2006-2010, the gonorrhea infection rate was highest among African American non-Hispanics (430.6) followed by Hispanics (85.7) and white non-Hispanics (30.0).

Pregnancy and Birth

In Henderson County the teen pregnancy rate is highest among Hispanic girls (81.0), followed by African-American non-Hispanic girls (73.3) and white, non-Hispanic girls (45.8).

The percentage frequency of smoking during pregnancy in Henderson County was lower than the comparable mean percentage for WNC, but higher than the percentage statewide. The frequency of smoking during pregnancy in Henderson County, WNC and NC all improved between 2001-09, by 16.3% in Henderson County, by 8.0% in WNC, and by 14.7% in NC.

Good pre-conception health and early prenatal care can help assure women the healthiest pregnancies and best birth outcomes possible. The percent of births in Henderson County that included early prenatal care was higher than the mean figure for WNC and higher than the total for NC as a whole. The prenatal care frequency in Henderson County has risen slightly over time, even as the frequencies in the other two jurisdictions have fallen. Overall, the Henderson County percentage rose from 92.6% in 2001-2005 to 93.2% in 2005-2009, an increase of 0.6%. Among Henderson County minority groups, African-Americans utilize early prenatal care at a frequency of 86.3%

Health Behaviors

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. Phone survey results indicate that Henderson County residents are more physically active when compared to others in the region and the nation. On the down side, Henderson County survey respondents eat fewer fruits and vegetables when compared to WNC respondents.

Abuse of prescribed medicines often begins with legitimate use. People who otherwise would not abuse substances find themselves addicted when it is already too late. They begin "doctor shopping" to feed their addiction, and rationalize this behavior as being necessary to manage the pain. According to the Drug Enforcement Administration, doctor shopping is one of the primary ways that addicts obtain prescription drugs for non-medical use.

Methamphetamines and prescription drugs are leading the area in addiction and abuse in the county. Methamphetamine is the leading illegal drug of choice for not only Henderson County but for Western North Carolina.

North Carolina has the 14th highest smoking prevalence in the nation. Tobacco use is the leading cause of preventable death in North Carolina. Approximately 30% of all cancer deaths and nearly 90% of lung cancer deaths – the leading cancer death among men and women – are caused by smoking. In addition, those who smoke have increased risks for heart attack and stroke.

Nearly twenty-one percent of adults in Western North Carolina report smoking in the Behavioral Risk Factor Surveillance System survey. The Healthy NC 2020 goal is 12%. Phone survey results

show that there are fewer smokers and smokeless tobacco users in Henderson County than in the region but more when compared to the nation.

Access to Care

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.

There was a 21% increase in the percent of uninsured adults at the state level from 2006-2007 to 2009-2010. In Henderson County an increase in the 2008-2009 biennium was followed by a nearly equal decrease in the following biennium, so the net change was a 0.4% increase.

In Henderson 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.

In Henderson County, the number and percent of Medicaid-eligible persons rose annually from FY2004 through FY2006 before falling each of the next two years. The annual percent of Medicaid-eligible Henderson County residents was lower than the comparable figures for WNC and NC for each year.

The Medicaid population under age 21 appears to be more likely to utilize dental services than the population age 21 and older. The under 21 age group is higher in Henderson County than in the region and the state.

The number of persons in Henderson County utilizing NC state psychiatric hospital services fell every year from 2007 to 2010, decreasing by 60% over that period. The number of persons in WNC receiving these services also fell. The decrease in persons receiving services likely is a reflection of a decreasing availability of state services, rather than a decreasing need for services.

Increasing numbers of persons in Henderson County and WNC have received services from NC state alcohol and drug treatment centers since 2007. At the regional level, there was a 23% increase in persons being served between 2009 and 2010. In Henderson County there was a net increase of 72% in the number of persons being served between 2007 and 2010.

Environmental Health

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. Henderson County ranks 28th among the state's 86 ranked counties in emitting toxic chemicals. The TRI chemicals released in the greatest quantity in Henderson County include sulfuric acid, methanol, zinc compounds, chromium compounds, and ammonia.

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). Henderson County is among eight counties in NC to historically have had the highest levels of radon, exceeding, on average, 4 pCi/L (pico curies per liter).

Next Steps

Data collection and prioritization are just the beginning steps in understanding and addressing priority health needs in a community. A community health improvement planning process uses CHA data to develop and implement strategies for action and establishes accountability to ensure measurable health improvement.

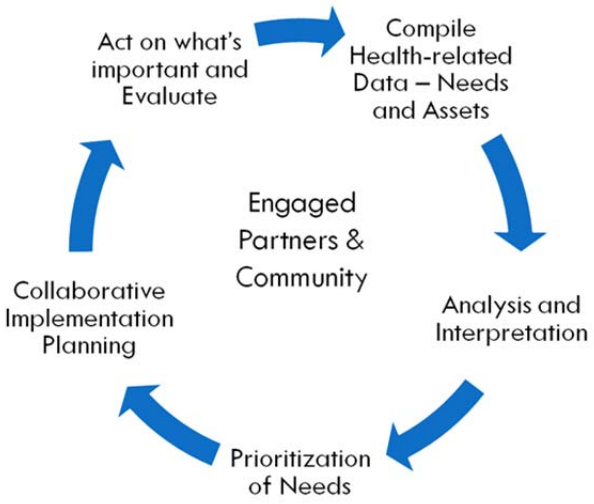
Henderson County, will work with our local hospitals and community partners on collaborative action planning which results in a Community Health Improvement Plan (CHIP). This planning process will begin in early 2013. Work groups will consist of county residents and representatives of agencies/organizations with special expertise or interest in the issue, and/or those who are affected by the issue. Community Health Assessment Action Plan Teams will develop plans of action for addressing each of the five health priorities. This includes tools for developing intervention and prevention activities. Action Plans will be completed by June 2013 and submitted to the NC Division of Public Health.

If you have questions about this report, or if you would like more information on becoming involved with new projects or serving on the Community Health Assessment Action Teams, please contact the Henderson County Department of Public Health at 828-692-4223.

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, which refers both to a process and a document, investigates and describes the current health status of the community; what has changed since the last 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 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 and is 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 of this process as well. For a list of the Henderson County representatives and their role in the CHA process, see Appendix A.

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. Henderson County is included in Pardee Hospital's and Park Ridge Health's community for the purposes of community health improvement and investment, and as such, both hospitals were key partners 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, Professional Research Consultants, Inc., (PRC), was hired to administer a region-wide telephone survey. Various partners, coalitions, and community members were 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 determined 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 B 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,* survey data reported by the survey vendor (PRC), or listening sessions conducted in Henderson County.

Listening Sessions

During July 2011, eleven listening sessions were conducted in Henderson County to identify the community's perceptions and concerns about community health and other issues important to residents. Groups consisted of 8-10 people. Groups are listed in Appendix C. The groups were selected in order to gain information from or about segments of the community with a focus on demographics: race, ethnicity, and age; disparate populations: including lower income adults, elderly, ethnic populations; and professionals and service providers who work with these populations.
Goals of the listening sessions were to:

- Gain an understanding of the health concerns within the community (concerns)
- Gain an understanding of the health care systems within the community (services and resources)
- Identify the factors that affect the health of the community (determinants) and
- Determine the availability of health resources within the community (services and resources)

Questions were developed with the intent to discover the community's viewpoint and concerns about life in the community, health concerns, and other issues important to residents. Participants were asked how they define a "healthy community", how people stay healthy, what they thought were the most serious health problems in the community, challenges to meet health care needs, and ways to improve the health or county residents. Specific questions from the listening sessions are listed in Appendix D. Participant comments are noted and italicized throughout the report.

Health Resources Inventory

The Health Resource Inventory was developed as a catalog including a list of agencies, organizations, providers, and other entities that affect the health of our county. Agency and organization webpages were reviewed and calls were made to clarify and/or check accuracy. The complete Health Resource Inventory can be found in Appendix E.

United Way's 2-1-1 Annual Report for Henderson County (2011) was also used to assess local resources and needs. 2-1-1 is an information and referral service that links people to community

health and human services. Resources are available through phone (free, confidential, 24/7) and the web. See Chapter 8 for data on most common requests and unmet needs of callers to 2-1-1.

Definitions & Data Interpretation Guidance

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

Health data, which composes a large proportion of the information included in this report, employs a series of very specific terms which are important to interpreting the significance of the data. While these technical health data terms are defined in the report at the appropriate time, there are some data caveats that should be applied from the onset. See Appendix B 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 participated in a phone survey 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. The Community Health Survey Instrument can be viewed in Appendix G.

The community was also involved as members of the Henderson County Community Health Assessment team. The Team consisted of a group of community residents and representatives from strategic organizations who represented the community as a whole. The composition of this team included representatives from the health and human services, non-profits, education, law enforcement, government, and community volunteers. Team members are listed in Appendix A.

A Masters in Public Health student from the University of North Carolina – Chapel Hill worked with the Department of Public Health during summer 2011 to gather primary data through eleven listening sessions and twenty key informant interviews.

Completing the Community Health Assessment and identifying priorities is just the first step. Educating the community about health issues and developing interventions and strategies to address the health problems will follow. Where we live, learn, work, and play influences how healthy we are and how long we live. This is the true value of the Community Health Assessment; improving and promoting the health of Henderson County residents.

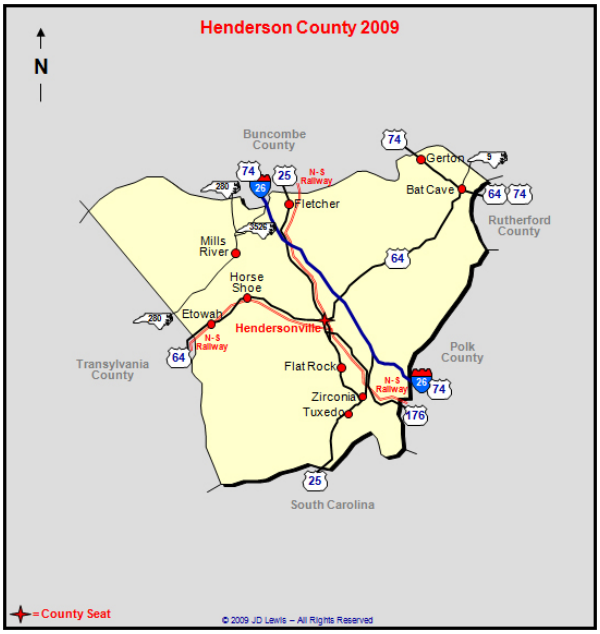
Priority Setting

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

Henderson County is in the western section of the State and is bordered by the state of South Carolina and Transylvania, Haywood, Buncombe, Rutherford and Polk counties. The present land area is 374 square miles. Henderson County is considered a "typical" mountain county because it is comprised of mountain ranges, isolated peaks, a rolling plateau, and level valley areas. Elevations range from 1,400 feet near Bat Cave at the foot of the Blue Ridge Mountains to 5,000 feet on Little Pisgah Mountain. Interstate 26 runs through Henderson County. Hendersonville is the county seat and is 120 miles to the nearest major city, which is Charlotte. Henderson County also includes the municipalities of Flat Rock, Mills River, and Fletcher. Townships in the county include Mills River, Hoopers Creek, Edneyville, Clear Creek, Blue Ridge, Hendersonville, Crab Creek, and Green River.



The nearest commercial airport is Asheville Regional Airport, which is located on the Henderson/Buncombe county line off Interstate 26.

History

Henderson County's flourishing history can be traced back to its settlement in the eighteenth century by William Mills and his wife Eleanor who made their home in the Fruitland area, where they raised their family of seven children. Each year, Mr. Mills planted hundreds of fruit trees, and seeing them thrive, his neighbors began imitating him. Thus William Mills became the father of the county's apple industry, the forerunner of the multi-million dollar production of today. As in many other areas of Western North Carolina, the county's history has close ties to agriculture. In fact, agriculture was the primary livelihood of most of Henderson County's residents during the eighteenth century. Their major crops were corn, wheat, rye, grass, potatoes, cabbage, and, of course, the king of crops - apples. Another source of revenue for many settlers came from early tourism. Prior to its incorporation in the early 1800's, the Hendersonville-Flat Rock area became a popular summer resort for wealthy South Carolina planters and dwellers who wished to escape the intense heat, insects, and diseases of the Low Country.

Early on, eight townships provided leadership within Henderson County. The county's townships were: Hendersonville, Blue Ridge, Green River, Edneyville, Mills River, Hoopers Creek, Crab Creek and Clear Creek. These townships were active and became the foundation for the county as we know it today. Prior to 1879, dusty dirt roads maintained by township residents provided the only means of transportation. Many of the roads were first built in the period between 1800 and 1840. At that time the county was rural and sparsely populated by people living primarily off the land. However, this soon changed with the introduction of the railroad. The railroad brought a degree of urbanization and industrialization to Henderson County by making it easier to travel and to ship products. Railroads became the basis for additional settlement, the provision of jobs, and the creation of stores, businesses, and industries. The railroad also brought seasonal visitors, which was the beginning of a long-lasting travel and tourism industry.

Henderson County Government had its official beginning in 1838 when it was formed from Buncombe County. The county was named in honor of Judge Leonard Henderson, Chief Justice of the Supreme Court of North Carolina. On July 15, 1905, W.F. Edwards, general contractor, presented the keys of what is now known as the Historic Courthouse to the Board of County Commissioners. This courthouse was occupied by government agencies until April 1995, when a new courthouse was opened on Grove Street in Hendersonville. Judge Mitchell King donated fifty acres of land from his summer estate for the county seat, Hendersonville, in 1841. Hendersonville was incorporated 6 years later on January 7, 1847. As is the case today, the City of Hendersonville was the hub of activity for the county in these early days.

The county's history provides a good backdrop for describing the county of the recent past and the present. Much of what made the Hendersonville/Flat Rock area popular in the early 1800s makes it so today. Henderson County continues to be recognized as a summer community. This reputation has expanded such that the county has become a retirement haven. However, with a diverse and strong economic base made up of manufacturing, retail sales, agriculture, tourism, and service trades, the county attracts people of all ages with interests ranging from career advancement and educational opportunities to peaceful surroundings for summer vacations and retirement.

The County's close ties to agriculture have also supported its prosperity. Henderson County continues to be North Carolina's largest apple producer and is the home of the North Carolina Apple Festival each year. Other agricultural industries within the county also continue to prosper. Many of the county's landowners are committed to continuing agriculture both because of its tradition and because of its importance to the economic diversity of the community.

Population

Understanding the growth patterns and age, gender and racial/ethnic distribution of the population in Henderson 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 Henderson County is 106,704. In Henderson County, the region, and the state, there is a slightly higher proportion of females than males (51.7% vs. 48.3%).

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

Geography	Total Population (2010)	# Males	% Males	# Females	% Females
Henderson County	106,704	51,560	48.3	55,180	51.7
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

The 65 and older population will double in NC in the next 20 years. Henderson County has a large elderly population due to a favorable climate and regional location for retirees. Twenty-two percent 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 Henderson County is 45.4, while the regional mean median age is 44.7 years and the state median age is 37.4 years. While Henderson County is a retirement mecca, the elderly, regardless of income, can be isolated and need mobile meals, services for independent living, nursing care, and socialization. Henderson County's aging population will require additional services to meet this growing demand.

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
Henderson County	45.4	6,013	5.6	17,917	16.8	58,945	55.2	23,865	22.4
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, Henderson County is slightly more diverse than WNC but less diverse than NC as a whole. In Henderson County the population is 88.9% white/Caucasian and 11.1% 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 9.8% in Henderson 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)
Henderson County	88.9	3.0	0.4	1.0	0.2	4.6	1.9	9.8
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

According to the US Census, between 2000 and 2010 the population of Henderson County grew by 16.5% and the population of Western North Carolina grew by 13.0% (Table 4). The rate of growth in the county is projected to remain about the same over the next 10 years before slowing to 13.9% in the decade following that. These future county decadal growth rates are larger than the figures projected for WNC and for NC as a whole over the same period.

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

Geography	% Total Population Growth			
	2000 to 2010	2010 to 2020	2020 to 2030	2000 to 2030
Henderson County	16.5	16.3	13.9	58.6
Regional Total	13.0	11.6	9.6	38.2
State Total	15.6	11.3	9.6	44.5

The growth rate of a population is a function of emigration and death rates on the negative side, and immigration and birth rates on the positive side. As illustrated by the data in Table 5, the birth rate in Henderson County, higher than the comparable mean WNC rate but lower than the NC rate, remained steady at around 12% every period between 2002-2006 and 2005-2009, before falling (Table 5) slightly in 2006-2010, to 11.6. 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
Henderson County	11.9	12.1	12.0	11.9	11.6
Regional Arithmetic Mean	10.8	10.8	10.8	10.7	10.5
State Total	14.2	14.2	14.2	14.1	13.8

Older Adult Population Growth Trend

As noted previously, the age 65-and-older segment of the population in Henderson County represents a larger proportion of the overall population than in WNC and 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 Henderson County between 2010 and 2030 is 18.8% for the 65-74 age group, 36.8% for the 75-84 age group, and 38.7% for the 85+ age group. In WNC as a whole, the 65-74 age group is projected to grow by 24.0%, the 75-84 age group by 52.5%, and the 85+ age group by 40.0% over the same period of time.

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

Geography	2010 Census Data				2020 (Projected)				2030 (Projected)			
	Total % Age 65 and Older	*% Age 65-74**	*% Age 75-84*	*% Age 85+*	% Age 65 and Older	% Age 65-74	% Age 75-84	% Age 85+	% Age 65 and Older	% Age 65-74	% Age 75-84	% Age 85+ *
Henderson County	22.4	11.7	7.6	3.1	26.5	14.1	8.9	3.6	28.5	13.9	10.4	4.3
Regional Total	19.0	10.4	6.1	2.5	23.5	13.2	7.4	2.9	25.7	12.9	9.3	3.5
State Total	12.9	7.3	4.1	1.5	16.6	9.9	4.9	1.8	19.3	10.6	61.8	2.2

Composition of Families with Children

Data in Table 7 illustrates that the percentage of households with children headed by a married couple is slightly larger in Henderson County than in WNC (18.9% vs. 17.2%) but smaller than the comparable figure for NC as a whole (18.9% 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. #	%
Henderson County	45,109	8,533	18.9	770	1.7	2,162	4.8
Regional Total	318,280	54,822	17.2	5,322	1.7	17,134	5.4
State Total	3,626,179	729,708	20.1	78,051	2.2	282,131	7.8

* A household includes all the people who occupy a housing unit. The occupants may be a single family, one person living alone, two or more families living together, or any other group of related or unrelated people who share living arrangements.
** A family consists of a householder and one or more other people living in the same household who are related to the householder by birth, marriage, or adoption. All people in a household who are related to the householder are regarded as members of his or her family. A family household may contain people not related to the householder, but those people are not included as part of the householder's family in tabulations.
*** Family composition percentages are based on total number of households. Numerator is number of family households (headed by male, female or married couple) with children under 18 years; denominator is total number of households.

In Henderson County, 46.9% 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. #	%
Henderson County	2,004	940	46.9
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 Henderson County than in Western NC, NC, or the US as a whole. Calculating from figures in Table 9, veterans make up 14.4% of the civilian population in Henderson County, compared to 12.4% in

the WNC region, 10.8% statewide, and 9.9% nationally. In Henderson County, approximately 55% 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
Henderson County	82,357	11,888	70,469	3.2	18.5	23.6	23.9	30.8
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, Henderson County had a 14.6% lower proportion than WNC as a whole of residents age 25 or older possessing a high school diploma or its equivalent (27.5% vs. 32.2%), and an approximately 2.5% lower proportion than NC as a whole (27.5% vs. 28.2%). In 2006-2010 the county had a higher proportion (23.5%) of residents age 25 and older with some college than either WNC (20.5%) or NC (20.9%). At the bachelor's and greater level, the proportional attainment in the county (27.3%) was 35.1% higher than the comparable mean regional figure (20.2%) and 4.6% higher than the statewide figure (26.1%).

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

Geography	2005-2009				2006-2010			
	Total Population Age 25 Years and Older	% High School Graduation Rate (Includes equivalency)	% Some College	% Bachelor's Degree or Higher	Total Population Age 25 Years and Older	% High School Graduation Rate (Includes equivalency)	% Some College	% Bachelor's Degree or Higher
Henderson County	72,642	28.4	21.9	26.0	75,775	27.5	23.5	27.3
Regional Total	511,076	n/a	n/a	n/a	532,838	n/a	n/a	n/a
Regional Arithmetic Mean	31,942	32.2	19.6	19.9	33,302	32.2	20.5	20.2
State Total	5,940,248	28.6	20.4	25.8	6,121,611	28.2	20.9	26.1

Drop-Out Rate Trend

There are 17 school districts in the WNC region, one per county plus Asheville City Schools. Table 11 displays the high school drop-out rates for Henderson County as well as a mean drop-out rate for the WNC region and an average rate for NC. The drop-out rate in Henderson County was lower than the comparable mean WNC and NC rates for every school year cited in the table. The drop-out rate fell each school year from 2006-2007 through 2010-2011 in the region and the state; in Henderson County the rate fell each year from SY2007-2008 through SY2010-2011.

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
Henderson County Schools	161	4.01	177	4.41	126	3.17	103	2.57	92	2.28
Regional Total	1,756	n/a	1,651	n/a	1,385	n/a	1,129	n/a	1,019	n/a
Regional Arithmetic Mean	n/a	5.66	n/a	5.58	n/a	4.51	n/a	3.61	n/a	3.36
State Total	23,550	5.27	22,434	4.97	19,184	4.27	16,804	3.75	15,342	3.43

Current High School Graduation Rate

The four-year cohort graduation rates for subpopulations of 9th graders entering high school in SY2007-2008 and graduating in SY2010-2011 are presented in Table 12. Region-wide, the mean graduation rates for all subpopulations exceeded the comparable rates for NC as a whole. In Henderson County the rates for all subpopulations were higher than the comparable rates for WNC and the state as a whole.

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
Henderson County Schools	992	82.9	80.0	85.8	78.1	76.0
Regional Total	7,545	78.8	75.2	82.5	72.0	57.2
State Total	110,377	77.9	73.8	82.2	71.2	48.1

Income

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

Median Household and Family Income

As calculated from the most recent estimate (2006-2010) displayed in Table 13, the median *household* income in Henderson County was $46,446, compared to a mean WNC median household income of $37,815, a difference of $8,631 *more* in Henderson County.

As calculated from the most recent estimate (2006-2010), the median *family* income in Henderson County was $58,381, compared to a mean WNC median family income of $47,608, a difference of $10,773 *more* in Henderson County. The median family income in Henderson County was more than $1,000 *higher* than the comparable state average for both periods cited in Table 13, and the difference grew by $1,207 between periods.

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

Geography	2005-2009				2006-2010			
	Median Household Income*		Median Family Income**		Median Household Income		Median Family Income	
	$	$ Difference from State	$	$ Difference from State	$	$ Difference from State	$	$ Difference from State
Henderson County	44,899	-170	56,550	1,021	46,446	876	58,381	2,228
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.) that 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 describes 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 Henderson County was 12.1% in the 2005-2009 period, and rose to 12.7% in the 2006-2010 period; this change represents an increase of 5.0% in the percent of persons living in poverty. In both periods cited, the poverty rate in Henderson County was lower than the comparable rates in both WNC and NC. As calculated from figures in Table 14, the 200%-level poverty rate in Henderson County was 31.0% in the 2005-2009 period and rose to 31.8% in the 2006-2010 period, an increase of 2.6%. In WNC the 200% poverty rate was 42.4% in the 2005-2009 period and rose to 44.9% in the 2006-2010 period, an increase of 5.9%. 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
Henderson County	97,707	11,834	12.1	30,296	101,898	12,979	12.7	32,436
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 Henderson County the 2005-2009 poverty rate for young persons (20.4%) was 68.6% higher than the overall rate (12.1%), and the 2006-2010 poverty rate for young people (20.6%) was 62.2% higher than the overall rate (12.7%). Childhood poverty increased in both WNC and NC between the 2005-2009 and 2006-2010 periods, rising by 5.2% in WNC and 3.8% statewide. During this same interval, childhood poverty in Henderson County increased 11.4%.

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
Henderson County	20,791	4,247	20.4	21,232	4,380	20.6
Regional Total	146,592	31,196	21.3	149,649	33,486	22.4
State Total	2,173,508	452,280	20.8	2,205,704	476,790	21.6

Housing Costs

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

In Henderson County, the percentage of *rental* housing units costing more than 30% of household income was 40.4% in the 2005-2009 period and 43.0% in the 2006-2010 period, an increase of 6.4%. 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 Henderson County costing more than 30% of household income was 32.4% in 2005-2009 and 31.8% in 2006-2010, a decrease of 1.9%. 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 Henderson County, WNC and NC as a whole a higher proportion of renters than mortgage holders spend 30% or more of household income on housing costs.

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

Geography	Renter Occupied Units				Mortgaged Housing Units			
	2005-2009		2006-2010		2005-2009		2006-2010	
	Total Units	% Units Spending >30%	Total Units	% Units Spending >30%	Total Units	% Units Spending >30%	Total Units	% Units Spending >30%
Henderson County	9,873	40.4	10,469	43.0	18,728	32.4	20,160	31.8
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 Henderson County the five sectors employing the greatest proportions of the workforce are, in descending order: (1) Health Care and Social Assistance (19.12%), (2) Manufacturing (15.06%), (3) Retail Trade (13.82%), (4) Accommodation and Food Service (9.04%), and (5) Educational Services (8.34%). 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, represented by the Accommodations and Food Service sector.

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

Sector	Henderson County		WNC	NC
	Avg. No. Employed	% Total Employment in Sector**	% Total Employment in Sector**	% Total Employment in Sector**
Agriculture, Forestry, Fishing & Hunting	876	2.59	0.58	0.74
Mining	21	0.06	0.24	0.08
Utilities	50	0.15	0.36	0.35
Construction	1,577	4.67	4.75	4.53
Manufacturing	5,085	15.06	11.28	11.33
Wholesale Trade	1,074	3.18	2.35	4.38
Retail Trade	4,667	13.82	13.86	11.66
Transportation & Warehousing	694	2.06	2.53	3.27
Information	294	0.87	1.35	1.82
Finance & Insurance	686	2.03	2.25	3.88
Real Estate & Rental & Leasing	266	0.79	0.93	1.23
Professional, Scientific & Technical Services	785	2.32	3.32	4.96
Management of Companies & Enterprises	283	0.84	0.49	2.01
Administrative & Waste Services	2,079	6.16	4.90	6.53
Educational Services	2,818	8.34	9.19	9.58
Health Care & Social Assistance	6,456	19.12	18.52	14.45
Arts, Entertainment & Recreation	644	1.91	1.73	1.58
Accommodation & Food Services	3,052	9.04	11.43	8.95
Public Administration	1,454	4.31	7.18	6.18
Other Services	910	2.69	2.76	2.49
Unclassified	*	n/a	0.00	n/a
TOTAL ALL SECTORS	33,771	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 Henderson County ($36,960) is $4,816 higher than the comparable figure for employees region-wide ($32,144) but $9,812 lower than the average annual wage statewide ($46,772).

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

Sector	Average Annual Wage per Employee		
	Henderson County	WNC	NC
Agriculture, Forestry, Fishing & Hunting	$23,342	$23,145	$28,752
Mining	40,283	41,662	45,828
Utilities	74,059	72,196	76,552
Construction	33,293	31,190	41,316
Manufacturing	50,191	38,443	52,613
Wholesale Trade	38,783	36,182	61,194
Retail Trade	24,926	22,109	24,650
Transportation & Warehousing	40,889	39,117	43,400
Information	39,781	38,682	63,833
Finance & Insurance	51,710	42,881	75,088
Real Estate & Rental & Leasing	27,349	24,051	38,476
Professional, Scientific & Technical Services	43,858	36,584	66,951
Management of Companies & Enterprises	52,643	43,518	88,763
Administrative & Waste Services	22,923	25,753	30,258
Educational Services	31,870	32,604	39,787
Health Care & Social Assistance	39,299	32,843	42,811
Arts, Entertainment & Recreation	23,011	20,936	28,474
Accommodation & Food Services	14,581	14,424	14,877
Public Administration	39,390	33,818	43,641
Other Services	27,026	24,660	28,182
Unclassified	n/a	12,056	n/a
TOTAL ALL SECTORS	$36,960	$32,144	$46,772

Unemployment

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

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

Geography	Annual Average				
	2007	2008	2009	2010	2011
Henderson County	3.5	4.8	9.0	8.7	8.2
Regional Arithmetic Mean	4.9	6.8	11.8	11.8	11.5
State Total	4.8	6.3	10.5	10.9	10.5

Crime

Tables 20-22 present annual crime rates for Henderson 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 Henderson County was higher than the mean WNC index crime rate in every year except 2007, 2009 and 2010. The county rate was lower than the state rate in all years cited in the table. The mean index crime rate in WNC was far lower than the comparable state rate for every year during the decade covered in the table. There is not enough information available from the data source to interpret annual variations in these rates.

Table 20. Index Crime Rate (2001-2010)

Geography	Index Crimes per 100,000 Population									
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Henderson County	2,673.6	2,492.9	2,934.9	3,123.0	3,010.9	2,919.6	2,687.3	2,719.9	2,172.8	2,252.5
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. The violent crime rate in Henderson County was lower than the comparable mean WNC rate in every year cited except 2002 and 2006, and lower than the state rate throughout the period cited. The mean violent crime rate in WNC was significantly lower than the rate for NC as a whole throughout the period cited in the table. According to data from the NC SCHS, there were a total of 148 homicides in the 16 WNC counties during the five-year period from 2006 through 2010, 20 of them in Henderson 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
Henderson County	153.9	197.7	195.7	186.3	229.9	227.0	197.8	151.8	164.7	175.8
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. The property crime rates for Henderson County were

higher than the comparable mean WNC rate for the period from 2001-2008, and lower than the state rate in every year cited. The mean property crime rate for WNC was significantly lower than the comparable rate for NC as a whole from 2001 to 2010.

Table 22. Property Crime Rate (2001-2010)

Geography	Property Crimes per 100,000 Population									
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Henderson County	2,519.6	2,295.2	2,739.2	2,936.8	2,780.9	2,692.6	2,489.5	2,568.1	2,008.1	2,076.7
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

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, initiated 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 Henderson 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	
Henderson County	22	20	3	11	8	47	17

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:

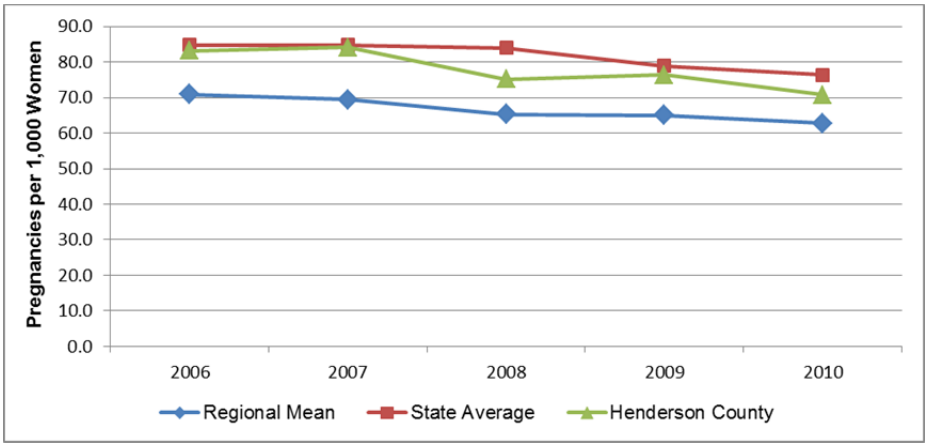
- Reproductive age = 15-44
- Total pregnancies = live births + induced abortions + fetal death at >20 weeks gestation
- Pregnancy rate = number of pregnancies per 1,000 women of reproductive age
- Fertility rate = number of live births per 1,000 women of reproductive age
- Abortion rate = number of induced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

The NC State Center for Health Statistics 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"). Note that regional rates are presented as *arithmetic means* (sums of individual county

rates divided by the number of county rates). These means are approximations of true regional rates, which NC SCHS does not compute.

Data in Figure 1 illustrate that the pregnancy rate for women ages 15-44 in Henderson County was close to the same as the state rate throughout the period cited. The pregnancy rates in all three jurisdictions decreased between 2006 and 2010, by 14.9% in Henderson County, by 11.6% in WNC, and by 9.9% in NC. The 2010 pregnancy rate was 70.8 in Henderson County, 62.7 in WNC, and 76.4 in NC.

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



The minority population in Henderson County is large enough to permit calculation of pregnancy rates stratified by race and ethnicity. Table 25 presents pregnancy rates for the 15-44 year age group for 2010. In Henderson County in 2010 the highest pregnancy rate was among Hispanic women (105.6), followed by other non-Hispanic women (72.2) and African-American non-Hispanic women (69.6). In WNC, the mean pregnancy rate was highest among Hispanic women (111.8), followed by other non-Hispanic women (89.4), and white non-Hispanic women (58.9).

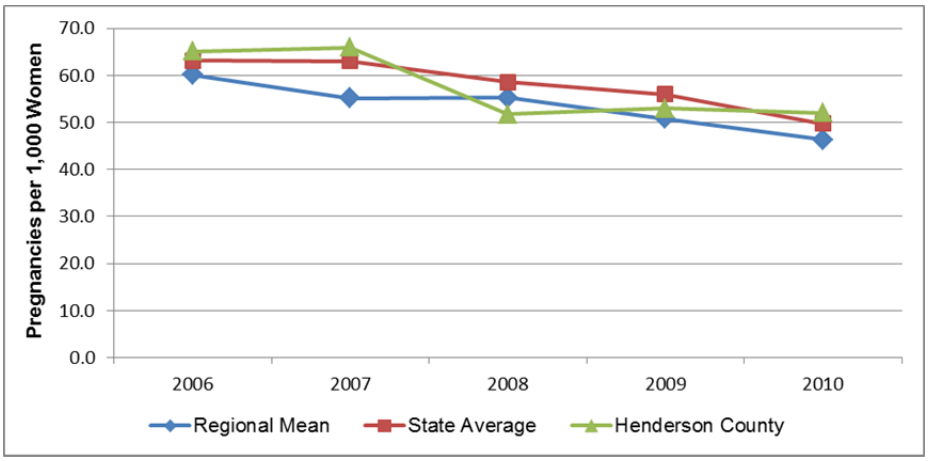
Table 25. Pregnancy Rate, Ages 15-44, by Race
Pregnancies per 1,000 Women
(2010)

County	Total		White Non-Hispanic		African American Non-Hispanic		Other Non-Hispanic		Hispanic	
	#	Rate	#	Rate	#	Rate	#	Rate	#	Rate
Henderson County	1,194	70.8	879	64.9	47	69.6	28	72.2	239	105.6
Regional Total	8,630	n/a	6,835	n/a	490	n/a	336	n/a	962	n/a
Regional Arithmetic Mean	539	62.7	427	58.9	31	*47.3*	21	*89.4*	60	*111.8*
State Total	148,922	76.4	78,671	65.6	40,836	86.1	7,288	84.5	21,573	114.0

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

Data in Figure 2 illustrates that the pregnancy rate for teens (ages 15-19) in Henderson County was higher than the comparable mean WNC and NC rates in three of the five aggregate periods cited. Note that the teen pregnancy rate in all three jurisdictions decreased between 2006 and 2009, by 20.1% in Henderson County, by 22.9% in WNC, and by 21.2% in NC. The 2010 teen pregnancy rate was 52.0 in Henderson County, 46.3 in WNC, and 49.7 in NC.

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



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

The minority population in Henderson County is large enough to permit calculation of teen pregnancy rates stratified by race and ethnicity (Table 26). In Henderson County the teen pregnancy rate is highest among Hispanic girls (81.0), followed by African-American non-Hispanic girls (73.3) and white, non-Hispanic girls (45.8). The rate for other non-Hispanic teens is unstable. In WNC, the mean teen pregnancy rate was highest among Hispanic teens (73.0), followed by African-American non-Hispanic teens (72.2), and other non-Hispanic teens (50.3).

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

County	Total		White Non-Hispanic		African American Non-Hispanic		Other Non-Hispanic		Hispanic	
	#	Rate	#	Rate	#	Rate	#	Rate	#	Rate
Henderson County	138	52.0	96	45.8	11	73.3	2	**40.8**	29	81.0
Regional Total	990	n/a	740	n/a	86	n/a	51	n/a	113	n/a
Regional Arithmetic Mean	62	46.3	46	*42.2*	5	*72.2*	3	*50.3*	7	*73.0*
State Total	15,957	49.7	6,525	34.4	6,292	70.2	609	48.9	2,456	82.7

a– A figure in ***bold italics*** indicates an unstable rate based on a small number of events
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, 2010).

Table 27 presents data on the number and percent of births resulting from pregnancies in which the mother smoked during the prenatal period. The percentage frequency of smoking during pregnancy in Henderson County was lower than the comparable mean percentage for WNC, but higher than the percentage statewide in all of the time periods cited in the table. Note that the WNC means were significantly higher than the comparable percentages statewide in all of the time periods cited in the table. The frequency of smoking during pregnancy in Henderson County, WNC and NC all improved over the period cited, by 16.3% in Henderson County, by 8.0% in WNC, and by 14.7% in NC.

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

Geography	2001-2005		2002-2006		2003-2007		2004-2008		2005-2009	
	#	%	#	%	#	%	#	%	#	%
Henderson County	793	14.1	781	13.6	757	12.8	741	12.3	720	11.8
Regional Total	7,496	22.4	7,442	22.1	7,361	21.7	7,106	21.2	6,919	20.6
State Total	76,712	12.9	74,901	12.4	73,887	11.9	72,513	11.5	70,529	11.0

Late or No Prenatal Care

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

Table 28 shows data summarizing utilization of prenatal care during the first three months of pregnancy. The percent of births in Henderson County that included early prenatal care was higher than the mean figure for WNC and higher than the total for NC as a whole for the entire period cited. The prenatal care frequency in Henderson County has risen slightly over time, even as the frequencies in the other two jurisdictions have fallen. Overall, the Henderson County percentage rose from 92.6% in 2001-2005 to 93.2% in 2005-2009, an increase of 0.6%. Among Henderson County minority groups, African-Americans utilize early prenatal care at a frequency of 86.3% (*Data Workbook*).

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

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

Geography	2001-2005		2002-2006		2003-2007		2004-2008		2005-2009	
	#	%	#	%	#	%	#	%	#	%
Henderson County	5,213	92.6	5,332	92.8	5,483	92.6	5,584	92.8	5,669	93.2
Regional Total	35,375	89.3	35,799	89.0	36,433	88.9	36,806	88.0	37,049	86.9
State Total	497,895	83.5	503,331	83.0	510,954	82.5	519,098	82.1	524,902	82.1

Birth Outcomes

Low Birth Weight

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

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

In Henderson County over the time span 2002-2006 through 2006-2010, the percentage of low birth weight births declined overall from 8.1 to 7.4 (a total of 8.6%). The county low birth weight percentage was lower than the comparable figure for the region and state for every aggregate period cited.

The highest percentage of low birth weight births in Henderson County occurred among black non-Hispanic women (14.7%), followed by white women (7.9%) and Hispanic women (4.8%). Rates for women of other minority groups were unstable based on small numbers of low birth weight births (*Data Workbook*).

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

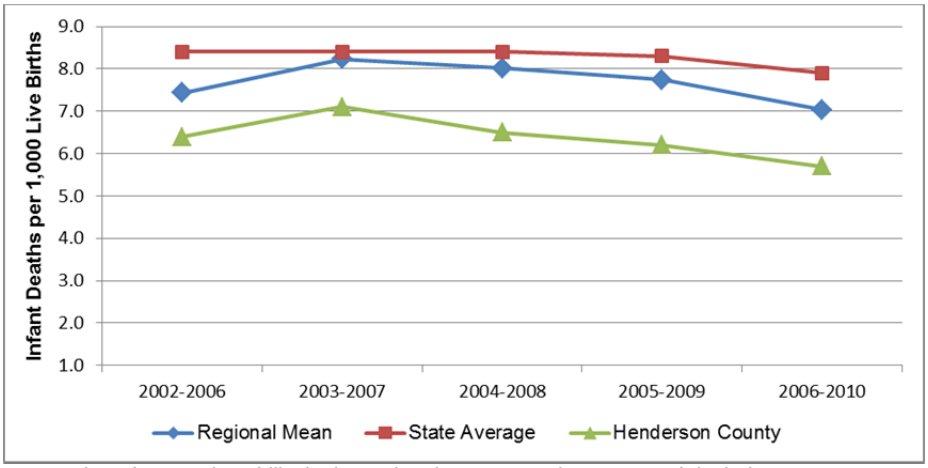
Geography	2002-2006		2003-2007		2004-2008		2005-2009		2006-2010	
	#	%	#	%	#	%	#	%	#	%
Henderson County	465	8.1	481	8.1	466	7.7	476	7.8	442	7.4
Regional Total	3,447	8.2	3,473	8.4	3,467	8.3	3,434	8,2	3,373	8.2
State Total	54,991	9.1	56,541	9.1	57,823	9.1	58,461	9.1	58,260	9.1

Infant Mortality

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

The state's infant mortality rate recently has begun to decrease; after hovering near 8.5 for several years, it was 7.9 in the most recent aggregate period (2006-2010). The mean infant mortality rate for WNC has been lower than the state rate, and appears to be trending in the right direction; the mean WNC infant mortality rate was 7.0 in the 2006-2010 aggregate period. The infant mortality rate for Henderson County was lower than the comparable mean WNC and NC rates throughout the period cited, and improved overall from 6.4 in the 2002-2006 period to 5.7 in the 2006-2010 period, a decrease of 10.9%.

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



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

There is a strong racial component to infant mortality in NC. Statewide in 2006-2010, the infant mortality rate among non-Hispanic African Americans (14.7) was *two and one-half times* the

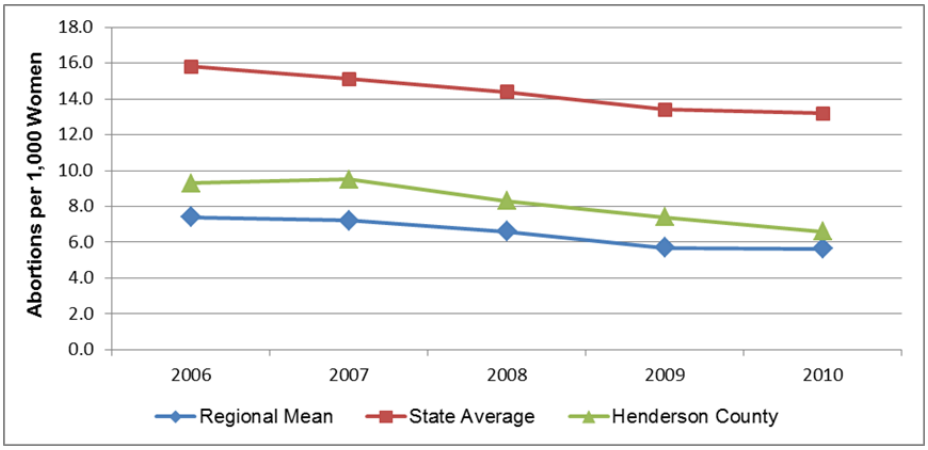
comparable rate among non-Hispanic whites (5.9). Statewide in 2006-2010 the infant mortality rate among non-Hispanic other races was 6.3, and the rate among Hispanics was 5.8 (*Data Workbook*). In Henderson County the numbers of infant deaths among minority groups were below the threshold for calculating stable racially-stratified infant mortality rates.

Abortion

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

The abortion rate in Henderson County was between the mean WNC and NC rates throughout the period cited. From 2006 through 2010 the abortion rate for this age group in Henderson County decreased 29.0%, from 9.3 to 6.6.

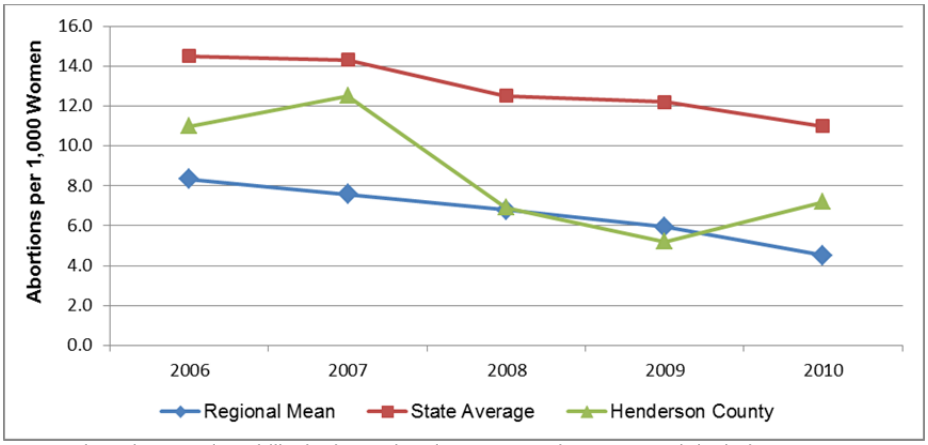
Figure 4. Pregnancies Ending in Abortion, Ages 15-44, per 1,000 Population (Single Years, 2006-2010)



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

Data in Figure 5 show that the mean abortion rate in WNC for teens ages 15-19 was slightly more than half the teen abortion rate for the state as a whole for the first three years cited in the figure and less than half the state rate in the most recent two years. The rate in both jurisdictions fell over the time period cited in the figure, by 45.8% in WNC and by 24.1% in NC. The teen abortion rate in Henderson County was higher than the regional rate but lower than the state rate in three of the five years cited. Between 2006 and 2010 the teen abortion rate in Henderson County fell from 11.0 to 7.2, a decrease of 34.5%.

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



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

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 30 compares the mean rank order of the 15 leading causes of death in Henderson 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, and suicide rank higher as causes of death in WNC than in the state as a whole. Conversely, cerebrovascular disease, kidney disease, and septicemia rank lower as causes of death regionally than statewide.

The leading causes of death by rank order in Henderson County match the rank order for WNC from the first through the fourth positions. Four of the first seven county mortality rates (for heart disease, total cancer, cerebrovascular disease, and pneumonia/influenza) are lower than the comparable rates for the state. Other differences in mortality statistics will be covered as each cause of death is discussed separately below. It should be noted from the onset, however, that for some causes of death (e.g., condition ranked 15 below) there may not be stable county mortality rates, due to small numbers of deaths. Some unstable data will be presented in this document, but always accompanied by cautions regarding its use.

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

Leading Cause of Death	Henderson County		WNC Mean		NC	
	Rank	Rate	Rank	Rate	Rank	Rate
Heart Disease	1	167.3	1	194.4	1	184.9
Total Cancer	2	162.5	2	180.3	2	183.1
Chronic Lower Respiratory Disease	3	47.7	3	51.1	4	46.4
Cerebrovascular Disease	4	40.6	4	44.0	3	47.8
All Other Unintentional Injuries	6	32.5	5	42.9	5	28.6
Alzheimer's Disease	5	35.0	6	30.7	6	28.5
Diabetes Mellitus	9	13.5	7	19.6	7	22.5
Pneumonia and Influenza	7	16.6	8	19.1	9	18.6
Unintentional Motor Vehicle Injuries	11	11.3	9	16.7	10	16.7
Suicide	8	15.0	10	16.7	12	12.1
Nephritis, Nephrotic Syndrome & Nephrosis	10	12.5	11	16.2	8	18.9
Septicemia	13	9.7	12	13.4	11`	13.7
Chronic Liver Disease & Cirrhosis	12	11.0	13	13.2	13	9.1
Homicide	14	4.3	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 Henderson) 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 30 includes only stable rates presented in the *Data Workbook*.

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

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

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

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

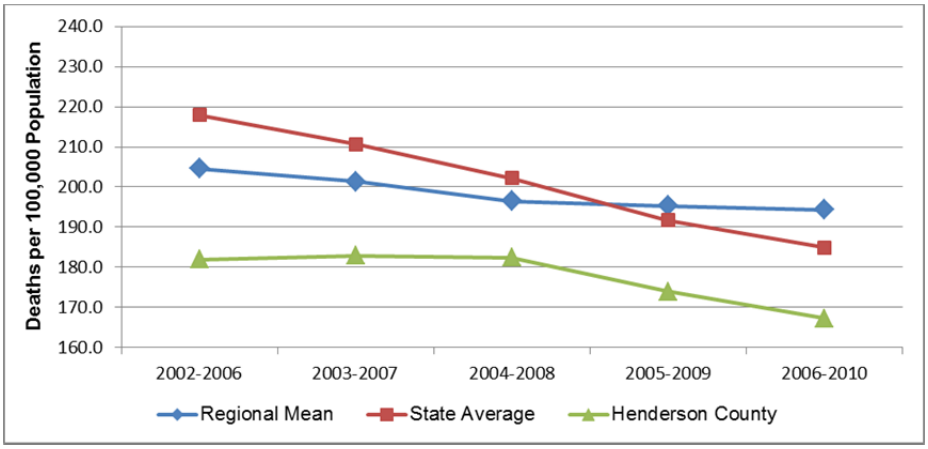
The following section examines in greater detail each of the causes of death listed in Table 30, in the order of highest mean WNC rank to lowest, beginning with heart disease.

Heart Disease Mortality

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

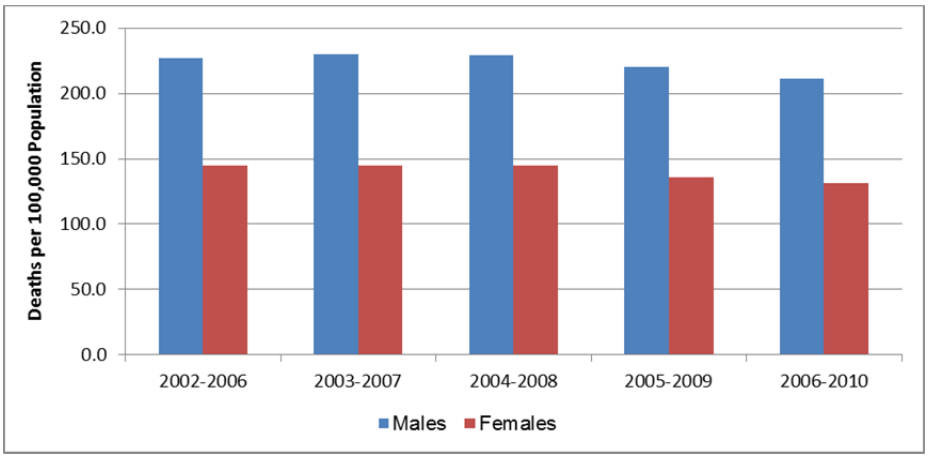
In the 2006-2010 aggregate period heart disease was the leading cause of death in WNC, NC, and Henderson County (Table 30, cited previously). Figure 6 presents heart disease mortality trend data. This graph illustrates that the heart disease mortality rate in Henderson County was lower than the comparable rates for WNC and NC throughout the period cited. The graph also illustrates that the heart disease mortality rate in Henderson County fell from 181.9 in the 2002-2006 aggregate period to 167.3 in the 2006-2010 aggregate period, a decrease of 8.0%; most of the improvement was in the most recent two aggregate periods. Over the same interval the NC heart disease mortality rate fell from 217.9 for the 2002-2006 aggregate period to 184.9 for the 2006-2010 aggregate period, a decrease of 15.1%. The mean WNC rate, which for the first three periods cited was below the state rate, surpassed the state rate and leveled during the two most recent periods. For the 2002-2006 period the mean WNC heart disease mortality rate was 204.6; by the 2006-2010 period it had fallen to 194.4, a decrease of 4.9%.

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



Further subdivision of heart disease mortality data reveals a striking gender disparity. Figure 7 plots heart disease mortality rates for Henderson County, stratified by gender. From these data it is clear that Henderson County males have had a higher heart disease mortality rate than females for the past decade, with the difference as high as 59%.

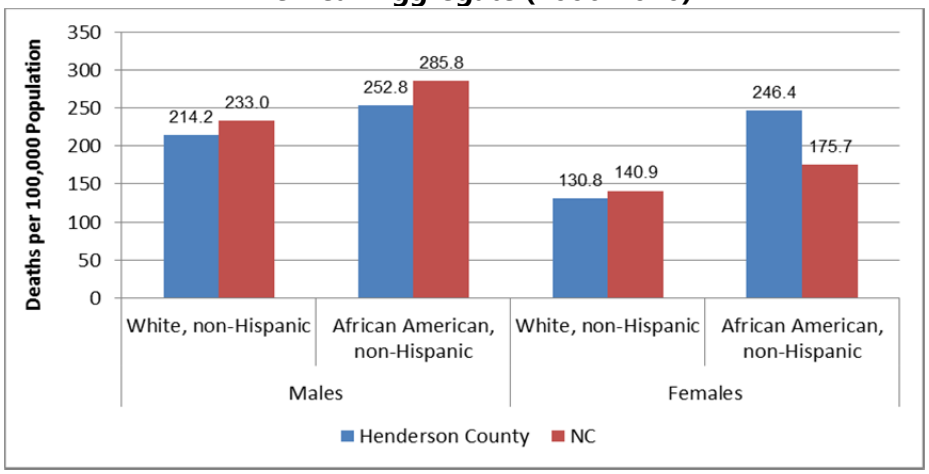
Figure 7. Gender Disparities in Heart Disease Mortality, Henderson County (Five-Year Aggregates, 2002-2006 through 2006-2010)



Henderson County has a large enough minority population to yield stable, gender-stratified heart disease mortality rates for some minority groups. Figure 8 shows these differences in 2006-2010 for Henderson County in comparison with similar state data. At the state level, heart disease mortality demonstrates significant racial disparity, with the minority rate higher than the non-minority rate. For example, statewide the heart disease mortality rate among non-Hispanic African American males (285.8) was almost 23% higher than the comparable rate among non-Hispanic white males (233.0); in Henderson County the comparable difference was 18%. In NC the rate among non-Hispanic African American females (175.7) was 25% higher than the rate among non-Hispanic white females (140.9); in Henderson County, the comparable difference

was 88%. Statewide, the heart disease mortality 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*).

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



Total Cancer Mortality

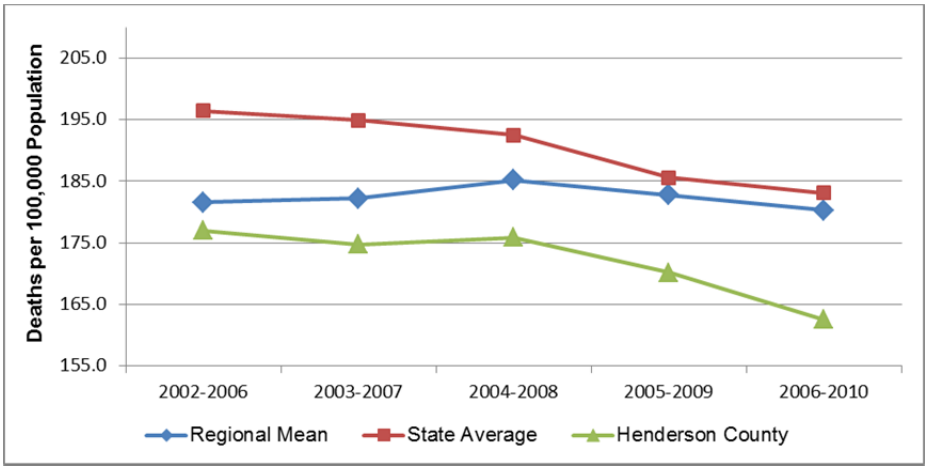
Cancer is a term for diseases in which abnormal cells divide without control and can invade nearby tissues. Cancer cells also can spread to other parts of the body through the blood and lymph systems. If the disease remains unchecked, it can result in death (National Cancer Institute).

Taken together, cancers of all types compose the second leading cause of death in WNC, NC, and Henderson County in the 2006-2010 aggregate period (Table 30, cited previously).

Figure 9 presents mortality trend data for total cancer. This graph illustrates how over the period cited the total cancer death rate in Henderson County was lower than both the WNC and NC rates and decreased over the period cited. The total cancer mortality rate in the county fell from 177.0 in the 2002-2006 aggregate period to 162.5 in the 2006-2010, a decrease of 8.9%.

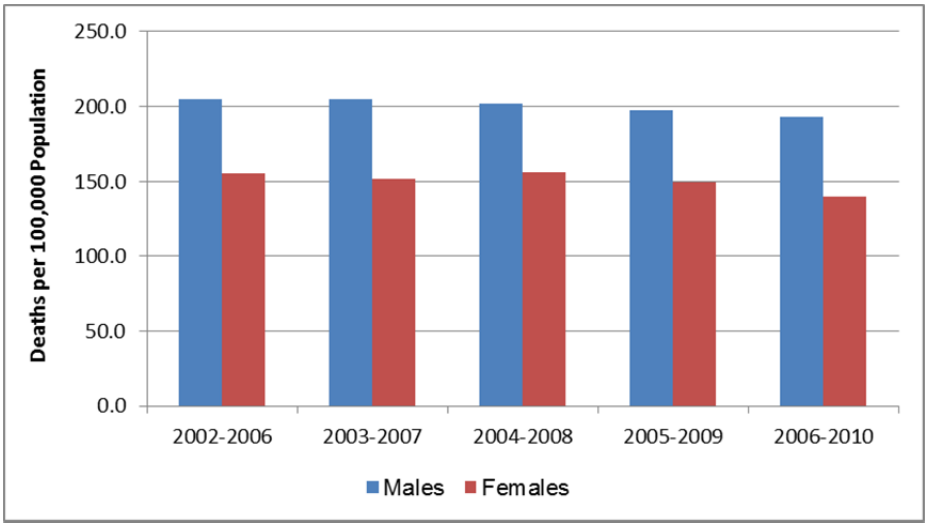
This graph also illustrates how over the period cited the total cancer death rate decreased at the state level, and the comparable mean regional rate fluctuated some but changed little in the net. Statewide, mortality attributable to all cancers decreased 6.8% over the period covered in the graph, from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

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



Like heart disease mortality, total cancer mortality demonstrates a gender disparity. Figure 10 plots total cancer mortality rates for Henderson 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. In the most recent aggregate period (2006-2010) the total cancer mortality rate for Henderson County males (192.8) was 37.9% higher than the comparable rate for females (139.8).

Figure 10. Gender Disparities in Total Cancer Mortality, Henderson 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

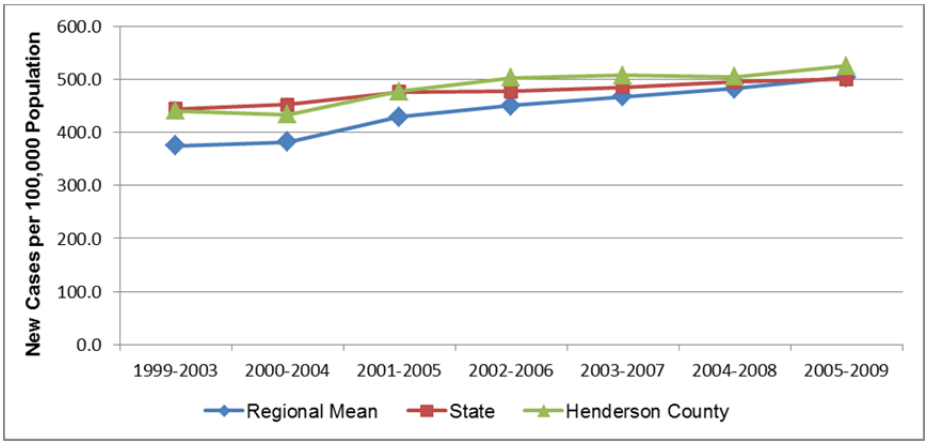
among non-Hispanic African American males (302.9) was 35% higher than the comparable rate among non-Hispanic white males (224.6), and the rate among non-Hispanic African American females (166.6) was 12% higher than the rate among non-Hispanic white females (149.3). The comparable total cancer mortality 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 11 graphs the incidence rates for total cancer for seven five-year aggregate periods. From this data it appears that the incidence rate for total cancer increased in Henderson County, WNC and NC between 1999-2003 and 2005-2009. In Henderson County, the total cancer incidence rate rose from 440.7 at the beginning of the period cited to 524.9 at the end, an increase of 19.1%. The total cancer incidence rate in the county exceeded the comparable WNC and NC rates for the last five of the seven periods covered in the figure.

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 11. 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 Henderson County, as throughout both WNC and the state of NC, there are four site-specific cancers that cause most cancer deaths: breast cancer, colon cancer, lung cancer, and prostate cancer. Table 32 summarizes the age-adjusted mortality rates for the four site-specific cancers for the 2006-2010 aggregate period. In Henderson County the mortality rates for all four cancers were below both the mean WNC and NC rates. In Henderson County lung cancer was the site-specific cancer with the highest mortality rate, followed by breast cancer, prostate cancer, and colon cancer.

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

Geography	Deaths per 100,000 Population			
	Lung Cancer	Breast Cancer	Prostate Cancer	Colon Cancer
Henderson County	48.9	18.4	16.8	13.8
Regional Mean	54.7	24.3	22.9	16.6
State	55.9	23.4	25,5	16,0

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

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

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

Geography	New Cases per 100,000 Population			
	Breast Cancer	Prostate Cancer	Lung Cancer	Colon Cancer
Henderson County	159.4	176.5	69.8	39.9
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 Henderson County in the 2006-2010 aggregate period (Table 32, cited above). Figure 12 plots lung cancer mortality rates for several aggregate periods. This data reveals that the lung cancer mortality rate in Henderson County was below the comparable WNC and NC rates for the entire period cited in the figure. The lung cancer mortality rate fell in all three jurisdictions over the period cited. The lung cancer mortality rate in Henderson County fell overall from 51.7 for 2002-2006 to 48.9 for 2006-2010, a decrease of 5.4%. Statewide the lung cancer mortality rate fell from 59.8 for 2002-2006 to 55.9 for 2006-2010, a 6.5% decrease over the period. The comparable mean WNC rate fluctuated somewhat but was essentially the same at the end of the period (54.7) as at the beginning (54.2).

Figure 12. Lung Cancer Mortality Rate, Deaths per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)

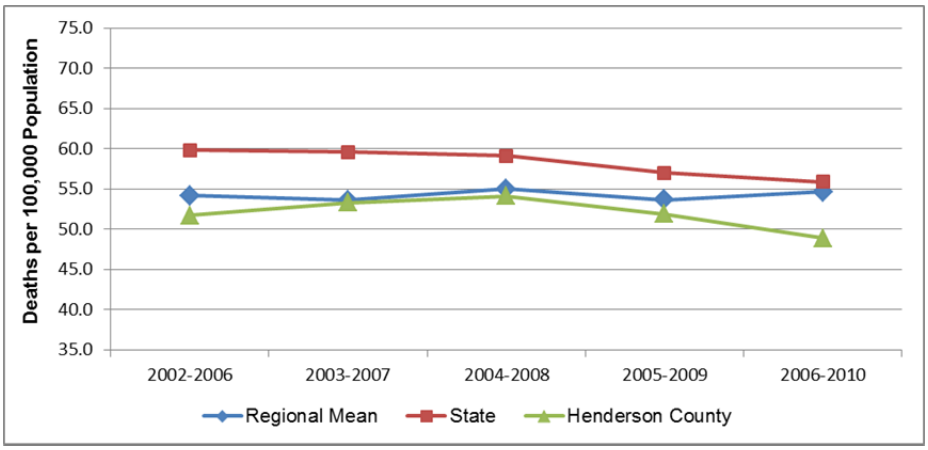
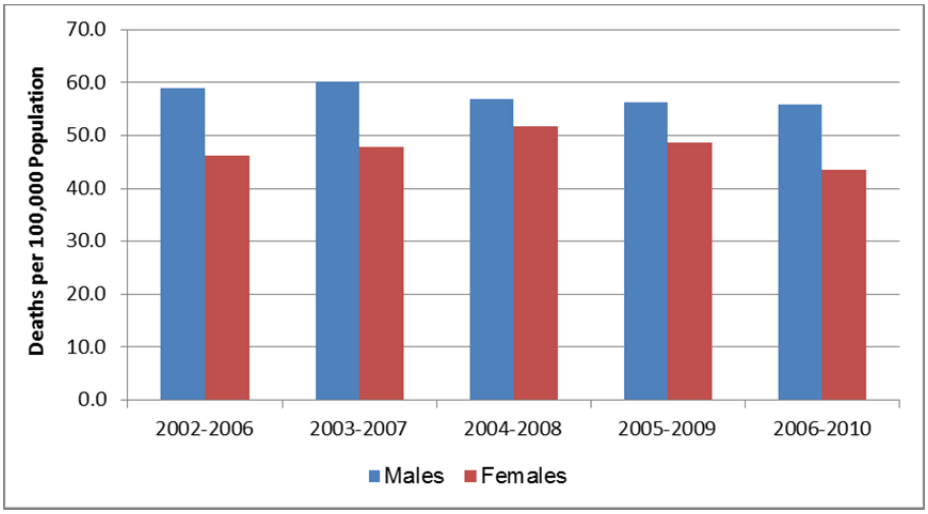


Figure 13 presents gender-stratified Henderson County lung cancer mortality rates for several aggregate periods. From this data it is clear that males experience higher lung cancer mortality than females, with the lung cancer mortality rate among men from 10% to 29% higher than the rate among women over the period cited. Of further note is an apparent decrease in lung cancer mortality rates among both males and females in Henderson County.

Figure 13. Gender Disparities in Lung Cancer Mortality, Henderson County (Five-Year Aggregates, 2002-2006 through 2006-2010)

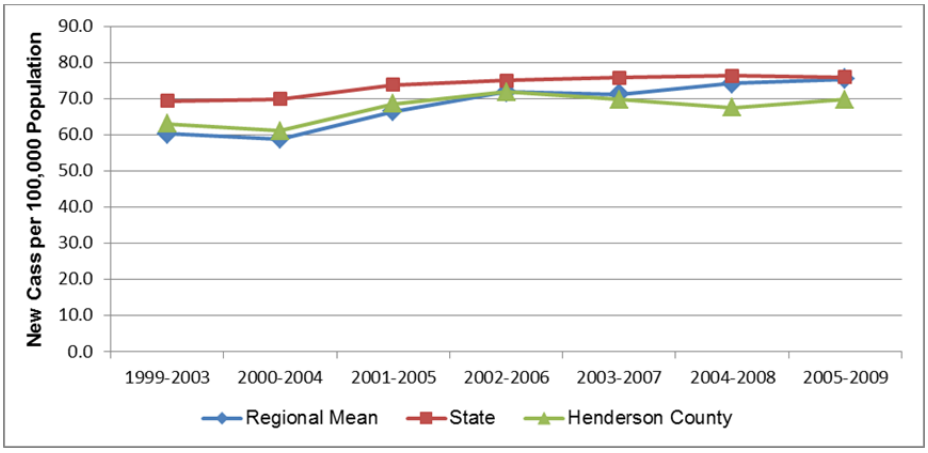


Regionally, only one of the 16 counties in WNC (Buncombe) had large enough minority populations to yield stable minority lung cancer mortality rates, so it is not possible to calculate stable mean region-wide rates for minorities. Statewide, lung cancer mortality rates demonstrate racial disparity. For 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 Henderson County, it is instructive to examine the trend of development of new lung cancer cases over time. Figure 14 depicts the seven-year trend of lung cancer incidence.

Lung cancer incidence in Henderson County increased 10.6% overall (from 63.1 to 69.8) between 1999-2003 and 2005-2009. In the last two aggregate periods cited the county rate was below both the mean WNC and NC rates. The mean lung cancer incidence rate in WNC increased 25.0% from the 1999-2003 aggregate period (60.3) to the 2005-2009 aggregate period (75.4), while the statewide lung cancer incidence rate increased by 9.5% (from 69.3 to 75.9) over the same time frame. Since lung cancer mortality is already on the rise in the region, the increase in the incidence rate may portend additional lung cancer mortality in the future.

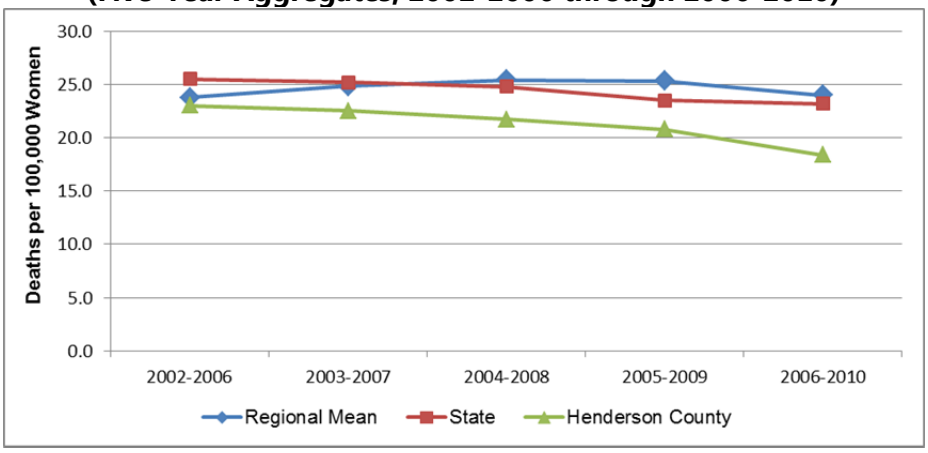
Figure 14. Lung Cancer Incidence, New Cases per 100,000 Population (Five-Year Aggregates, 1999-2003 through 2005-2009)



Breast Cancer Mortality

Breast cancer was the second leading cause of cancer death in Henderson County in 2006-2010 (Table 32, cited previously). Data in Figure 15 demonstrate that the breast cancer mortality rate in Henderson County decreased 20.0% overall, from 23.0 in 2002-2006 to 18.4 in 2006-2010. In WNC, the mean breast cancer mortality rate displayed some volatility, but increased 0.8% overall, from 23.8 in 2002-2006 to 24.0 in 2006-2010. In Henderson County, the breast cancer mortality rate also displayed volatility, but decreased 4.0% overall, falling from 24.8 to 23.8 over the same period. At the state level, the breast cancer mortality rate fell over the period cited, from a high of 25.5 deaths per 100,000 women in 2002-2006 to a low of 23.2 in 2006-2010, a decrease of 9.0%. The breast cancer mortality rate in WNC exceeded the state rate in the three most recent aggregate periods.

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

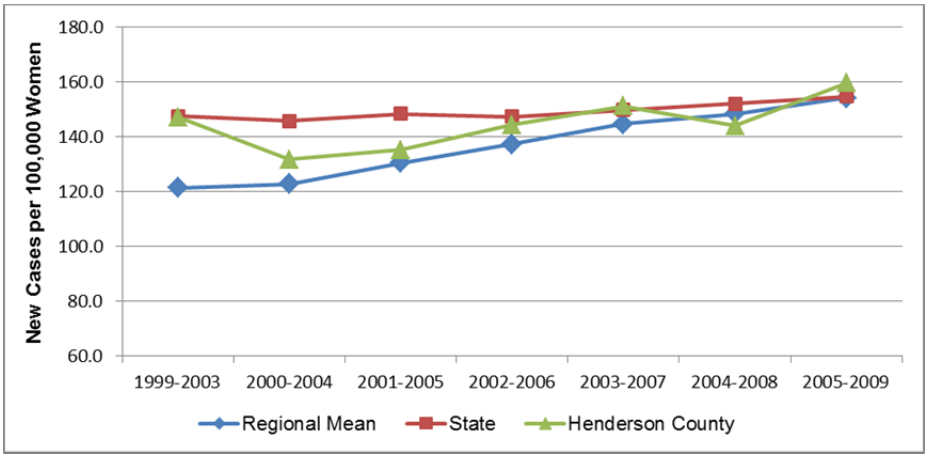


Note: There is some instability in the regional mean rates because each includes one or more unstable county rate.

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 16 demonstrates that the breast cancer incidence rate has been increasing in all three jurisdictions over the past several years. In Henderson County, the breast cancer incidence rate rose from 147.1 new cases per 100,000 women in the 1999-2003 aggregate period to 159.4 in the 2005-2009 aggregate period, an increase of 8.4%. In WNC, the mean breast cancer incidence rate rose from 121.3 in the 1999-2003 aggregate period to 154.0 in the 2005-2009 aggregate period, an increase of 27.0%. At the state level, breast cancer incidence rate rose from 147.3 to 154.5 over the same period, an increase of approximately 5%.

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

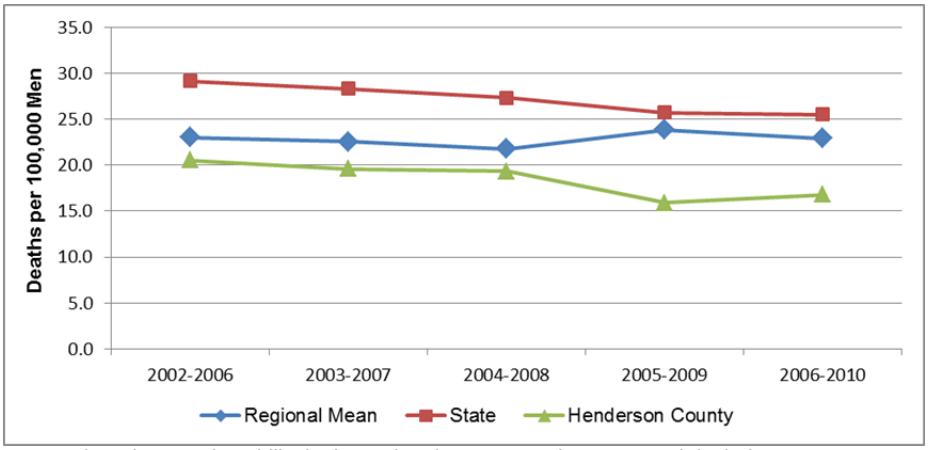


Prostate Cancer Mortality

Prostate cancer was the third leading cause of cancer deaths in Henderson County in the 2006-2010 aggregate period; region-wide, prostate cancer was the third leading cause of cancer deaths (Table 32, cited previously). Figure 17 plots the prostate cancer mortality trend for several aggregate periods. Statewide, prostate cancer mortality demonstrates a slight downward trend, with the 2006-2010 rate (25.5) approximately 12% lower than the comparable rate in 2002-2006 (29.1). In WNC, there has been fluctuation but little net decrease in the mean prostate cancer mortality rate over the period cited in the graph (23.0 the first aggregate period; 22.9 the last aggregate period). In Henderson County, the prostate cancer mortality rate fell over the period cited, from 20.5 for 2002-2006 to 16.8 for 2006-2010, a decrease of 18.0%. The

county prostate cancer mortality was lower than the mean WNC or NC rates over the entire period cited in the figure.

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

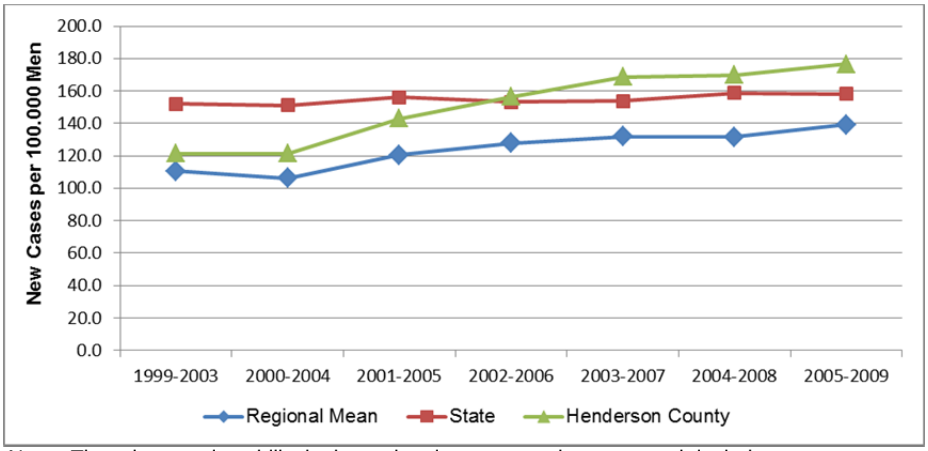


Note: There is some instability in the regional mean rates because each includes one or more unstable county rate.

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

Prostate cancer incidence statewide has remained relatively stable in recent years, increasing by 4.1%, from 152.0 to 158.3, in the period from 1999-2003 through 2005-2009 (Figure 18). Over the same span of time, the mean prostate cancer incidence in WNC rose from 110.7 new cases per 100,000 men in the 1999-2003 period to 139.2 in 2005-2009 period, a total increase of 25.7%, or over six times the statewide percentage increase. In Henderson County, the prostate cancer incidence rate was below the mean WNC and NC rates for the first three aggregate periods, but rose to surpass both the regional and state rates in the last three aggregate periods. Prostate cancer incidence in the county rose from 121.5 in 1999-2003 to 176.5 in 2005-2009, an overall increase of 45.3%

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

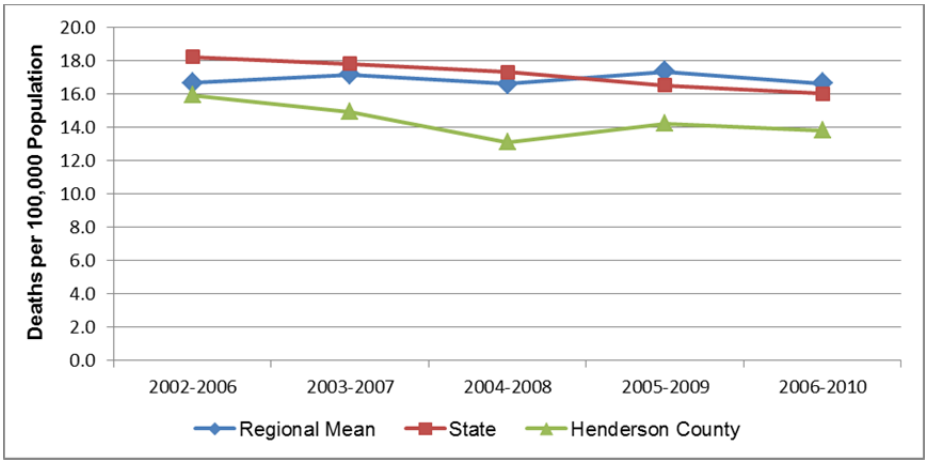


Note: There is some instability in the regional mean rates because each includes one or more unstable county rate.

Colorectal Cancer Mortality

Cancer of the colon, rectum and anus (collectively "colorectal" cancer) caused the fourth largest mortality rate among the major site-specific cancers in Henderson County, WNC and NC in the 2006-2010 aggregate period (Table 32, cited previously). Figure 19 plots the colorectal cancer mortality rate trend for several aggregate periods. The colorectal cancer mortality rate in Henderson County fell from 15.9 in the 2002-2006 aggregate period to 13.8 in the 2006-2010 aggregate period, a decrease of 13.2%. As seen for a number of other cancers, the state colorectal cancer mortality rate has fallen steadily in recent years, from a high of 18.2 in the 2002-2006 period to a low of 16.0 in the 2006-2010 period, a rate decrease of 12.1%. In WNC, the mean colorectal cancer mortality rate fluctuated considerably, possibly due to a high proportion of unstable county rates, but was the same at the end of the period cited as at the beginning (16.6). In the most recent two aggregate periods, the mean regional colorectal cancer incidence rate surpassed the state rate, after being below the state rate for the prior three aggregate periods.

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



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

As shown in Figure 20, the colorectal cancer mortality rate differs between males and females in Henderson County, with the rate for males higher than the rate for females. It appears that the colorectal cancer rate for males was quite variable over the period cited, while the comparable rate for females appeared to decrease over the same period.

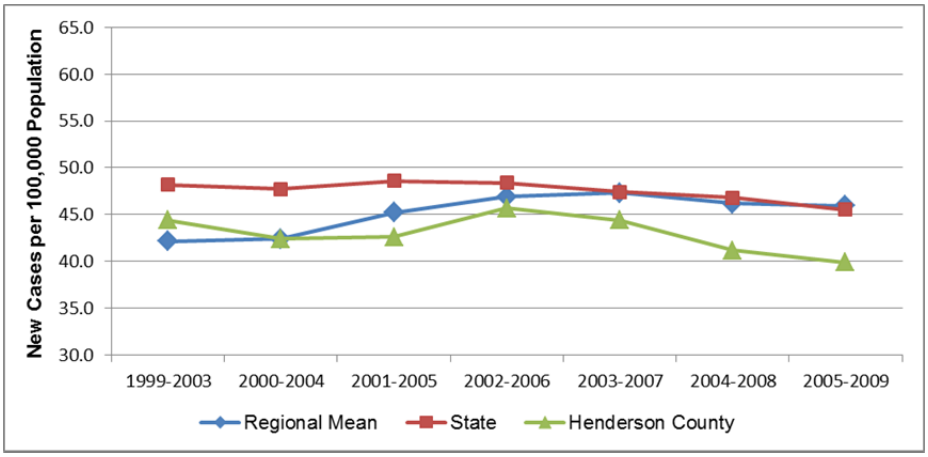
Figure 20. Gender Disparities in Colorectal Cancer Mortality, Henderson County (Five-Year Aggregates, 2002-2006 through 2006-2010)

In WNC, only one of the 16 counties (Buncombe) had large enough minority populations to yield stable 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 21 it is apparent that the incidence rate for colorectal cancer in Henderson County fell over the period cited, from 44.4 in 1999-2003 to 39.9 in 2005-2009, a decrease of 10.1%. The mean WNC colorectal cancer incidence rate has been, until recently, following a different trend than the comparable state rate. In the 1999-2003 aggregate period, the mean colorectal cancer incidence rate in WNC (42.2) was 12% lower than the comparable state rate (48.2). By the 2005-2009 aggregate period, the state colorectal cancer rate had fallen to 45.5 (a decrease of over 5%), but the mean WNC rate had risen to 46.0 (an increase of 9%). The colorectal cancer incidence rate in Henderson County was lower than the WNC and NC rates over most of the period cited.

Figure 21. Colorectal Cancer Incidence, New Cases per 100,000 Population (Five-Year Aggregates, 1999-2003 through 2005-2009)



Chronic Lower Respiratory Disease (CLRD) Mortality

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

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

Figure 22 plots CLRD mortality rates for five aggregate periods. The CLRD mortality rate has been relatively stable in WNC and NC for the overall period from 2002-2006 through 2006-2010. In Henderson County, which had the highest rate of the three jurisdictions in the three initial aggregate periods, the CLRD mortality rate fell from 53.2 in 2002-2006 to 47.7 in 2006-2010, a decrease of 10.3%. The data also shows that CLRD mortality has been and remains higher in WNC than in the state as a whole. Neither the NC nor the mean WNC CLRD mortality rates improved significantly over the period. In 2006-2010, CLRD mortality rates were 47.7 in Henderson County, 46.4 in NC, and 51.1 in WNC.

Figure 22. CLRD Mortality Rate, Deaths per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)

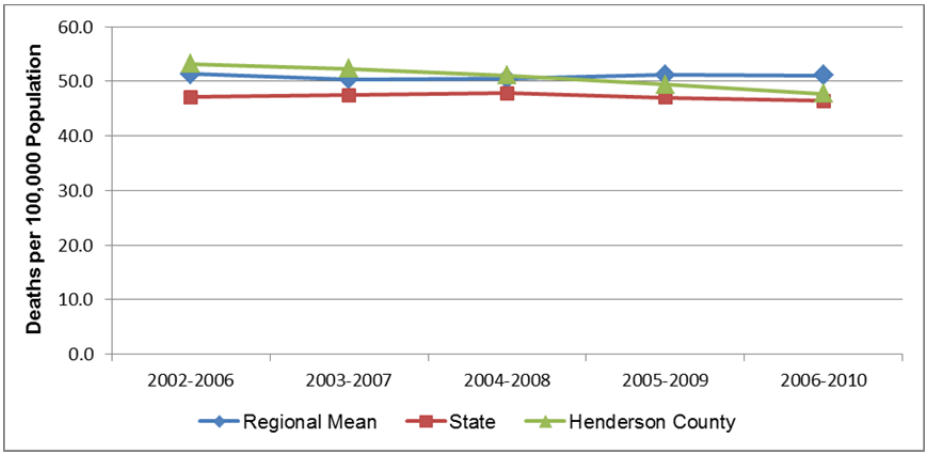


Figure 23 shows how in Henderson County the CLRD mortality rate among males exceeded the comparable rate among females over the past decade. In 2006-2010, the CLRD mortality difference between men and women in Henderson County was 17%.

Figure 23. Gender Disparities in CLRD Mortality, Henderson County (Five-Year Aggregates, 2002-2006 through 2006-2010)

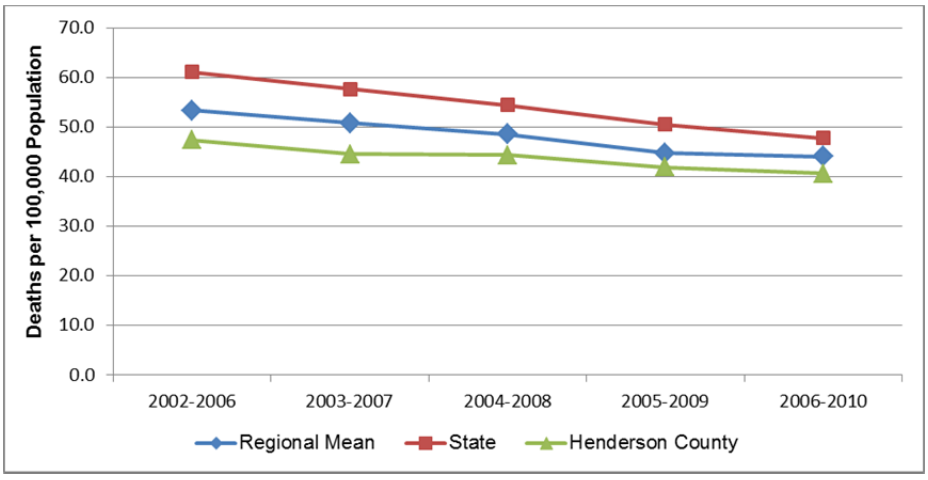
In WNC, only one of the 16 counties (Buncombe) had large enough minority populations to yield stable CLRD mortality rates for any minority group, so it is not possible to calculate a stable mean region-wide CLRD mortality rates for minorities. At the state level for the 2006-2010 aggregate period, the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

Cerebrovascular disease (stroke) was the fourth leading cause of death in both Henderson County and WNC in the 2006-2010 aggregate period (Table 30, cited previously). Figure 24 plots stroke mortality rates for several aggregate periods. The cerebrovascular disease mortality rate in Henderson County was lower than the comparable rates in the other two jurisdictions throughout the period cited in the figure. The stroke mortality rates for Henderson County, WNC and NC all decreased over the period cited in the graph. The rate fell 14.3% in Henderson County (from 47.4 to 40.6), 17.4% in WNC (from 53.3 to 44.9) and 21.8% in NC (from 61.1 to 47.8).

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



Stroke is one cause of death for which there is little gender disparity in the WNC region (D*ata Workbook).* As the data in Figure 25 show, the same may not be the case in Henderson County. In Henderson County the stroke mortality rate among females varied from 2% to 14% higher than the comparable rate for males throughout the period cited. The county stroke mortality rates for both men and women in the county appear to have decreased over the same period, for men by 13.8% (from 45.6 to 39.3) and for women by 13.5% (from 47.5 to 41.1).

Figure 25. Gender Disparities in Cerebrovascular Disease Mortality, Henderson County (Five-Year Aggregates, 2002-2006 through 2006-2010)

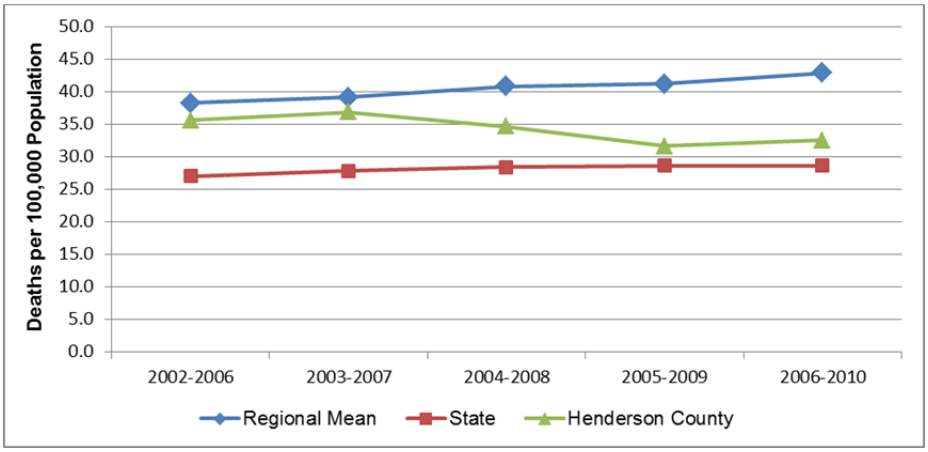
No county in WNC had large enough minority populations to yield stable cerebrovascular disease mortality rates for any minority group, so it is not possible to calculate stable mean region-wide cerebrovascular disease mortality rates for minorities. At the state level stroke mortality demonstrates a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

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

Mortality due to injuries *not* involving motor vehicles was the fifth leading cause of death in WNC but the sixth leading cause of death in Henderson County in the 2006-2010 aggregate period (Table 30, cited previously). This "all other injuries" category includes death without purposeful intent due to poisoning, falls, burns, choking, animal bites, drowning, and occupational or recreational injuries. (Death due to injury involving motor vehicles is a separate cause of death and will be covered subsequently.)

Figure 26 plots the trend in mortality due to all other injuries for five aggregate periods. Throughout the period cited, the non-motor vehicle injury mortality rate in Henderson County was between the mean WNC rate and the comparable state figure. While the state rate increased 5.9% (from 27.0 to 28.6) over the entire span cited, the mean WNC rate rose 12.3% from the first period (38.2) to the last (42.9). Over the same span, the comparable rate in Henderson County fell 8.7%, from 35.6 to 32.5.

Figure 26. All Other Unintentional Injury Mortality Rate, Deaths per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)



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

As in other leading causes of death, the mortality rate for non-motor vehicle injury in Henderson County demonstrated a strong gender disparity (Figure 27). In each of the periods cited, the mortality rate for all other unintentional injuries among males was approximately twice the comparable rate among females.

Figure 27. Gender Disparities in All Other Unintentional Injury Mortality, Henderson County (Five-Year Aggregates, 2002-2006 through 2006-2010)

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

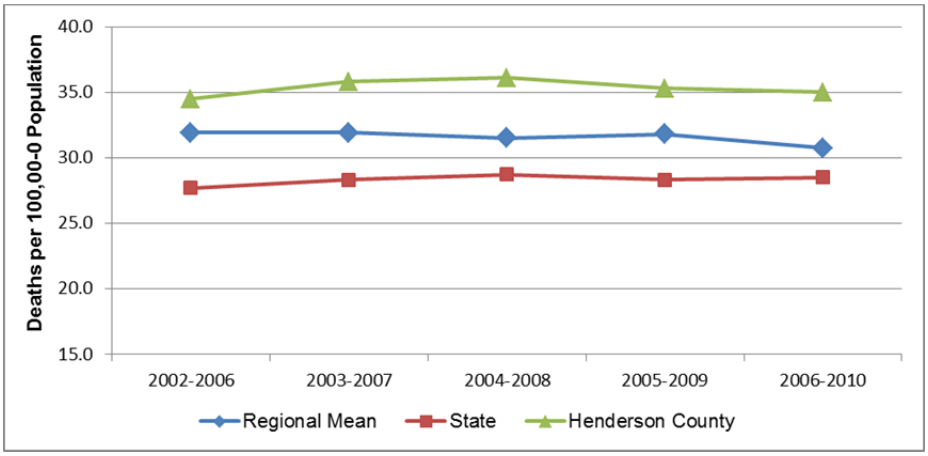
Alzheimer's disease is a progressive neurodegenerative disease affecting mental abilities including memory, cognition and language. Alzheimer's disease is characterized by memory loss and dementia. The risk of developing Alzheimer's disease increases with age (e.g., almost half of those 85 years and 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 WNC but the fifth leading cause of death in Henderson County for the aggregate period 2006-2010 (Table 30, cited previously).

Figure 28 plots Alzheimer's disease mortality rates over several aggregate periods. In Henderson County, the Alzheimer's disease mortality rate changed little between 2002-2006 and 2006-2010, but was higher than both the mean WNC rate and NC rate throughout that period.

The mean Alzheimer's disease mortality rate in WNC was higher than the comparable state rate throughout the span of time cited in Figure 28, despite the fact that the data used are all age-adjusted. Note, however, that NC SCHS made the age-adjustment calculations on the basis of the 2000 US Census, and as we have seen, the "elderly" population in WNC has grown considerably since 2000. It should be noted that the difference between the WNC and NC rates may look different once the 2010 Census becomes the basis of the age adjustment. In the 2006-2010 aggregate period the Alzheimer's disease mortality rate was 35.0 in Henderson County, 30.7 in WNC, and 28.5 in NC.

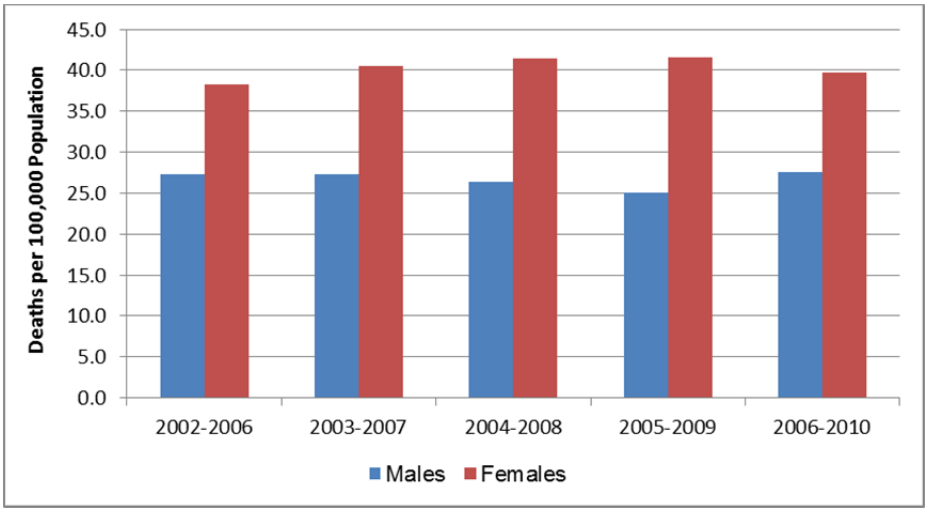
Figure 28. Alzheimer's Disease Mortality Rate, Deaths per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)



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

Alzheimer's disease mortality has a strong gender component, with mortality rates traditionally much higher among women than among men. In WNC, for example, the mean Alzheimer's disease mortality among women was from 51% to 62% higher than the rate among men over the past decade (*Data Workbook*). Figure 29 plots gender-stratified data for Alzheimer's disease mortality in Henderson County. Alzheimer's disease mortality rates for Henderson County demonstrate some variability over the period covered in the figure, but the rate for county females were from 40% to 66% higher than comparable rate for county males over the period cited. In Henderson County in the 2006-2010 aggregate period, the Alzheimer's disease mortality rate for males was 27.6 and the rate for females was 39.7, 43.8% higher than the rate for males.

Figure 29. Gender Disparities in Alzheimer's Disease Mortality, Henderson 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

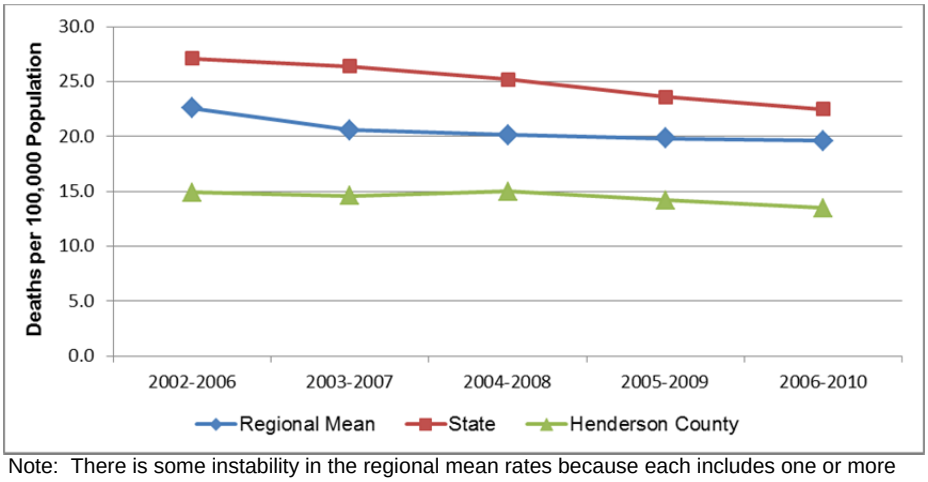
Diabetes is a disease in which the body's blood glucose levels are too high due to problems with insulin production and/or utilization. Insulin is a hormone that helps the glucose get to cells where it is used to produce energy. With type 1 diabetes, the body does not make insulin. With type 2 diabetes, 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 but the ninth leading cause of death in Henderson County in the 2006-2010 aggregate period (Table 30, cited previously).

Figure 30 plots trend data for diabetes mortality for several aggregate periods. According to data in Figure 30, the diabetes mortality rate in Henderson County was below both the mean WNC and NC rates for the entire period cited. The mean diabetes mortality rate in WNC was

and had been lower than the state rate. Statewide, the diabetes mortality rate fell from 27.1 to 22.5 (17.0%) over the period cited in the figure. Region-wide, the mean diabetes mortality rate fell from 22.6 to 19.6 (13.3%) over the same period. In Henderson County the diabetes mortality rate fell 9.4% from the beginning of the period cited (14.9) to the end (13.5).

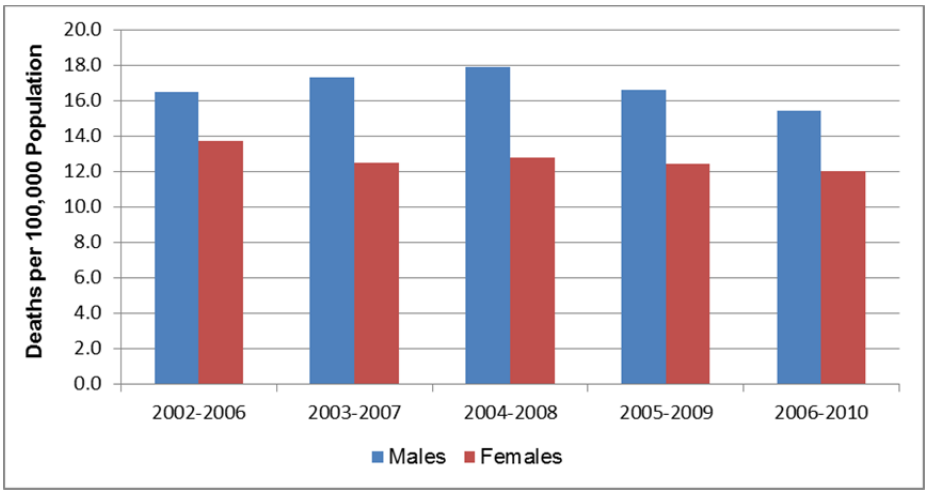
Figure 30. Diabetes Mellitus Mortality Rate, Deaths per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)



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

Figure 31 plots gender-stratified diabetes mortality rates for Henderson County. Over the period cited in the figure, the diabetes mortality rate among Henderson County males was from 20% to 40% higher than the comparable rate among county females. In the 2006-2010 aggregate period the diabetes mortality rate for Henderson county men was 15.4 and the rate for women was 12.0

Figure 31. Gender Disparities in Diabetes Mellitus Mortality, Henderson County (Five-Year Aggregates, 2002-2006 through 2006-2010)



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*).

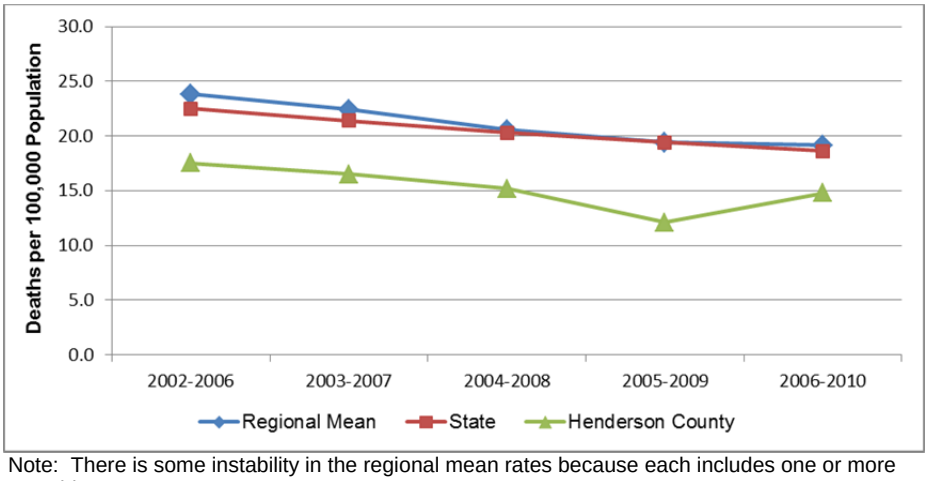
Pneumonia and Influenza Mortality

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 but the seventh leading cause of death in Henderson County for the period 2006-2010 (Table 30, cited previously).

Figure 32 plots the mortality trend for pneumonia and influenza for several aggregate periods. From this data it is apparent that the mean pneumonia/influenza mortality rate in WNC closely paralleled the comparable NC rate throughout the period cited in the figure. Both the regional and state mortality rates for this cause of death decreased in the net over the period. The mean WNC rate decreased from 23.8 to 19.1 (19.7%) and the comparable NC rate decreased from 22.5 to 18.6 (17.3%). A corresponding decrease in pneumonia/influenza mortality in Henderson County was somewhat more erratic in falling 15.4% from 17.5 in 2002-2006 to 14.8 in 2006-2010. The county rate was lower than both the comparable WNC and NC rates throughout the period shown in the figure.

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



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

Figure 33 plots gender-stratified pneumonia/influenza mortality rates for Henderson County for several aggregate periods. According to data displayed in the figure there was little difference in pneumonia/influenza mortality between men and women, and the rates for both genders fell steadily over the period cited. The rate among county males fell 32.0% from 24.4 to 16.6, and the rate among county females fell 34.0% from 23.8 to 15.7.

Figure 33. Gender Disparities in Pneumonia/Influenza Mortality, Henderson County (Five-Year Aggregates, 2002-2006 through 2006-2010)

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

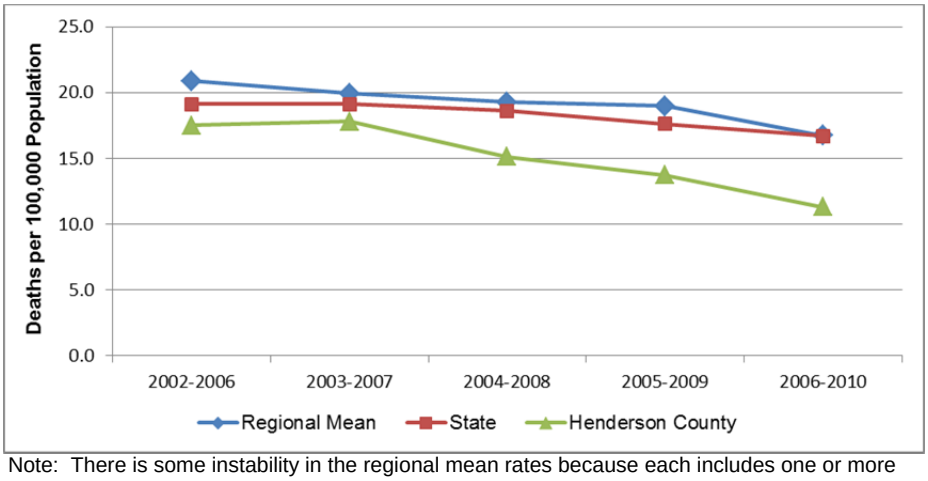
non-Hispanic males, followed in order by white non-Hispanic males (21.5), white non-Hispanic females (17.3), African American non-Hispanic females (15.8), other non-Hispanic males (11.1), and other non-Hispanic females (9.0). The Hispanic population, both male and female, experienced the lowest pneumonia 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 eleventh leading cause of death in Henderson County in the 2006-2010 aggregate period (Table 30, cited previously).

Figure 34 plots UMVI mortality rates over several aggregate periods. From this data it appears that the mortality rate attributable to UMVI in Henderson County was lower than both the mean WNC and NC rates throughout the period cited. UMVI mortality rates fell in WNC and NC over the period cited in the figure. In WNC, the mean UMVI mortality rate fell 20.1%, from 20.9 to 16.7, and in NC the rate fell 12.5%, from 19.1 to 16.7. More overall change was apparent in Henderson County, where the rate fell from 17.5 in the 2002-2006 aggregate period to 11.3 in the 2006-2010 aggregate period, a decrease of 35.4%.

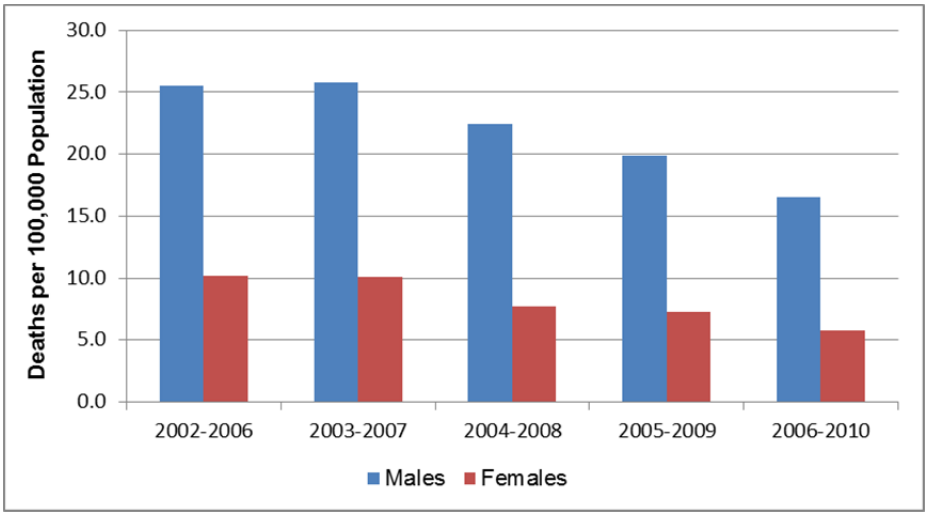
Figure 34. Unintentional Motor Vehicle Injury Mortality Rate
Deaths per 100,000 Population
(Five-Year Aggregates, 2002-2006 through 2006-2010)



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

Figure 35 plots UMVI mortality differences between WNC men and women in Henderson County for several aggregate periods. From this data it is apparent that UMVI mortality among Henderson County males was from 2.5 to 2.9 times the comparable rate among females over the period cited. While UMVI mortality rates among Henderson County males decreased 35.3% (from 25.5 to 16.5) over the period shown, the comparable rate for county females decreased 43.1%, from 10.2 to 5.8.

Figure 35. Gender Disparities in Unintentional Motor Vehicle Injury Mortality
Henderson County
(Five-Year Aggregates, 2002-2006 through 2006-2010)



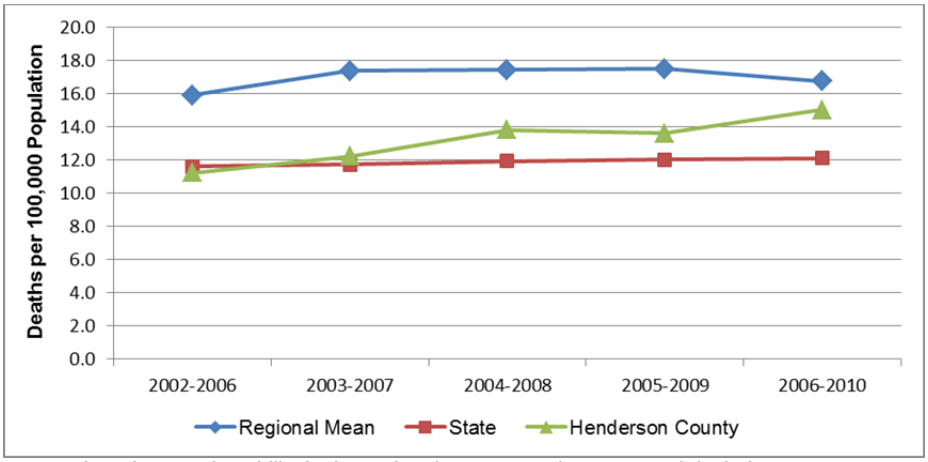
In WNC, none of the 16 counties had large enough minority populations to yield stable UMVI mortality rates for any minority group, so it is not possible to calculate stable mean region-wide rates for minorities. Statewide, disparities in UMVI mortality appear more gender-based than racially-based. At 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 but the eighth leading cause of death in Henderson County for the 2006-2010 aggregate period (Table 30, cited previously).

Figure 36 plots suicide mortality rates for several aggregate periods. From these data it appears that in Henderson County the mortality rate for suicide was between the mean WNC rate and the rate for the state as a whole for most of the period cited. The mean suicide mortality rate in WNC ranged from 37% to 48% higher than the state rate over the period cited in Figure 36. While the suicide mortality rates in WNC and NC changed little over the period cited (with increases of 5.0% and 4.3%, respectively), the comparable rate in Henderson County rose from 11.2 to 15.0, an increase of 33.9%.

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



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

Suicide mortality in Henderson County demonstrates a very pronounced gender disparity. It must be noted that all the rates for females for the first two aggregate periods shown in Figure 37 were unstable due to small numbers of events. Nevertheless it appears from the data plotted that over the span of years cited in the figure, the suicide mortality rate for Henderson County males was 2.2 to 3.0 times the comparable rate for county females.

Figure 37. Gender Disparities in Suicide Mortality, Henderson County (Five-Year Aggregates, 2002-2006 through 2006-2010)

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*).

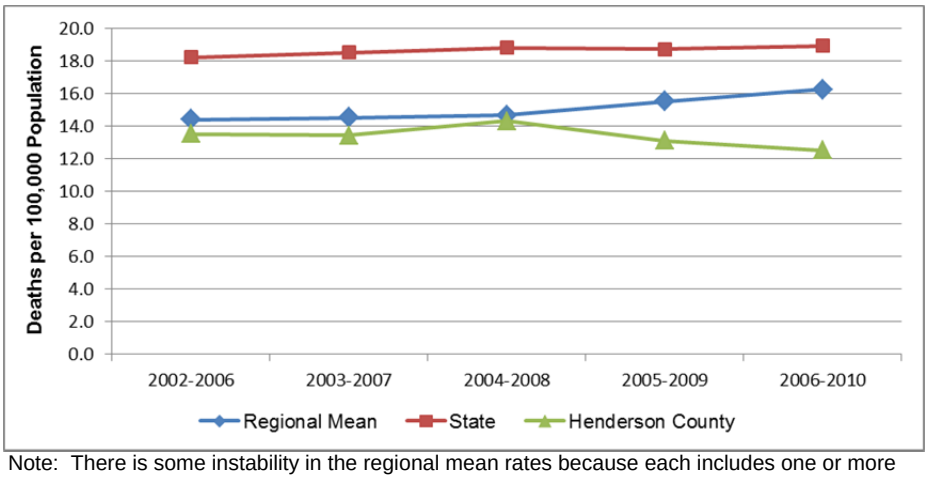
Nephritis, Nephrotic Syndrome and Nephrosis (Kidney Disease) Mortality

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).

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

Figure 38 plots kidney disease mortality over several aggregate periods. The mean kidney disease mortality rate in WNC was below the comparable figure for NC as a whole throughout the period cited, and the comparable rate in Henderson County was below the WNC mean. Between the 2002-2006 and 2006-2010 aggregate periods the mean WNC kidney disease mortality rate climbed from 14.4 to 16.2 (12.5%), and the NC rate increased slightly, from 18.2 to 18.9 (3.8%). In Henderson County the kidney disease mortality rate decreased 1.5%, from 13.5 to 7.4 over the same period.

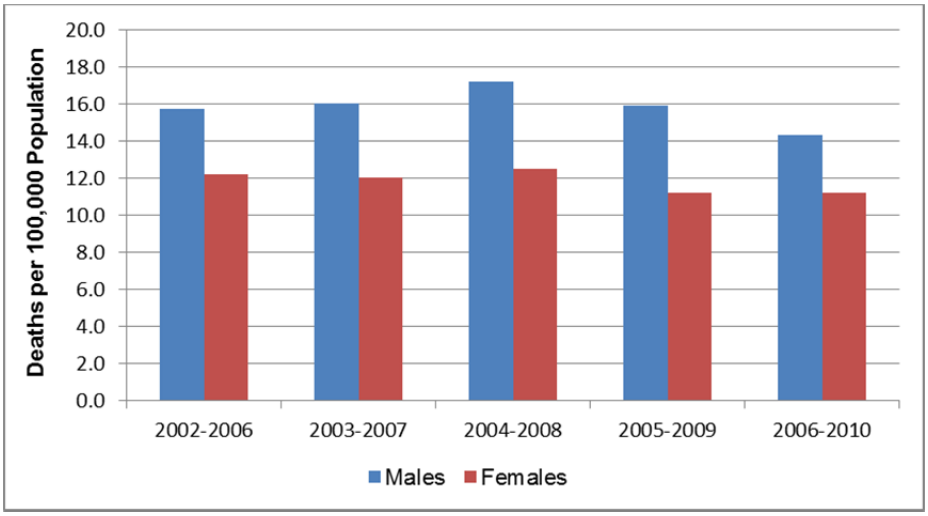
Figure 38. Kidney Disease Mortality Rate, Deaths per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)



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

Figure 39 displays gender-stratified kidney disease mortality data for Henderson County. According to data presented in Figure 41, the kidney disease mortality rate among Henderson County men was from 28% to 42% higher than the comparable rate among county women throughout the span of time cited in the figure.

Figure 39. Gender Disparities in Kidney Disease Mortality, Henderson County (Five-Year Aggregates, 2002-2006 through 2006-2010)



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

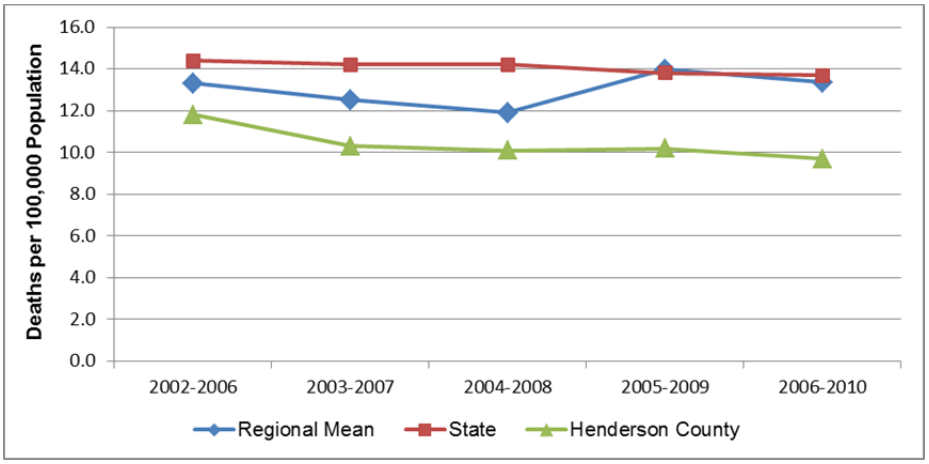
Septicemia Mortality

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

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

Figure 40 plots septicemia mortality rates for several aggregate periods. This data shows that the mean WNC septicemia mortality rate fluctuated over the period cited in approaching the state rate, while the state rate decreased 4.9%, from 14.1 to 13.7. In Henderson County, where the septicemia mortality rate was below both the mean WNC and NC rates, the rate decreased 17.8% overall, from 11.8 in2002-2006 to 9.7 in 2006-2010.

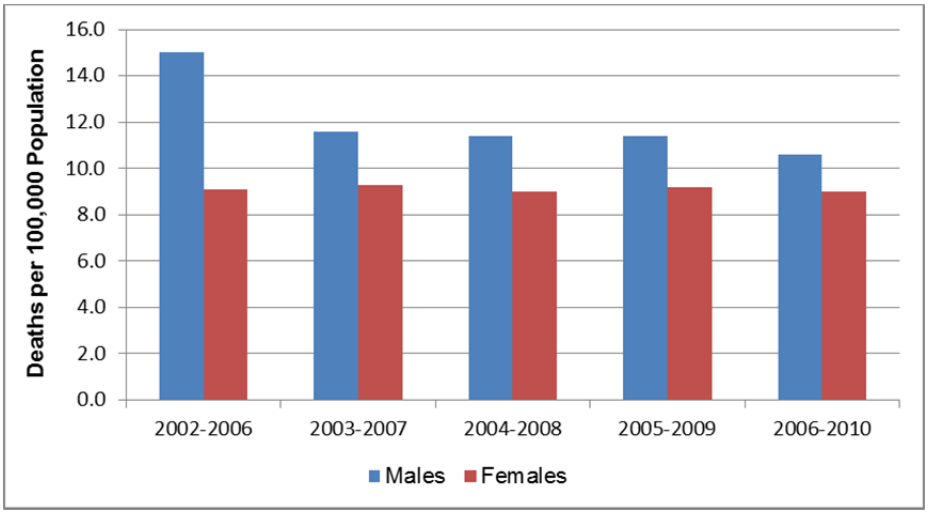
Figure 40. Septicemia Mortality Rate, Deaths per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)



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

Gender-stratified septicemia mortality rates plotted for Henderson County in Figure 41 demonstrate a gender disparity, with the rate for males higher than the rate for females. While the septicemia mortality rate among county females appeared to have stabilized around 9.0, the comparable rate for county males fell approximately 29%, from 15.0 to 10.6.

Figure 41. Gender Disparities in Septicemia Mortality, Henderson County (Five-Year Aggregates, 2002-2006 through 2006-2010)



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

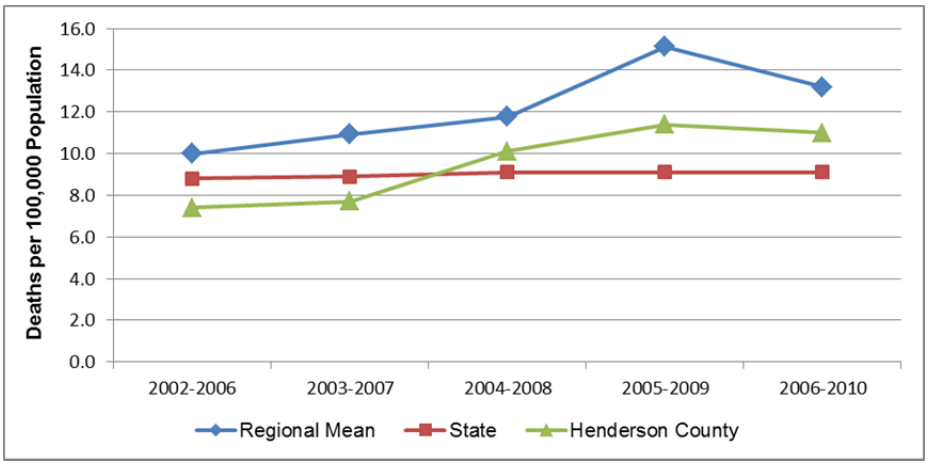
Chronic Liver Disease and Cirrhosis Mortality

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

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

Figure 42 plots mortality data for liver disease over several aggregate periods. This data shows that the liver disease mortality rate in Henderson County was lower than both the mean WNC and NC rates in the first two aggregate periods and between the mean WNC and NC rates thereafter. The mean WNC rate exceeded the state rate throughout the period cited. In WNC, the mean chronic liver disease mortality rate rose from 10.0 for 2002-2006 to 13.2 for 2006-2010, an increase of 32%. In Henderson County, the liver disease mortality rate rose from 7.4 to 11.0, a 48.6% increase. Throughout this period the state liver disease mortality rate has been stable at or near 9.1.

Figure 42. 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 data presented in Figure 43 reveals a strong gender-based disparity in liver disease mortality rates in Henderson County. It must be noted, however, that the first three rates for females are unstable. Nevertheless, it appears from this data that the liver disease mortality rate among Henderson County men ranged from 2.8 to 4.1 times the comparable rate among Henderson County women. In the 2004-2008 aggregate period the liver disease mortality rate for females was 5.9 and the comparable rate for males was 16.6, almost three times the rate for females.

Figure 43. Gender Disparities in Chronic Liver Disease and Cirrhosis Mortality, Henderson County (Five-Year Aggregates, 2002-2006 through 2006-2010)

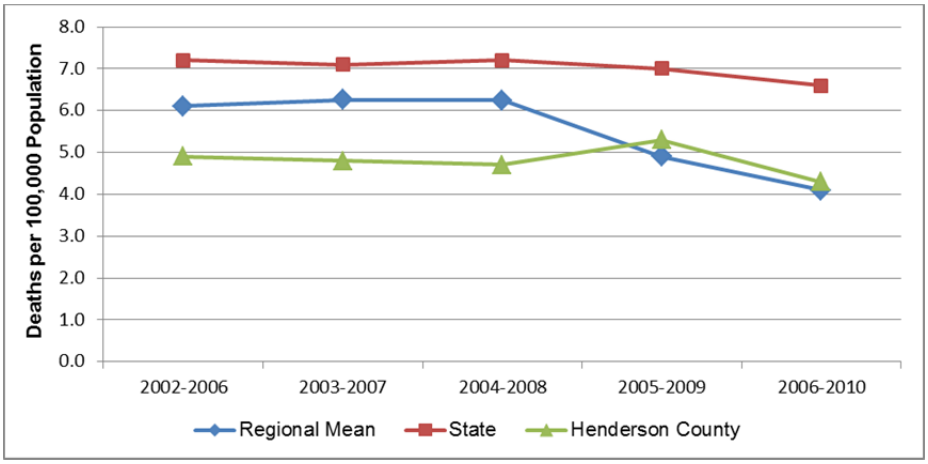
In WNC, none of the 16 counties had large enough minority populations to yield stable chronic liver disease/cirrhosis mortality rates for any minority group, so it is not possible to calculate stable mean region-wide rates for minorities. At the state level, liver disease mortality rates demonstrate 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 Henderson County for the 2006-2010 aggregate period (Table 30, cited previously).

Figure 44 plots the homicide mortality rate trend over several aggregate periods. From this data it is apparent that the homicide mortality rate in Henderson County fluctuated over the period cited and fell overall, from 4.9 in 2002-2006 to 4.3 in 2006-2010 (12.2%). The homicide mortality rate also fell in WNC and NC over the period cited, from 6.1 to 4.1 (32.8%) in WNC, and from 7.2 to 6.6 (8.3%) in NC.

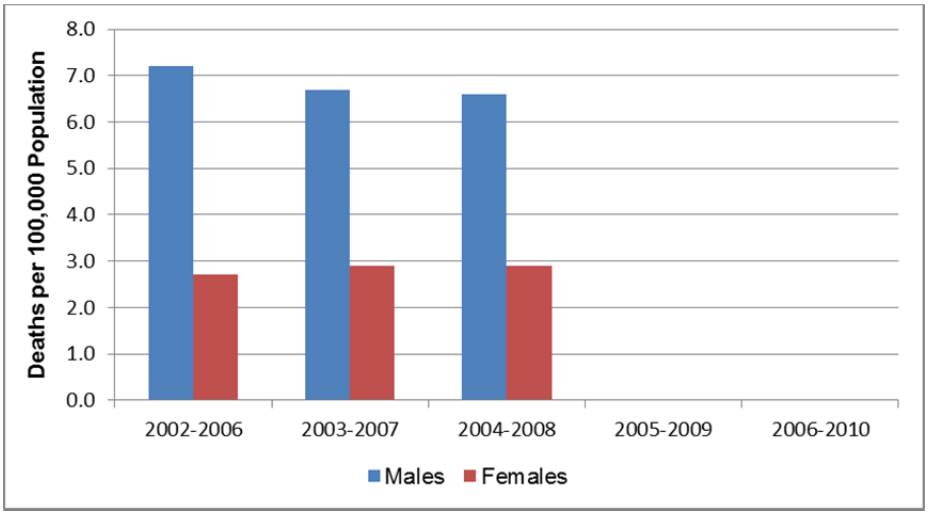
Figure 44. Homicide Mortality Rate, Deaths per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)



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

According to data presented in Figure 45, the homicide mortality rate among Henderson County males is approximately two to two-and-one-half times the rate among Henderson County females. It should be noted, however, that all rates shown in the graph are technically unstable, and that the NC SCHS did not compute homicide mortality rates for county males or females in the last two aggregate periods due to small numbers of events (n=5-16 deaths per gender per five-year aggregate period). From the limited data presented, it appears that the homicide mortality rate among county males was over twice the comparable rate among county females.

Figure 45. Gender Disparities in Homicide Mortality, Henderson County (Five-Year Aggregates, 2002-2006 through 2004-2008)



In WNC, none of the 16 counties had large enough minority populations to yield stable homicide mortality rates for any minority group, so it is not possible to calculate stable mean region-wide rates for minorities. At the state level homicide mortality demonstrates strong

racial and gender disparities. In NC for the 2006-2010 aggregate period the highest homicide mortality rates were among African American non-Hispanic males (25.6), and Hispanic males and other non-Hispanic males (13.0). The next highest homicide mortality rate occurred among African American non-Hispanic females (5.2), followed by white, non-Hispanic males (4.6), other non-Hispanic females (3.4), Hispanic females (2.6), and white non-Hispanic females (2.2) (*Data Workbook*).

Acquired Immune Deficiency Syndrome (AIDS) Mortality

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

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

Because of small numbers of AIDS deaths across WNC, AIDS mortality rates are unstable or non-existent in 15 of the 16 counties in the region. A stable rate is available only for Buncombe County; hence it is not possible to plot meaningful regional AIDS mortality data.

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

Life Expectancy

Life expectancy is the average number of additional years that someone at a given age would be expected to live if current mortality conditions remained constant throughout their lifetime. As the above data has demonstrated, there are many factors, from the prenatal period through the senior years, which can affect life expectancy. Table 34 presents a fairly recent summary of life expectancy for Henderson County, WNC, and NC as a whole. From this data it appears that females born in Henderson County in the period cited could expect to live 4.8 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. African Americans born in Henderson County at the same time could expect to live a 9.7 year shorter lifespan than their white counterparts; in WNC the comparable difference is 3.3 years. Life expectancy overall in Henderson County (78.4 years) is 1.4 years longer than life expectancy in WNC (77.0 years), where life expectancy in turn is 0.3 years shorter than for the state as a whole (77.3 years).

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

Geography	Overall	Gender		Race	
		Male	Female	White	African American
Henderson County	78.4	76.0	80.8	78.7	69.0
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

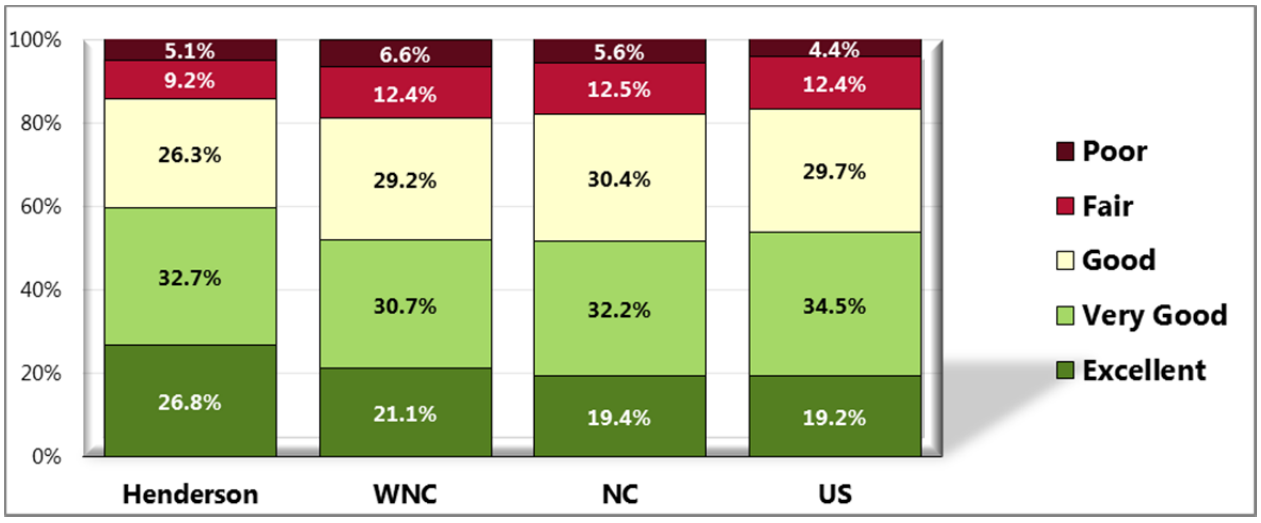
Morbidity as used in this report refers generally to the current presence of injury, sickness or disease (and sometimes the symptoms and/or disability resulting from those conditions) in the living population. In this report disability, diabetes, chronic lung disease, obesity, injury, and communicable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

In the phone survey conducted in Henderson County, respondents were asked, "Would you say that in general your health is excellent, very good, good, fair, or poor?" More residents (59.4%) reported very good or excellent health, than the region, state, or the nation.

Figure 46. Self-Reported Health Status (WNC Healthy Impact Survey)



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

Notes:
- Asked of all respondents.

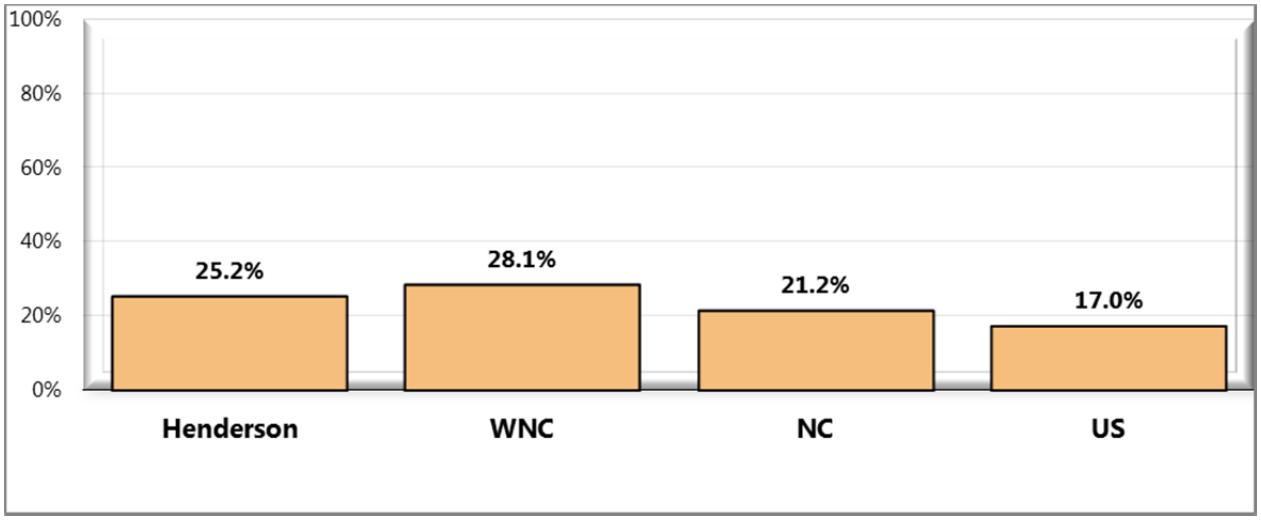
Disability and Limitations in Physical Activity

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

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

Survey respondents were asked, "Are you limited in any way in any activities because of physical, mental or emotional problems?" Those who responded, "yes," were then asked to name the major impairment or health problem that limits them.

Figure 47. 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 35. 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%)
Henderson	18.1%	15.9%	6.7%	22.3%	1.5%	1.2%	1.1%	33.2%

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

Notes:
- Asked of those respondents reporting activity limitations.

Diabetes

Table 36 presents trend data from the US Centers for Disease Control and Prevention (CDC) on the estimated prevalence of diagnosed diabetes in Henderson 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 Henderson County rose overall from 7.3% in 2005 to 7.9% in 2009, an increase of 8.2%. In WNC the estimated mean percent prevalence of diagnosed diabetes among adults rose from 8.5% in 2005 to 9.0% in 2009, an increase of 5.9%.

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

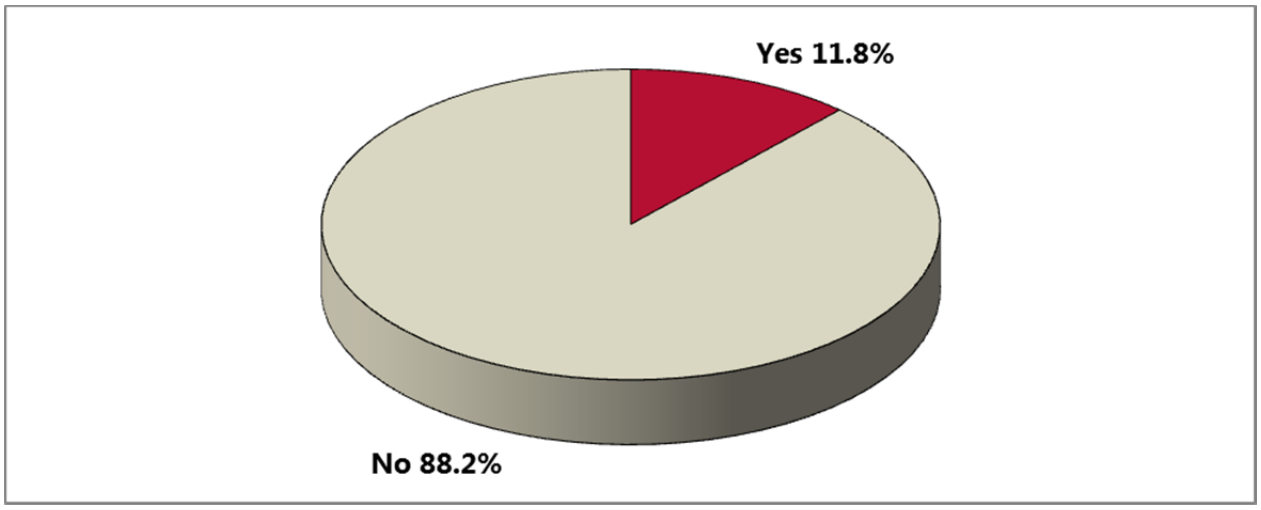
Geography	2005		2006		2007		2008		2009	
	#	%	#	%	#	%	#	%	#	%
Henderson County	6,721	7.3	6,423	7.0	7,664	8.2	7,526	7.9	8,096	7.9
Regional Total	49,896	-	52,045	-	55,160	-	55,442	-	58,378	-
Regional Arithmetic Mean	3,119	8.5	3,253	8.7	3,448	8.9	3,465	8.8	3,649	9.0

In 2010, inpatient hospitalizations for diabetes among Henderson County residents totaled 167 cases, or 1.4% of all inpatient hospitalizations listed for the county. In the same year, there were 1,240 inpatient hospital cases associated with treatment of diabetes in WNC. This number of cases represented 1.6% of all hospitalizations in the region. Statewide, diabetes hospitalizations composed 1.9% of all hospitalizations in NC (*Data Workbook*).

Chronic Lung Disease

Henderson County survey respondents were asked, "Have you suffered from or been diagnosed with chronic lung disease, such as COPD, bronchitis, or emphysema?"

Figure 48. Prevalence of Chronic Lung Disease (WNC Healthy Impact Survey)



Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 102]
Notes: ● Asked of all respondents.
● Examples of chronic lung disease include COPD (chronic obstructive pulmonary disease), bronchitis and emphysema.

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).

Of all the topics broached during the listening sessions with Henderson County residents, obesity received the most talk time. Participants expressed concern about the growing obesity trend and weight management issues seen both locally and nationally. Participants noted both the opportunities and the challenges of maintaining a nutritious diet as well as both the opportunities and challenges of maintaining an active lifestyle. Participants made the following comments:

"There are so many obese children, but you look around and it's not just the kids, it's the whole family."

"We live in an obese culture but people don't want to hear it. Something has to change."

According to respondents, the Appalachian culture is to blame for much of the nutrition and weight issues in this region. Participants talked about the traditional Southern fried foods and unhealthy culturally ingrained cooking techniques. In addition, participants talked about the challenge of eating healthy and nutrient rich food in a fast food culture. In particular, they noted the convenience of processed food, the perceived value for the dollars spent, and the preparation and cooking time saved.

"What can I say; we are Southerners, we like our food fried. I just grew a big beautiful yellow squash in my garden and what did I do, I pulled it out and put it in the frying pan. It probably would not have been as tasty boiled."

"People did not used to snack the way they do now. Portion sizes are huge now, such quantity -. no wonder there is such high obesity."

In addition to nutrition, participants expressed concern about the impact of a sedentary lifestyle, computers, video games, desk and service jobs as opposed to traditional agricultural and production jobs, and the lack of public transportation on weight management and obesity.

> *"Back 50 years ago people probably ate the same thing, but they did hard-labor and moved their bodies more. Maybe it's not the food that has changed, maybe it's the lack of activity today and the increase in time sitting on the sofa and watching television."*

Participants also noted that although many residents move to Henderson County for the mild weather and outdoor activities, physical activity is not always safe and accessible. The lack of sidewalks and bike paths in the urban areas as well as the narrow roads and lack of bike lanes on rural roads create risks for those wishing to walk and bike in many outdoor areas.

> *"More and more people are coming here to be 'outdoorsy'. They want to bike, hike, and walk. But, our roads are not safe. The roads are too narrow and there are ditches next to them. It's dangerous for them and for us."*

> *"This is only a walk friendly town where there are sidewalks and that is not everywhere! There are also great hiking opportunities but they are not accessible to everyone."*

Adult Obesity

Table 37 presents trend data from the CDC on the estimated prevalence of diagnosed adult obesity in Henderson County and WNC. The prevalence of diagnosed obesity and selected risk factors by county was estimated using data from CDC's Behavioral Risk Factor Surveillance System (BRFSS) and data from the U.S. Census Bureau's Population Estimates Program. Three years of data were used to improve the precision of the year-specific county-level estimates of diagnosed diabetes and selected risk factors.

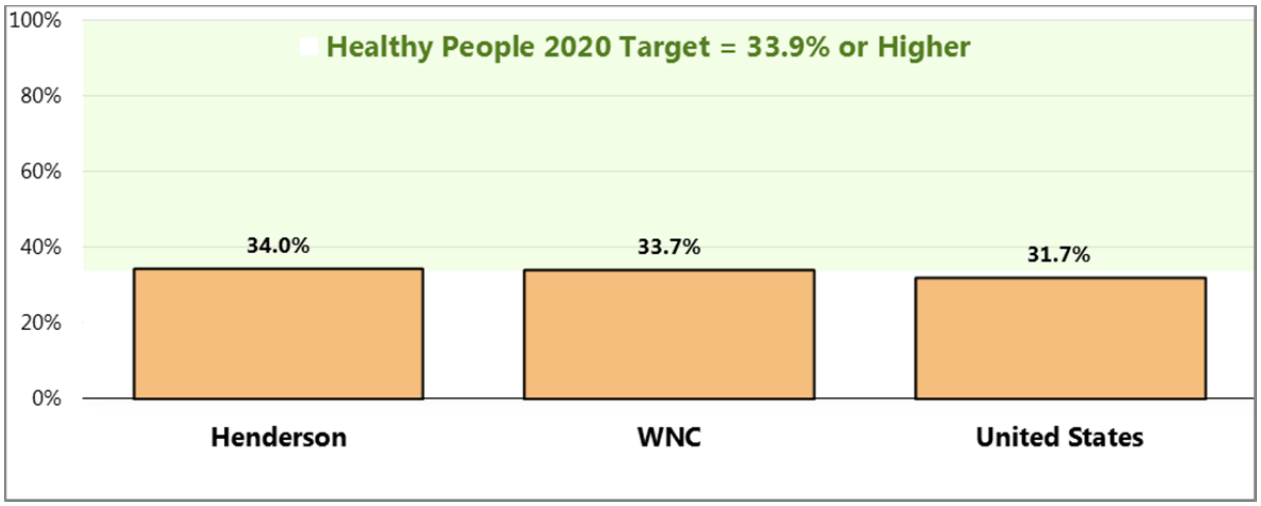
From these data it appears that the estimated prevalence of diagnosed obesity among adults in Henderson County rose from 24.1% in 2005 to a high of 26.6% in 2007 and dropped to 24.3% in 2009, with prevalence percentages in the 26% range in the three intervening years. The estimated mean prevalence of adult obesity in WNC increased annually throughout the period cited. Between 2005 and 2009 the estimated mean percent of the WNC population diagnosed as obese rose from 25.2% to 28.0%, a total increase of 11.1%.

Table 37. Estimate of Diagnosed Obesity Among Adults Age 20 and Older (2005-2009)

Geography	2005		2006		2007		2008		2009	
	#	%	#	%	#	%	#	%	#	%
Henderson County	17,640	24.1	19,470	26.2	19,950	26.6	19,770	26.1	18,898	24.3
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.

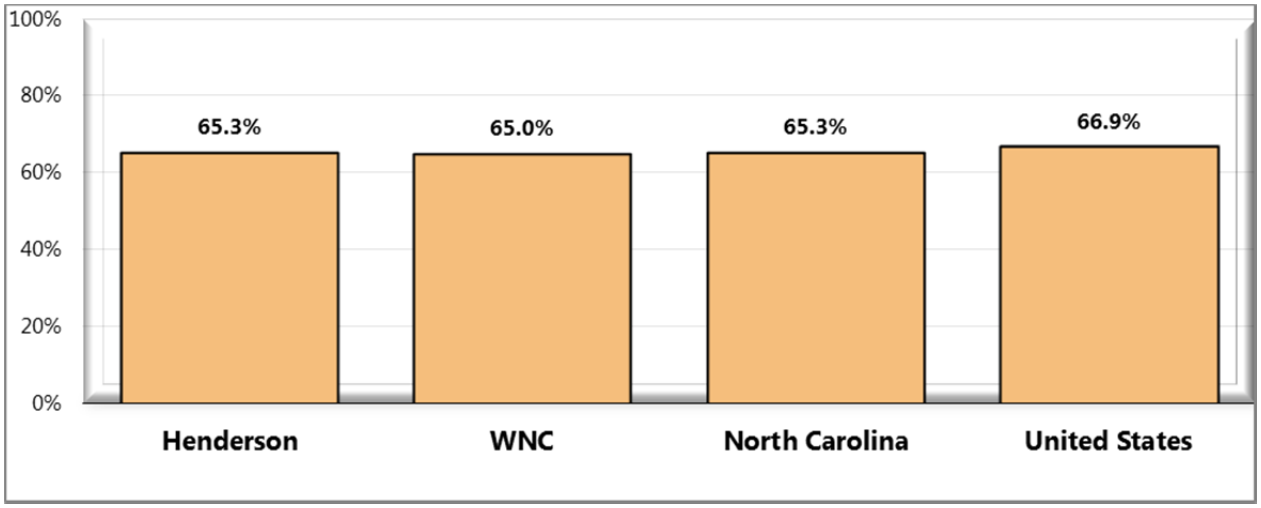
Figure 49. Healthy Weight (WNC Healthy Impact Survey)
(Percent of Adults With a Body Mass Index Between 18.5 and 24.9)



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.

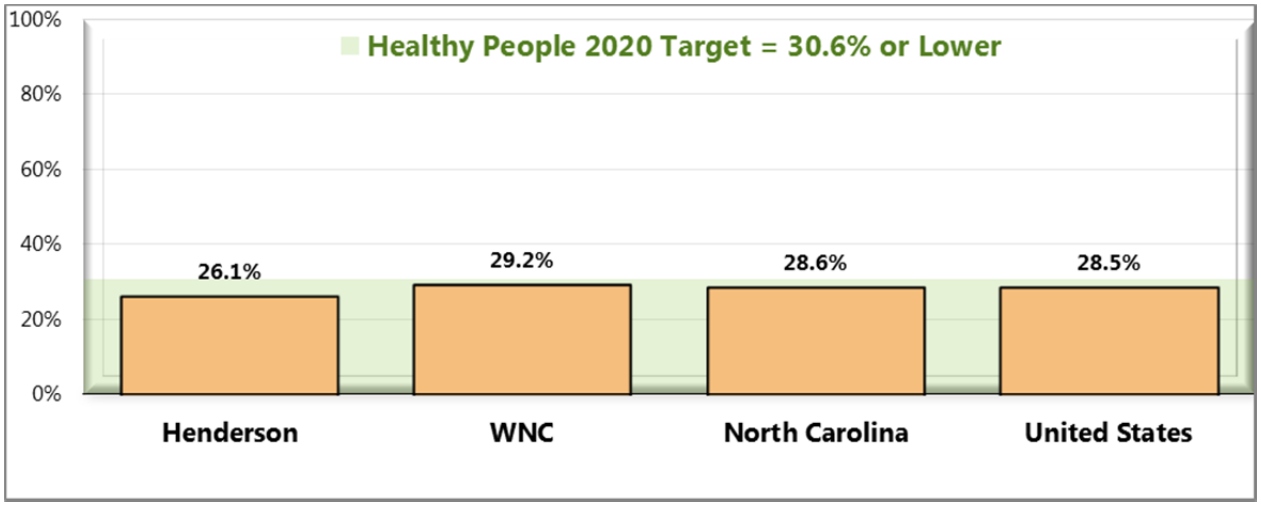
Figure 50. Prevalence of Total Overweight (WNC Healthy Impact Survey)
(Percent of Overweight or/Obese Adults; Body Mass Index of 25.0 or Higher)



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 51. 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 Public Health Department 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 38, 39 and 40 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 38 it appears that the prevalence of healthy weight among 2-4 year-olds in Henderson County (64.1%) was lower than the comparable figure for WNC (64.5%) but higher than the figure for NC (63.5%). The prevalence of *overweight* among children ages 2-4 was higher in Henderson County (18.2%) than in WNC (17.2%) or NC as a whole (16.1%). The prevalence of *obesity* in Henderson County 2-4 year-olds (14.1%) was higher than the mean prevalence in WNC (13.6%) but lower than the prevalence in NC as a whole (15.6%). It must be noted that the regional means denoted in *italics* contained one or more county percentages that were unstable due to small numbers of children participating in the program.

Table 38. 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	
	#	#	%	#	%	#	%	#	%
Henderson County	971	35	3.6	622	64.1	177	18.2	137	14.1
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 39 it appears that the prevalence of children ages 5-11 with healthy weight in Henderson County (46.4%) was lower than the comparable figure for both

WNC (63.4%) and NC (54.3%). The Henderson County figure for prevalence of *overweight* children ages 5-11 was unstable. The prevalence of *obesity* in this age group in Henderson County (42.9%) was higher than the comparable figures for WNC (19.4%) and NC (25.8). It should be noted that the healthy weight and obesity percentages for Henderson County were based on relatively small (n=12-13) numbers of participants. It must also be noted that the regional means denoted in *italics* contained one or more county percentages that were unstable due to small numbers of children participating in the program.

Table 39. 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	
	#	#	%	#	%	#	%	#	%
Henderson County	28	2	***7.1***	13	46.4	1	***3.6***	12	42.9
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

Note: County percentages in ***bold italics*** are unstable due to small numbers of program participants.

Too few children in the 12-18 age group in Henderson County participated in the NC NPASS program to yield stable rates in any of the weight categories (Table 40). Examining instead regional data it appears that the prevalence of healthy weight children ages 12-18 was higher in WNC (56.3%) than statewide (51.9%), that the prevalence of *overweight* children ages 12-18 was higher in WNC (19.0%) than in NC as a whole (18.1%), but that the prevalence of *obesity* in this age group was smaller in WNC (23.8%) than statewide (28.0%). It must be noted that the regional means denoted in *italics* contained one or more county percentages that were unstable due to small numbers of children participating in the program.

Table 40. 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	
	#	#	%	#	%	#	%	#	%
Henderson County	15	0	***0.0***	9	***60.0***	3	***20.0***	3	***20.0***
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

Note: County percentages in ***bold italics*** are unstable due to small numbers of program participants.

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

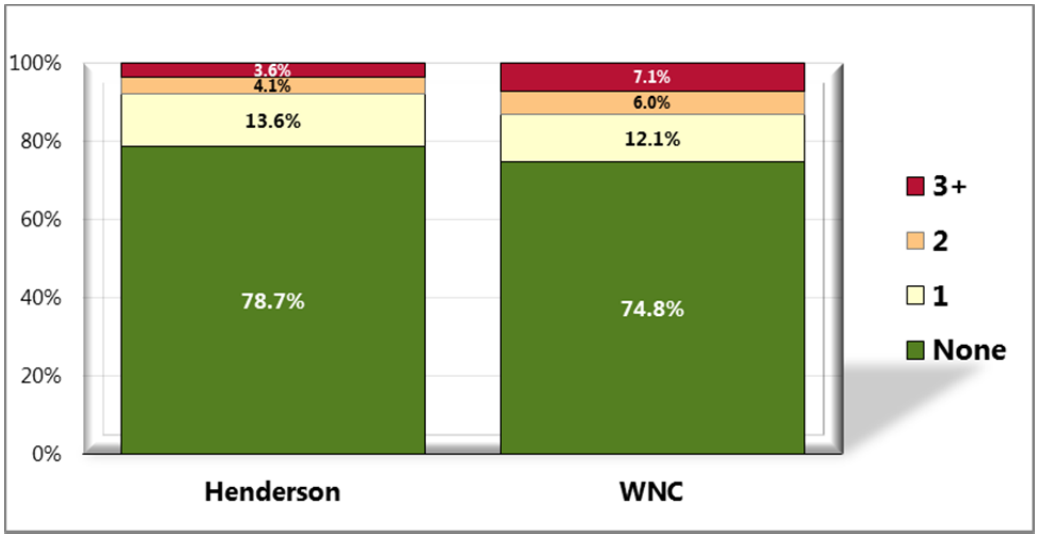
Injuries

Falls

There were 114 deaths due to falls in Henderson County in the period 2006-2010. In 2009 alone there were 25, 24 of them in the over-65 age group (one in the 65-74 year age group, seven in the 75-84 age group, and 16 in the 85-and-over age group) (*Data Workbook*).

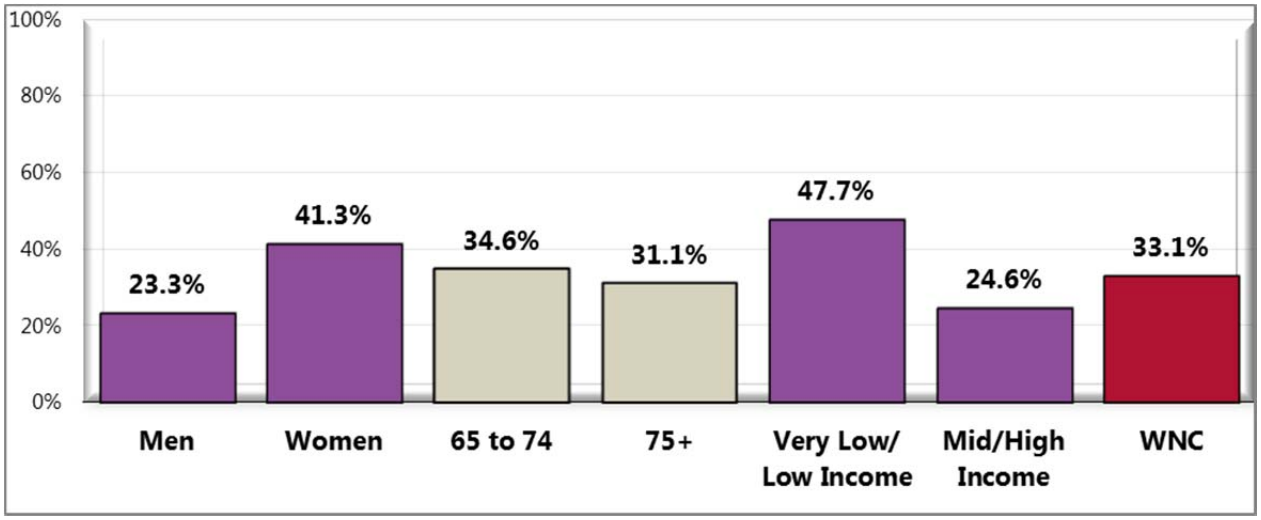
Survey respondents were also asked how many times they have fallen in the past 12 months, and how many of these falls caused an injury. Data is shown below for adults age 65 and older. Due to small county-level sample sizes, fall-related injury data is provided at the regional level.

Figure 52. 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 53. 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 41 presents trend data on vehicle crashes for the period from 2006 through 2010. The data presented for Henderson County demonstrated considerable variability, but the percentage of alcohol-related crashes in the county was below the comparable percentage for WNC every year cited. The percentage of alcohol-related traffic crashes in the county was above the comparable state rate in every year cited except 2010. The data in the table also shows that the percentage alcohol-related vehicle crashes in WNC were higher than the comparable percentages for the state as a whole throughout the period cited, with the difference varying from 16% to 27% depending on the year.

Table 41. 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
Henderson County	2,462	5.7	2,396	5.6	2,130	6.6	2,032	5.8	1,905	4.3
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 42 presents additional detail on the nature of vehicular crashes for a single year, 2010. In Henderson County 4.3% of *all* crashes were alcohol-related; although the following number may be unstable since it is based on only four events, 36.4% of the *fatal* crashes in the county (4 of 11) were alcohol-related. In both WNC and NC as a whole, the proportion of *all* crashes that were alcohol-related was less than 6%, but the proportion of *fatal* crashes that were alcohol-related was over 30%. It is noteworthy that the percentages of crashes that were alcohol-related were higher in WNC than in NC for every outcome category displayed in Table 42.

Table 42. 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
Henderson County	1,905	4.3	1,290	2.8	604	7.0	11	**36.4**
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 Henderson County, WNC or NC, but in 2010 in the US as a whole, 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 Henderson 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 61 unintentional poisoning deaths in Henderson County, with a corresponding age-adjusted mortality rate of 13.7 per 100,000

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

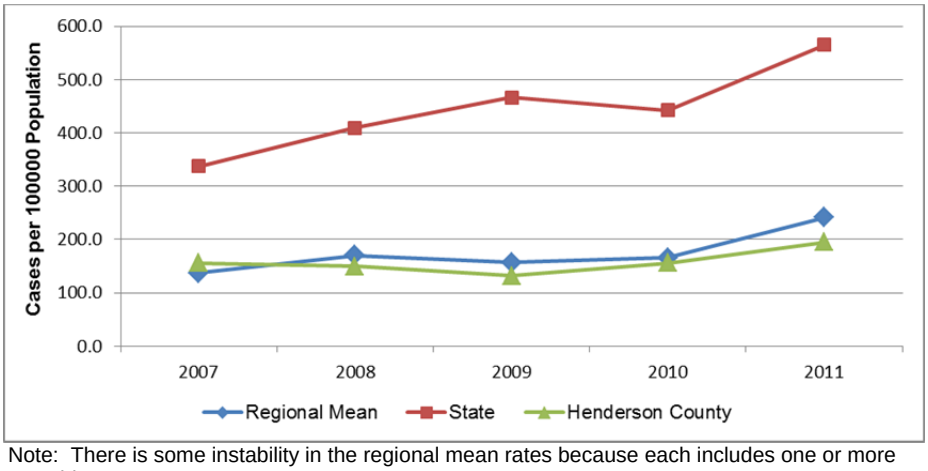
Communicable Disease

A communicable disease is a disease transmitted through direct contact with an infected individual or indirectly through a vector. 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 54 plots chlamydia rates for several years. From this data is appears that chlamydia infection was far less prevalent in Henderson County than in NC, and slightly less prevalent than in WNC. In WNC, the mean chlamydia infection rate, which varied between 136.9 and 241.5, was 57% to 66% lower than the comparable rate for NC as a whole for the time span cited. Chlamydia rates in both NC and WNC increased overall between 2007 and 2011, as the NC rate rose 67.2% (from 337.7 to 564.8) and the WNC rate rose 76.4% (from 136.9 to 241.5). In Henderson County over the same period the chlamydia infection rate increased 24.9%, from 156.0 to 194.9.

Figure 54. Chlamydia Rate, All Ages, Cases per 100,000 Population (Five Single Years, 2007-2011)

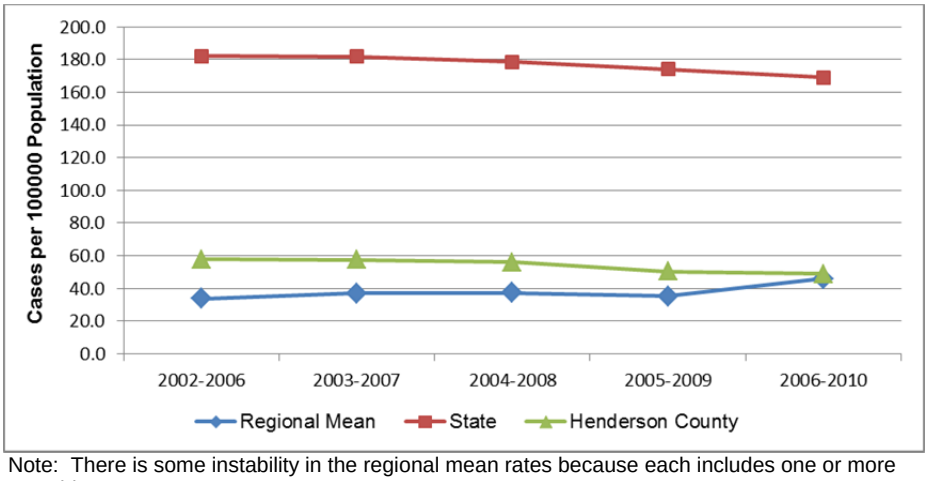


Note: There is some instability in the regional mean rates because each includes one or more unstable county rate.

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. 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 55 plots gonorrhea rates for several aggregate periods. From this data it appears that the gonorrhea incidence rate in Henderson County was much lower than the NC rate, but slightly higher than the mean WNC rate. The mean gonorrhea rate in WNC was 72% to 82% lower than the state rate for the span of aggregate periods shown in Figure 55. It is noteworthy that as the state gonorrhea rate decreased 7.2% (from 182.0 to 168.9) over the period cited, the mean WNC gonorrhea rate increased 36.2% (from 33.7 to 45.9) in the same time span. In Henderson County the gonorrhea infection rate decreased 15.7% over the period cited, falling from 57.9 to 48.8.

Figure 55. Gonorrhea Rate, Cases per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)



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

Gonorrhea infection displays a strong racial disparity in Henderson County. Table 43 presents data on gonorrhea prevalence in Henderson County, WNC and NC for the aggregate period 2006-2010. From this data it is apparent that in Henderson County during the period cited, the gonorrhea infection rate was highest among African American non-Hispanics (430.6) followed by Hispanics (85.7) and white non-Hispanics (30.0). Statewide, the highest gonorrhea infection rates are seen among non-Hispanic African Americans, followed by non-Hispanics of other races, then Hispanics.

Table 43. Gonorrhea Rate, by Racial/Ethnic Group, Cases per 100,000 Population Five-Year Aggregate (2006-2010)

County	Total		White, Non-Hispanic		African American, Non-Hispanic		Other, Non-Hispanic		Hispanic	
	# Cases	Rate	# Cases	Rate	# Cases	Rate	# Cases	Rate	# Cases	Rate
Henderson County	250	48.8	133	30.0	75	430.6	3	**52.6**	39	85.7
Regional Total	2,305	-	1,064	-	1,119	-	23	-	99	-
Regional Arithmetic Mean	144	*45.9*	67	*20.5*	70	*1341.5*	1	*10.0*	6	*31.1*
State Total	77,867	168.9	16,488	52.9	58,041	581.6	1,485	96.7	1,853	54.2

HIV infection, an important communicable disease in some regions of NC, is a rare occurrence throughout most of WNC. 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).

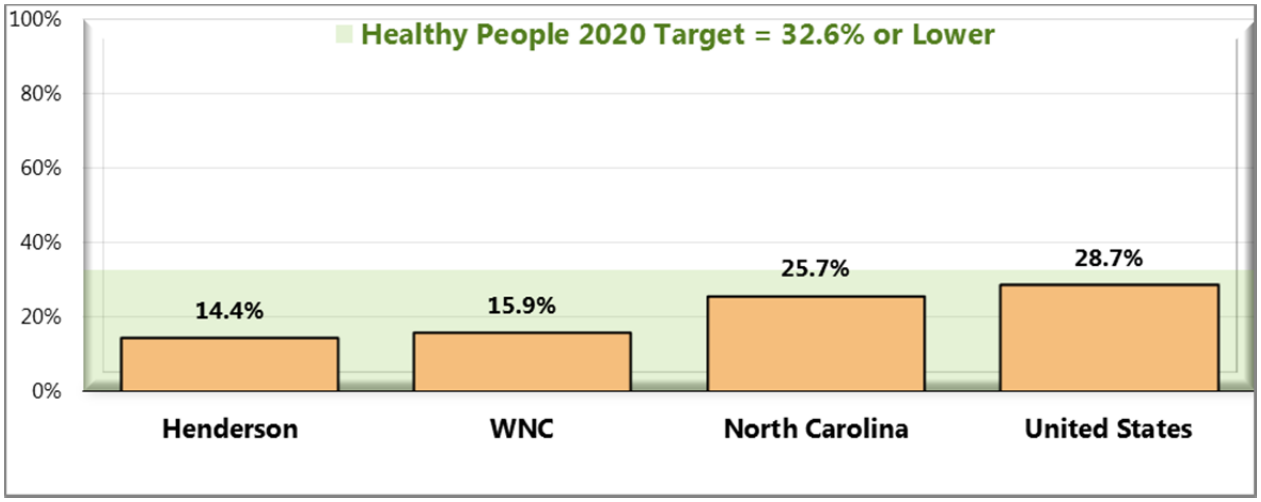
Adults (age 18–64) should do 2 hours and 30 minutes a week of moderate-intensity, or 1 hour and 15 minutes (75 minutes) a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity aerobic physical activity. Aerobic activity should be performed 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, and 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).

Phone survey results are reflected in Figures 56-60, and indicate that Henderson County residents are more physically active when compared to others in the region and the nation.

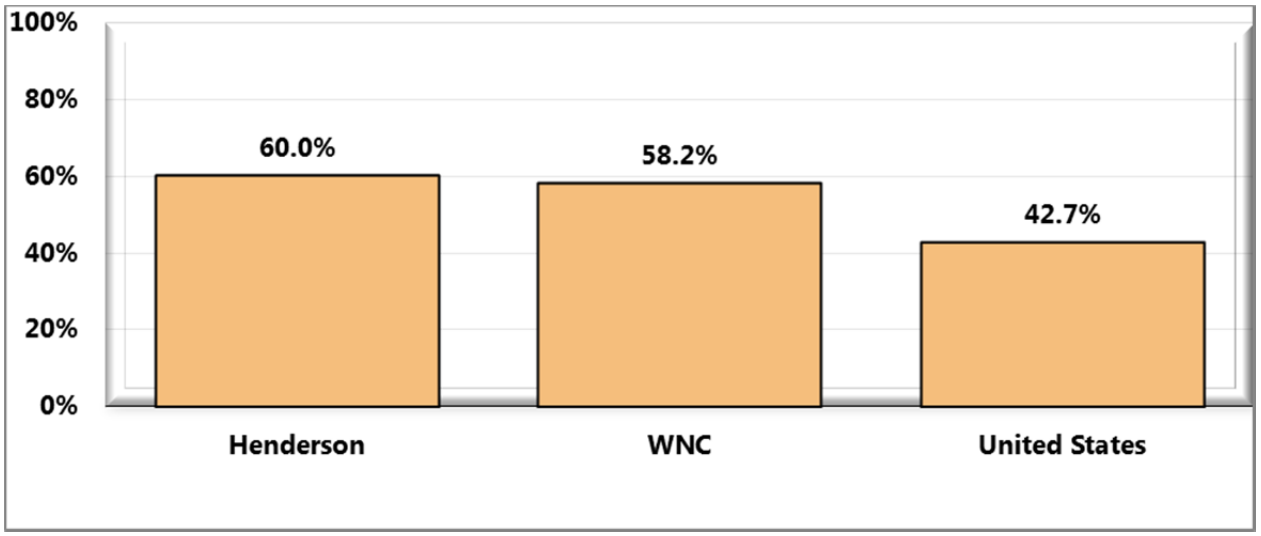
Figure 56. No Leisure-Time Physical Activity in the Past Month (WNC Healthy Impact Survey)



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.

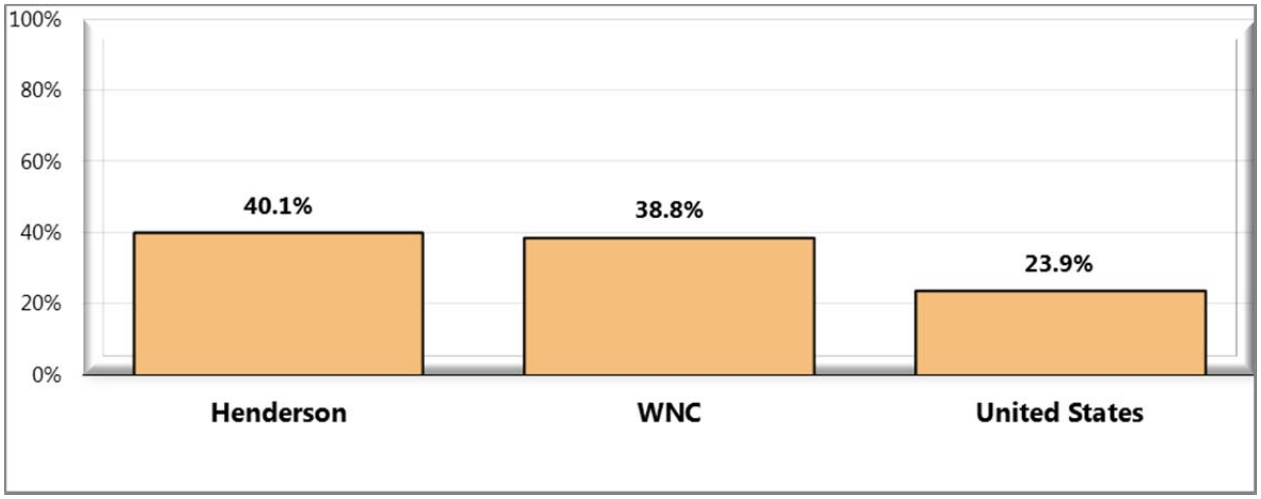
Figure 57. Meets Physical Activity Recommendations (WNC Healthy Impact Survey)



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.

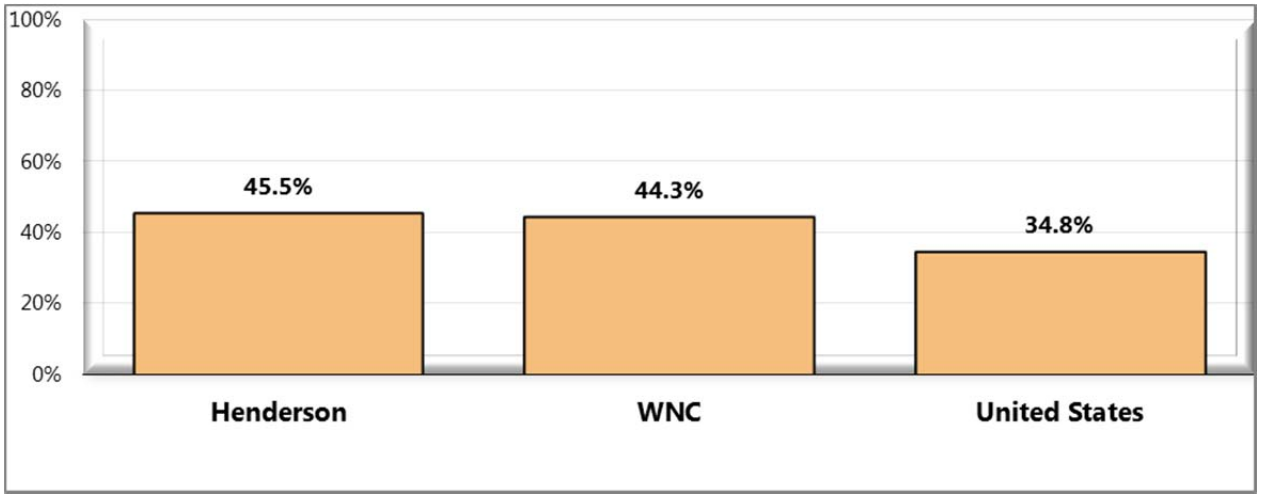
Figure 58. Moderate Physical Activity (WNC Healthy Impact Survey)



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.

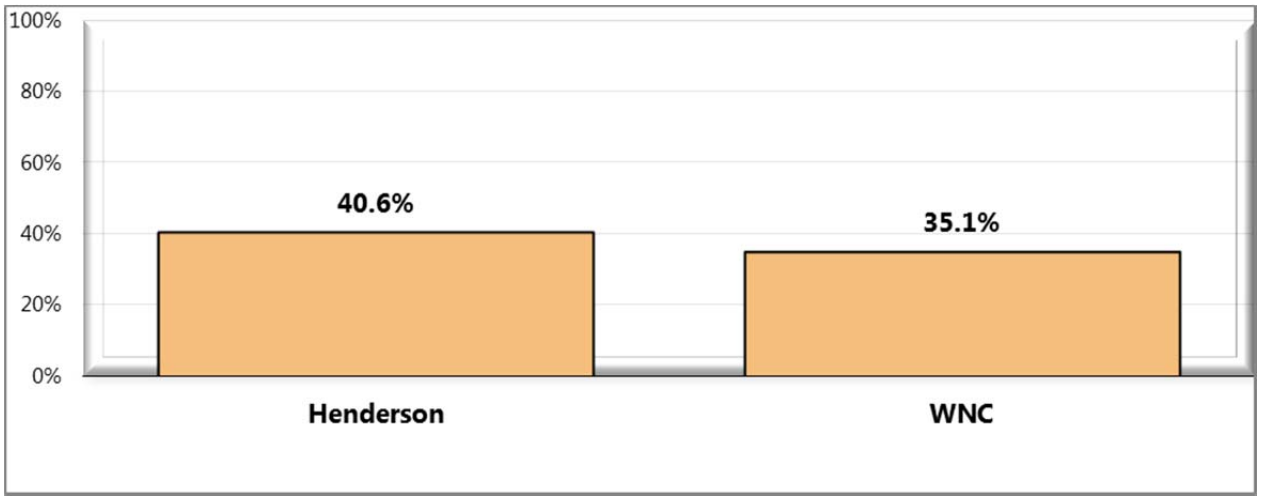
Figure 59. Vigorous Physical Activity (WNC Healthy Impact Survey)



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 60. 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:

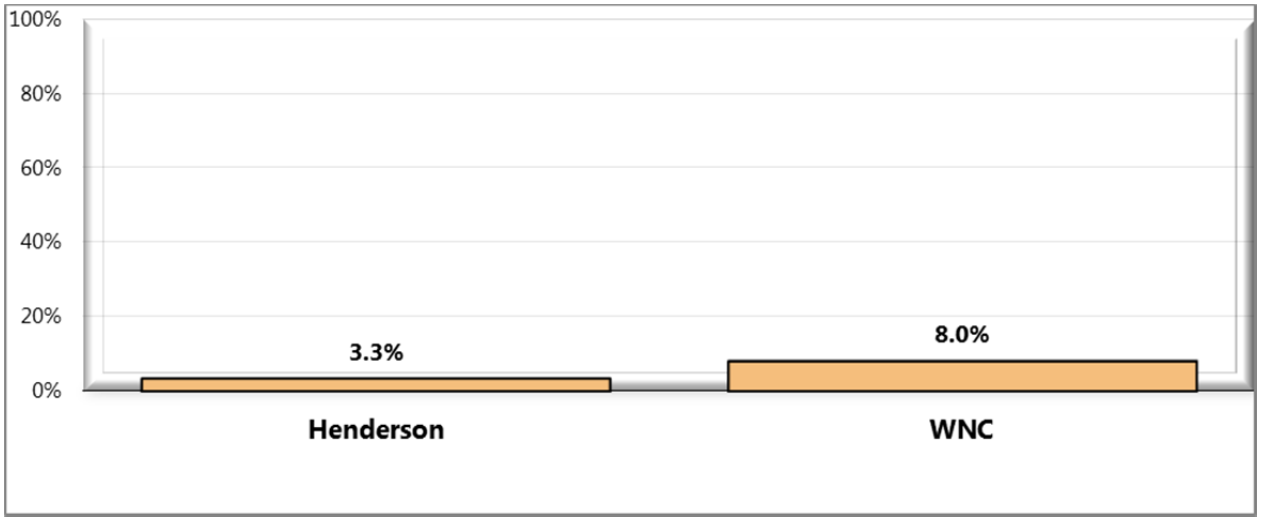
- Knowledge and attitudes
- Skills
- Social support
- Societal and cultural norms
- Food and agricultural policies
- Food assistance programs
- Economic price systems

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. Figures 61 and 62 show that Henderson County survey respondents eat fewer fruits and vegetables when compared to WNC respondents.

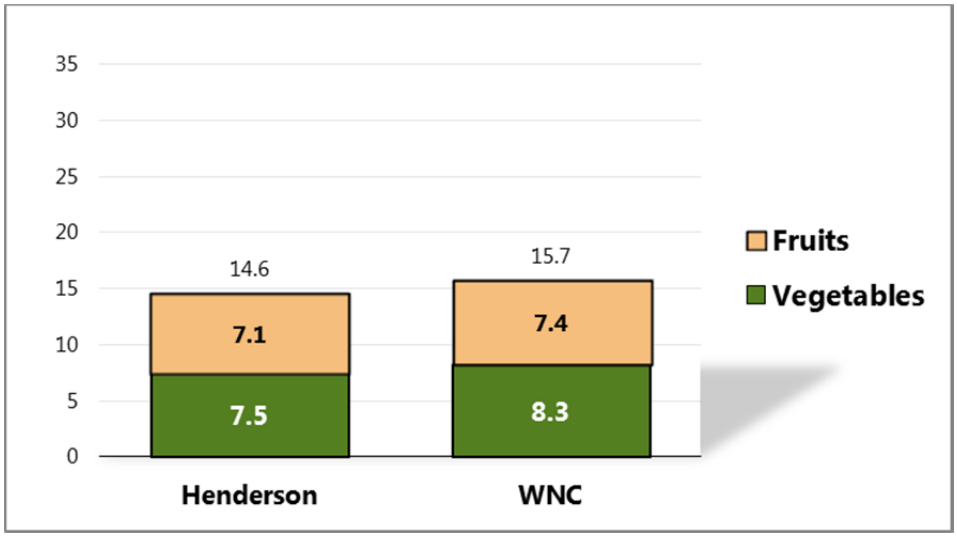
Figure 61. Had an Average of Five or More Servings of Fruits/Vegetables per Day in the Past Week (WNC Healthy Impact Survey)



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 62. 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.

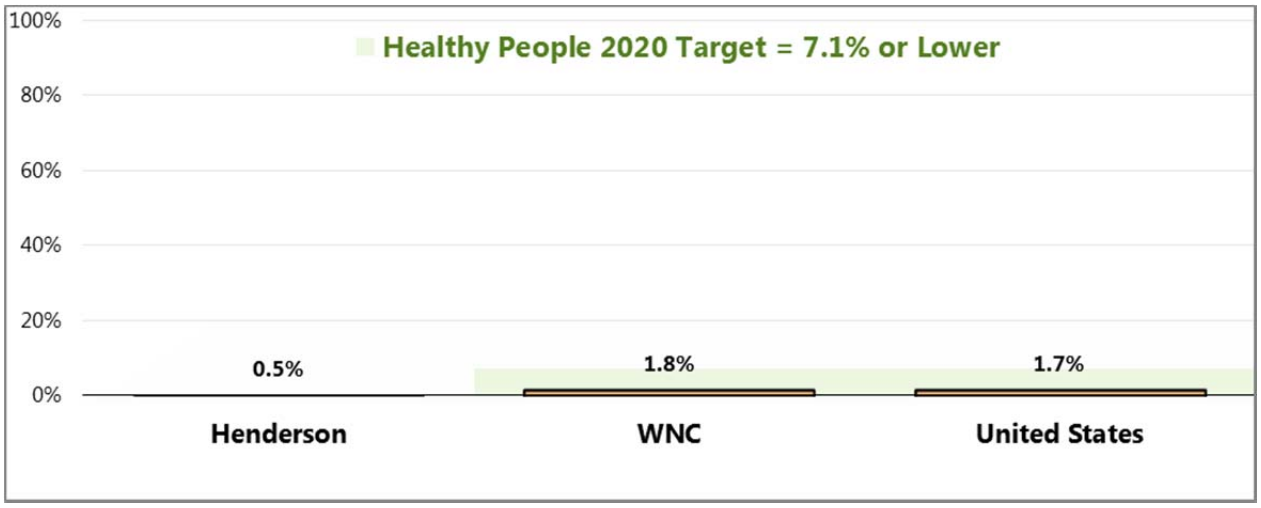
Substance Use/Abuse

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. Figure 63 shows lower Henderson County drug use reported on the phone survey when compared to the region and the state. 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 63. Illicit Drug Use in the Past Month (WNC Healthy Impact Survey)

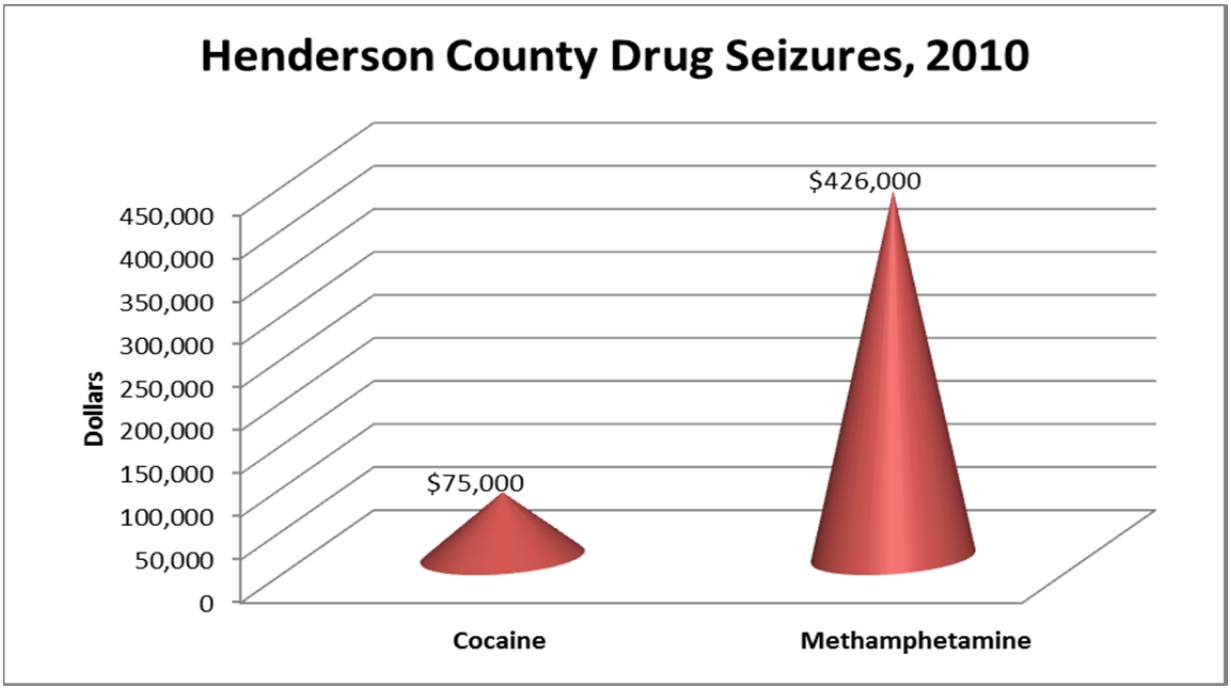


Sources:
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 52]
- 2011 PRC National Health Survey, Professional Research Consultants, Inc.
- US Department of Health and Human Services. Healthy People 2020. December 2010. http://www.healthypeople.gov [Objective SA-13.3]

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

Methamphetamines and prescription drugs are leading the area in addiction and abuse in the county. Methamphetamine is the leading illegal drug of choice for not only Henderson County but for Western North Carolina. Figure 64 shows the magnitude of the problem compared to cocaine.

Figure 64. Henderson County Drug Seizures (in dollars)



Source: Henderson County Sheriff's Department

Marijuana use is also a problem. For teens, tobacco use is closely tied to marijuana use. Teens who have smoked nicotine cigarettes are 11 times likelier to use marijuana than teens who have never smoked (68 percent vs. six percent) (Source: National Center on Addiction and Substance Abuse at Columbia University).

Tobacco is a gateway drug to other drug use. In Henderson County Public Schools, nearly one in three high school students surveyed indicated that they had smoked cigarettes at least one time and 36.1% indicated they had used marijuana at least one time. (Source: Youth Risk Behavior Survey, Henderson County, 2009)

Another problem is prescription drug abuse in youth and adults. Twenty-four percent of high school students surveyed in Henderson County indicated that they had taken prescription drugs without a doctor's order at least once.

Abuse of prescribed medicines often begins with legitimate use. People who otherwise would not abuse substances find themselves addicted when it is already too late. They begin "doctor shopping" to feed their addiction, and rationalize this behavior as being necessary to manage the pain. According to the Drug Enforcement Administration, doctor shopping is one of the primary ways that addicts obtain prescription drugs for non-medical use. "Doctor shopping" refers to when an individual visits several different doctors to obtain prescriptions for the same medications, and then has the prescriptions filled at different pharmacies. This allows the individual to obtain more of the prescribed substance than any one physician or pharmacist would allow. Pain medication, prescribed for a variety of common reasons, including back pain or surgery, caesarian sections, or even dental procedures, carries the highest risk for dependence. Over-prescribing, doctor shopping, and kids having access to prescription drugs in their parent's and grandparent's medicine cabinets are all contributing to the problem.

In listening sessions, many Henderson County residents expressed concern about the misuse of prescription medications. Respondents perceived an increase in the availability of prescription medications and a concern that the medications did not always remain in the hands of the person to whom they were prescribed.

> *"I am really concerned about the diversion of controlled substances."*

> *"Meds are being abused by the adults, they even sell them and then report that they have been stolen so they can get more…we need to regulate controlled substances more."*

> *"Part of the problem is that we don't have the specialists we need to help people get better, instead we have people prescribing meds to cover up the pain instead of taking care of the underlying problem."*

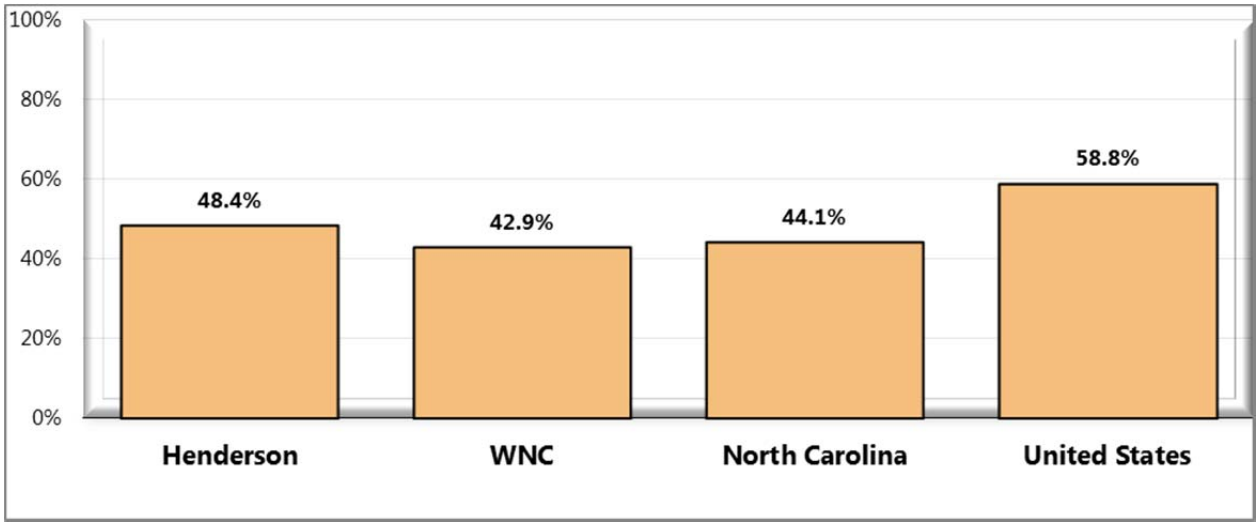
Alcohol

Alcohol affects every organ in the body. It is a central nervous system depressant that is rapidly absorbed from the stomach and small intestine into the bloodstream. Alcohol is metabolized in the liver by enzymes; however, the liver can only metabolize a small amount of alcohol at a time, leaving the excess alcohol to circulate throughout the body. The intensity of the effect of alcohol on the body is directly related to the amount consumed. Excessive drinking both in the form of heavy drinking or binge drinking, is associated with numerous health problems, including—chronic diseases such as liver cirrhosis (damage to liver cells); unintentional injuries, such as motor-vehicle traffic crashes, falls, drowning, burns and firearm injuries; violence, such as child maltreatment, homicide, and suicide; alcohol abuse or dependence.

"**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.

Figures 65 and 66 show that there are more current and chronic drinkers in Henderson County than in the region and the state, but less than the nation.

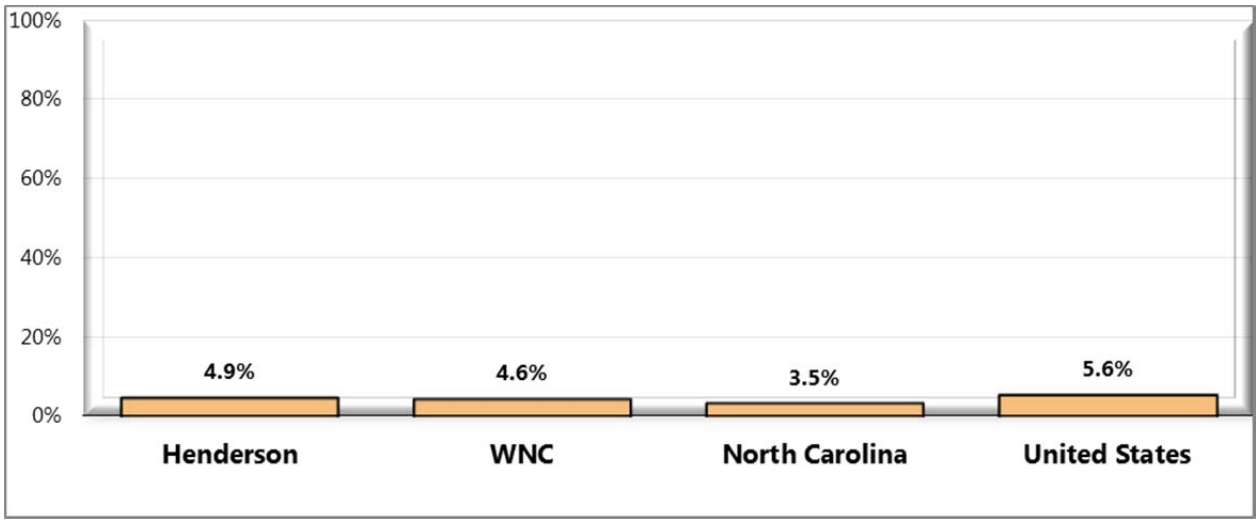
Figure 65. Current Drinkers (WNC Healthy Impact Survey)



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 66. Chronic Drinkers (WNC Healthy Impact Survey)

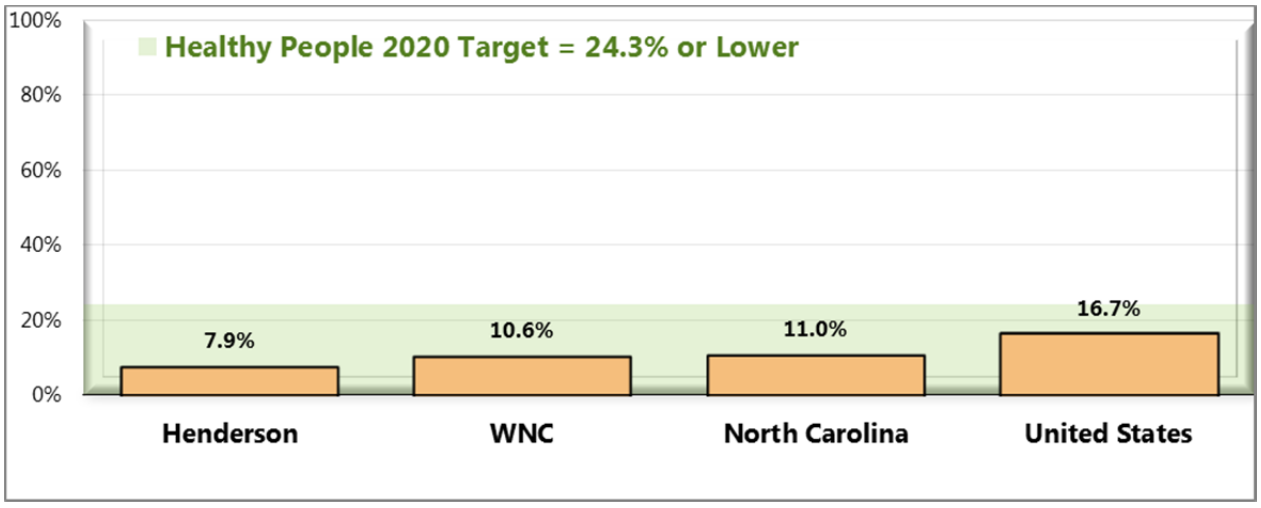


Sources:
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 89]
- Behavioral Risk Factor Surveillance System Survey Data. Atlanta, Georgia. United States Department of Health and Human Services, Centers for Disease Control and Prevention (CDC): 2010 North Carolina data.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

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

Figure 67. 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.

North Carolina has the 14th highest smoking prevalence in the nation. Tobacco use is the leading cause of preventable death in North Carolina. Approximately 30% of all cancer deaths and nearly 90% of lung cancer deaths – the leading cancer death among men and women – are caused by smoking. In addition, those who smoke have increased risks for heart attack and stroke.

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).

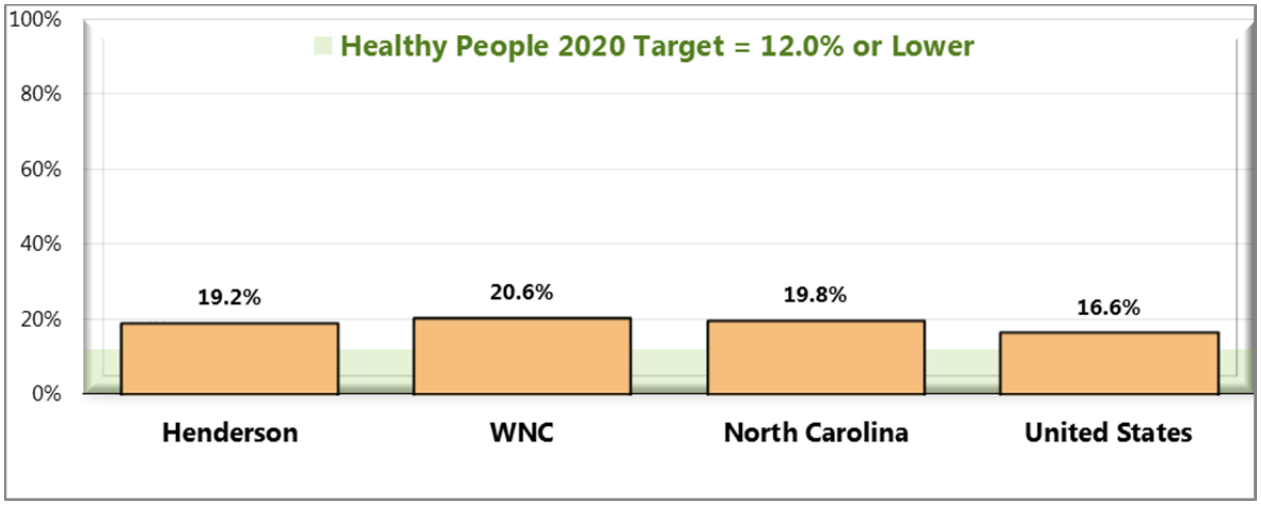
Non-smokers are also harmed by tobacco use through their exposure to secondhand smoke, which contains more than 7,000 chemicals. About 70 of these can cause cancer and hundreds are toxic.

Nearly twenty-one percent of adults in Western North Carolina report smoking in the Behavioral Risk Factor Surveillance System survey. The Healthy NC 2020 goal is 12%. Other studies have found that there are regional differences. The rates of current smokers are higher for Eastern and Western North Carolina than the Piedmont over the past ten years.

In the 2009 Youth Risk Behavior Surveillance Survey administered in Henderson County Public Schools, 32.4% of high school students surveyed indicated that they had smoked cigarettes.

Figures 68 and 69 of phone survey results show that there are fewer smokers and smokeless tobacco users in Henderson County than in the region but more when compared to the nation.

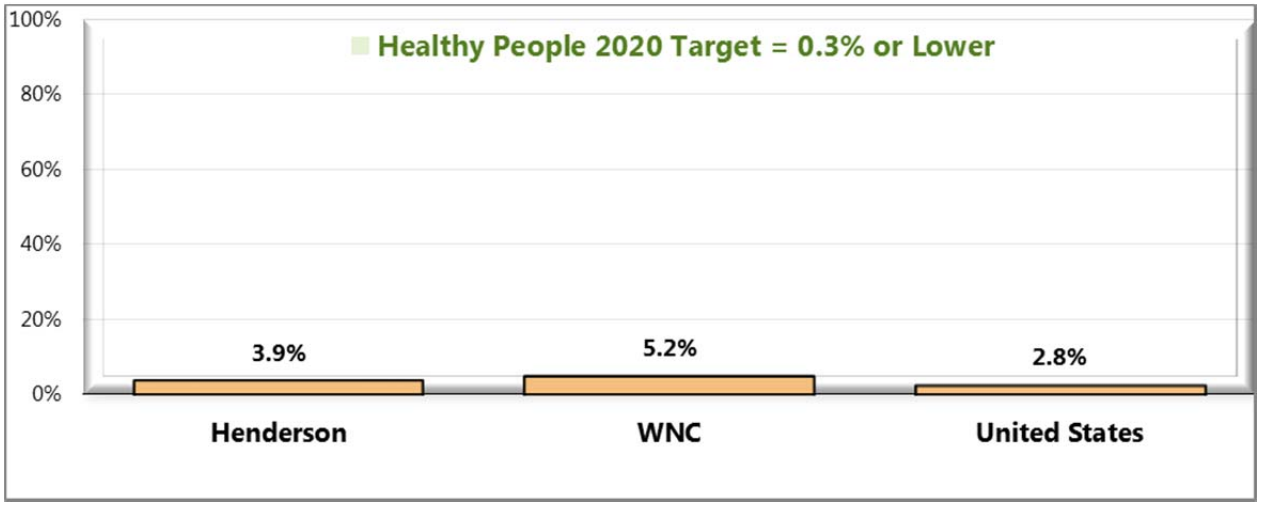
Figure 68. Current Smokers (WNC Healthy Impact Survey)



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



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

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

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

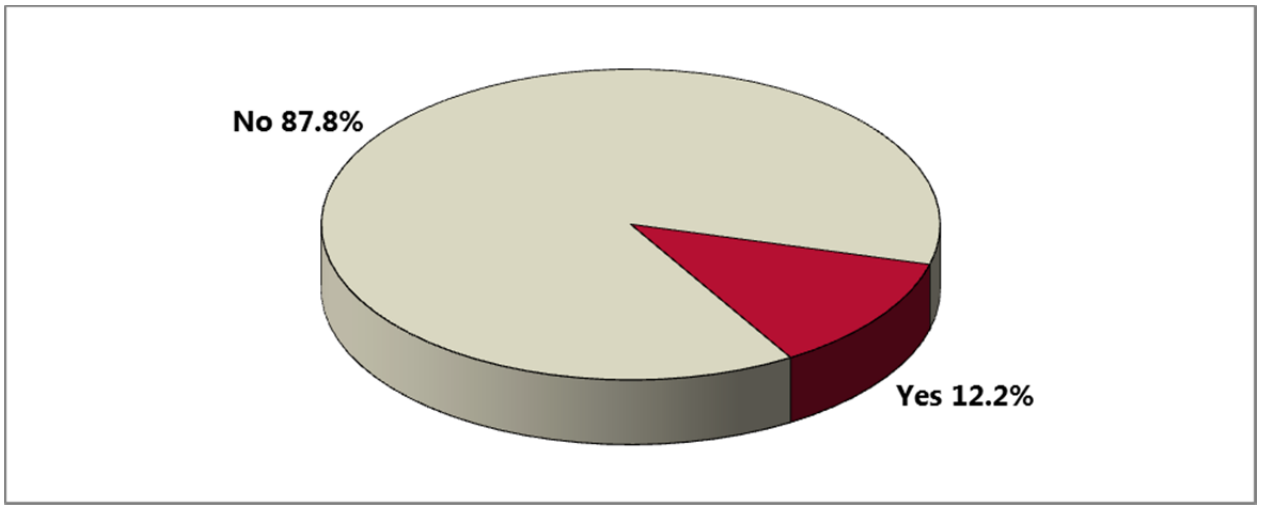
	Doctor	On My Own/Cold Turkey	Don't Know
Henderson	✓	✓	✓
WNC	✓	✓	✓

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

Intimate Partner Violence

Intimate partner violence (IPV) is a serious, preventable public health problem that affects millions of Americans. The term "intimate partner violence" describes physical, sexual, or psychological harm by a current or former partner or spouse. This type of violence can occur among heterosexual or same-sex couples and does not require sexual intimacy. Henderson County survey respondents were asked, "Has an intimate partner ever hit, slapped, pushed, kicked, or hurt you in any way?" No regional or state data is available for comparison. Twelve percent indicated that they had been a victim of Intimate Partner Violence.

Figure 70. Have Ever Been Hit, Slapped, Pushed, Kicked, or Otherwise Hurt by an Intimate Partner (WNC Healthy Impact Survey)

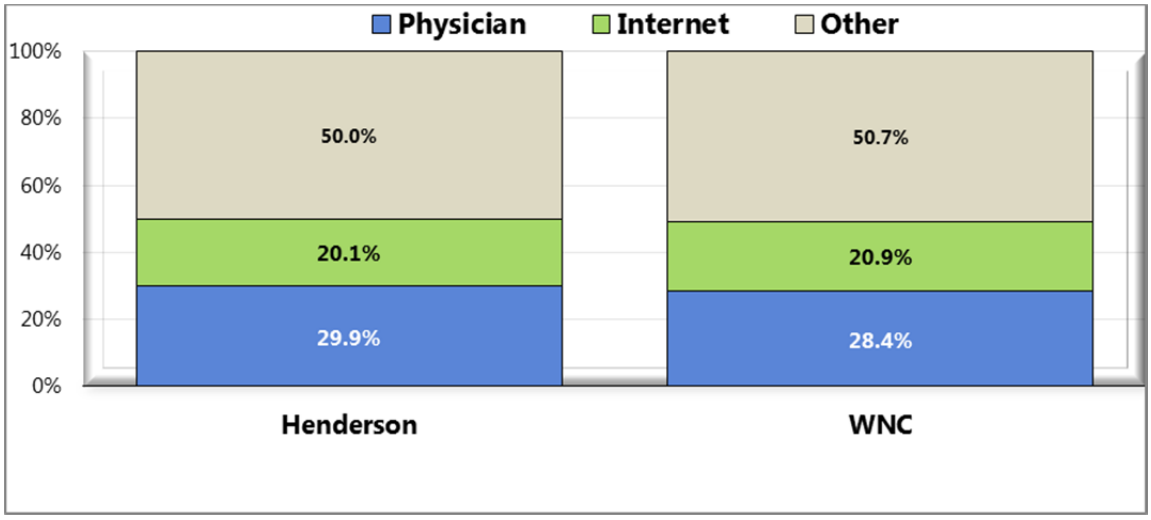


Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 103]
Notes: • Asked of all respondents

Health Information

Survey respondents were asked about where they get their healthcare information. There was little to no difference across the region on where people get healthcare information. Fifty percent of respondents receive their healthcare information from "other" sources, including friends, books, and magazines.

Figure 71. 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

Medical Care Access

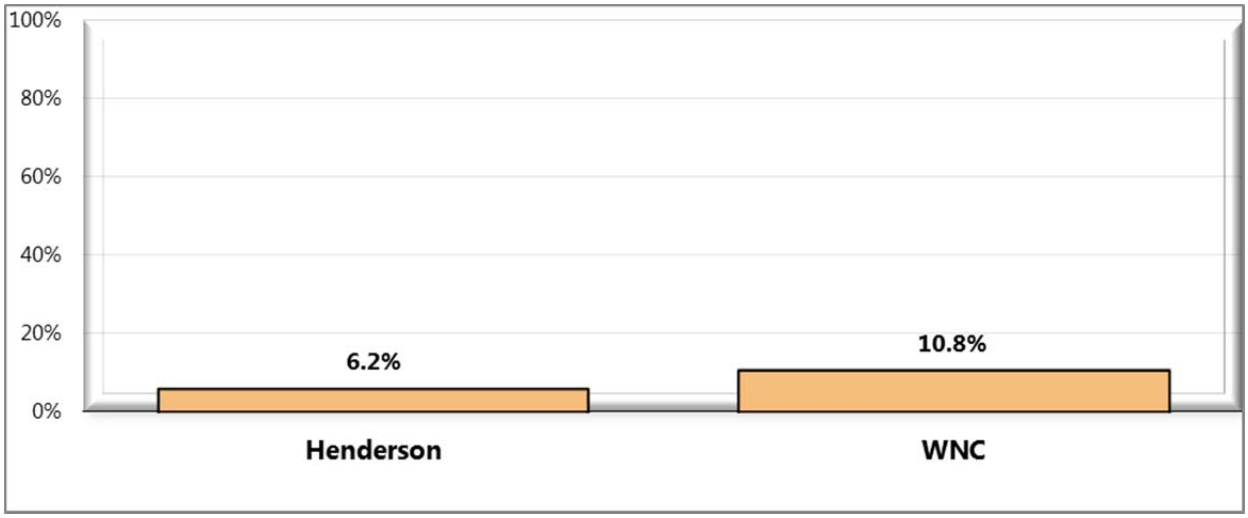
Access to comprehensive, quality health care services is important for the achievement of health equity and for increasing the quality of a healthy life for everyone. It impacts: overall physical, social, and mental health status; prevention of disease and disability; detection and treatment of health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

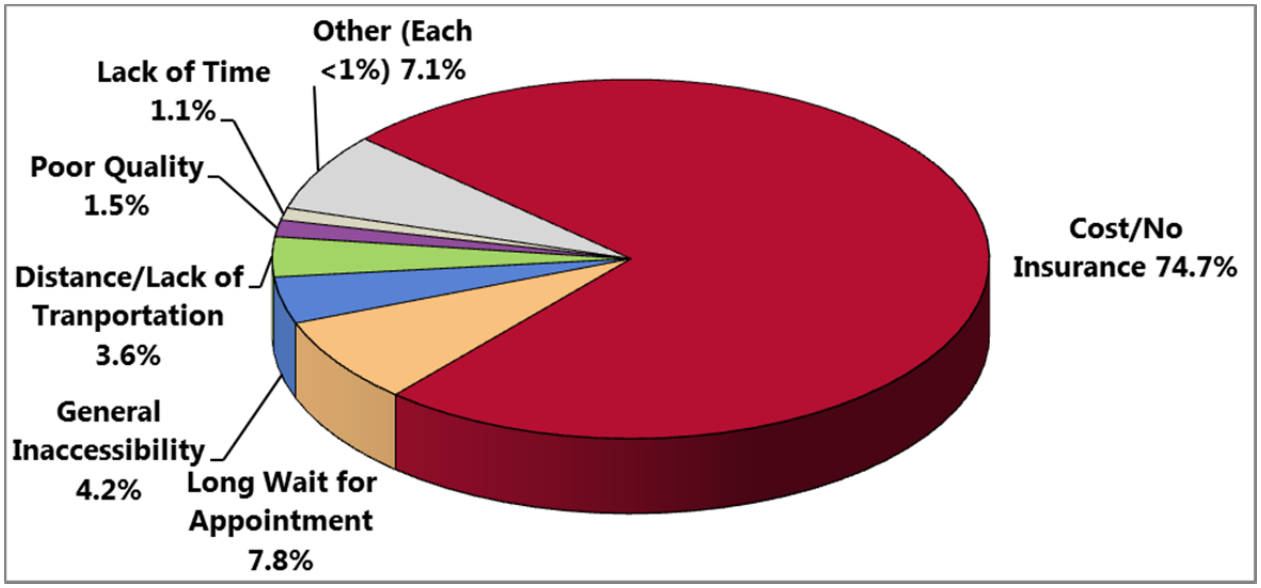
Survey respondents were asked if there was a time in the past 12 months when they needed medical care, but could not get it. If they responded, "yes," they were asked to name the main reason they could not get needed medical care. Due to small county-level sample sizes, the responses to the latter question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

Figure 72. 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.

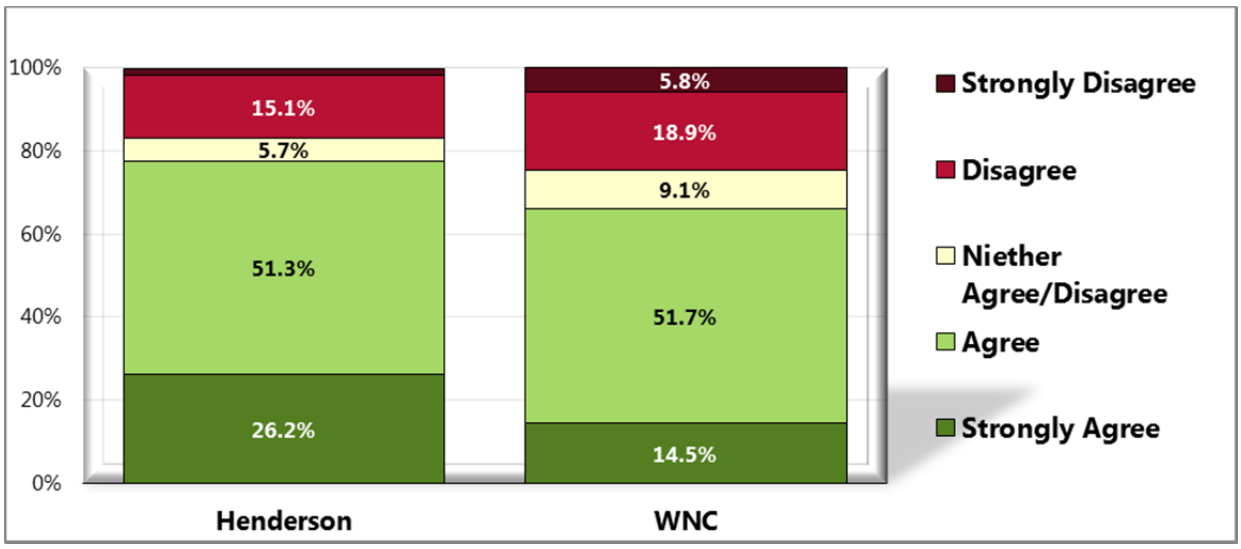
Figure 73. Primary Reason for Inability to Get Needed Medical Care (WNC Healthy Impact)
(Unable to Get Needed Medical Care at Some Point in the Past Year)
(Western North Carolina, 2012)



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

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*." Nearly 70% of respondents in Henderson County agreed or strongly agreed with this statement.

Figure 74. "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.

In listening sessions, while the vast majority of participants see Henderson County as being blessed with a plethora of health care opportunities for most citizens, significant gaps were noted in dental care for the lower socioeconomic groups, access to care for the working poor, awareness of available services across all demographics, lack of interpreters in health care settings, lack of adequate transportation, and a number of seniors noted a desire for more specialists in the county.

Although nearly all respondents felt as if they had a "medical home", somewhere to go to have their medical needs met, a number of respondents mentioned having no dental care. While a few implied that dental health is low on their health priority list, many noted that aside from the extraction clinics, there are very few providers in the county who serve low-income patients. One particular area of perceived need is dental providers for low-income children.

One group with whom we were unable to schedule a listening session is the working poor, people who do not qualify for public assistance but are struggling to make ends meet. These folks may be the most challenging to reach because they are often working multiple jobs while attempting to make ends meet and therefore are not able or unwilling, to take the time off from work to discuss and possibly even attend to their health needs. Respondents expressed concern that these folks may not only lack awareness of available services but that many resources may be inaccessible or cost prohibitive.

> *"People who are 'underemployed' often can't access services during the work day because they are working and they can't take time off from work to go see a doctor. They have to balance the need for care against the need for money and work. It's hard to have to make that kind of decision about your health."*

> *"I feel like in our community people are much more focused on working and trying to keep their job and earn money than they are on their health."*

Many participants expressed concern about care opportunities for those without insurance or legal status and or those without English language skills. Although participants lacking insurance and or English skills who were interviewed felt they had all the necessary resources, we realize that interviewing participants who are already enrolled in established programs may bring bias. While many respondents noted that Henderson County has a number of agencies to address the needs of those who have a low or no income, who lack health insurance, and/or who do not have strong English skills, (agencies such as the Free Clinics, Blue Ridge Community Health Center, and the Henderson County Department of Public Health), other participants were not aware of these resources or talked about the lack of interpreters in many health care settings.

> *"If you go to get treatment, you may have to give information about yourself. Many people may not be willing to give information so they may not get treatment."*

> *"Sometimes they advertise that they have interpreters but then when people get there and try to use them, they (the interpreters) don't exist."*

Community members noted that the addition of the Apple Country Transit system has had a positive impact on the ability of many community members to access health care, but many folks desire an expanded geographic reach and more regular service.

Health Care Providers

Provider/Population Ratios

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

According to this data, the ratios of professionals to population in Henderson County are higher for primary care physicians and registered nurses than in WNC, NC, or the US, and the county ratios for physicians and dentists are higher than comparable regional and state ratios. It should be noted that the mean ratios for WNC are lower than the comparable state averages in every professional category listed in the table, and lower than the comparable national average in every professional category except primary care.

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

Geography	2008					2010				
	Phys	Primary Care Phys	Dents	RNs	Pharms	Phys	Primary Care Phys	Dents	RNs	Pharms
Henderson County	21.8	10.2	4.5	95.6	9.1	22.6	10.9	4.6	92.0	8.7
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

In listening sessions, the vast majority of older community adults expressed little concern about getting the care they needed; however, a few requested more specialists in Henderson County.

"I know people complain about not having enough doctors around here but things are much better than 20 years ago, we had to go to Asheville for everything!"

"This is a town with a huge population of older adults and not a single urologist or vascular surgeon."

"We are missing specialists; we don't have an endocrinologist or a neurologist, no neurosurgeon either." (2011)

Providers by Specialty

Table 46 lists the number of active health care professionals in Henderson County and WNC, by specialty, for 2010. From these data it is apparent that every specialty in the list is present in the county.

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

Category of Professionals	Henderson County	WNC Total
Physicians		
Primary Care Physicians	117	813
Family Practice	56	368
General Practice	1	10
Internal Medicine	34	240
Obstetrics/Gynecology	10	85
Pediatrics	16	110
Other Specialties	125	853
Dentists and Dental Hygienists		
Dentists	49	342
Dental Hygienists	75	479
Nurses		
Registered Nurses	986	7,981
Nurse Practitioners	37	316
Certified Nurse Midwives	6	28
Licensed Practical Nurses	223	1,854
Other Health Professionals		
Chiropractors	25	192
Occupational Therapists	38	242
Occupational Therapy Assistants	13	99
Optometrists	8	84
Pharmacists	93	669
Physical Therapists	68	511
Physical Therapy Assistants	50	309
Physician Assistants	41	290
Podiatrists	6	24
Practicing Psychologists	11	201
Psychological Assistants	3	87
Respiratory Therapists	40	370

Uninsured Population

Table 47 presents periodic two-year data on the proportion of the non-elderly population (ages 19-64) without health insurance of any kind. While there was a 21.0% increase in the percent of uninsured adults at the state level from 2006-2007 to 2009-2010, the percent of uninsured

adults in WNC decreased from one two year period to the next throughout the span of years shown in the table. In Henderson County an increase in the 2008-2009 biennium was followed by a nearly equal decrease in the following biennium, so the net change was a 0.4% increase.

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

Geography	Percent Uninsured		
	2006-2007	2008-2009	2009-2010
Henderson County	22.3	22.8	22.4
Regional Arithmetic Mean	23.4	22.3	22.0
State Total	19.5	23.2	23.6

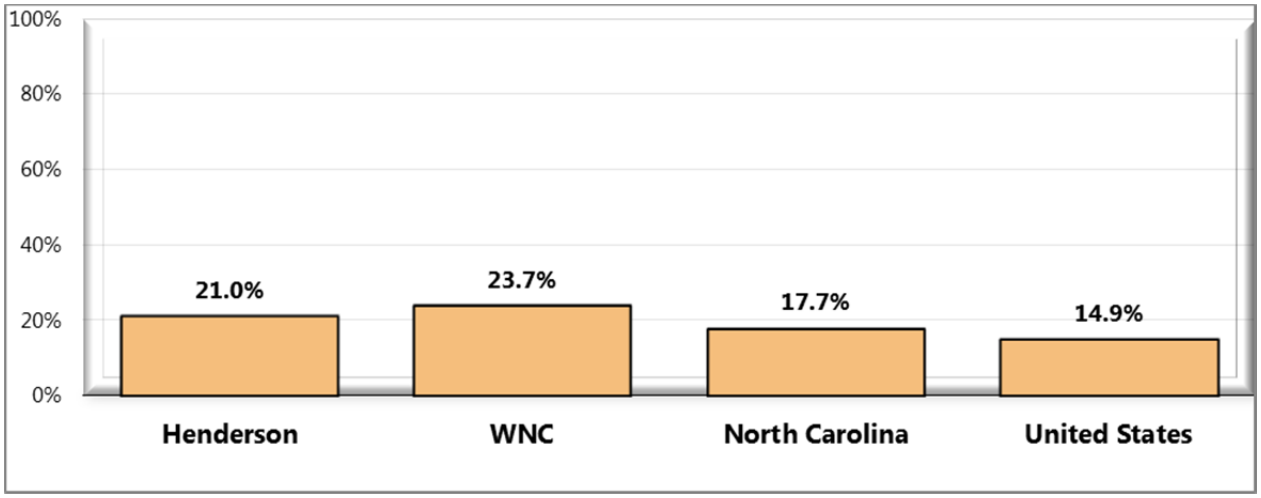
Table 48 shows the percent uninsured for one biennium (2009-2010) stratified by age. This data makes it clear that in Henderson County as well as in WNC and NC as a whole, insurance coverage is better for children, among whom the percentage uninsured is less than half the percentage uninsured among the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

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

Geography	2009-2010		
	Children (0-18)	Adults (19-64)	Total (0-64)
Henderson County	10.7	22.4	19.1
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 75. Lack of Healthcare Insurance Coverage (WNC Healthy Impact Survey)
(Among Adults 18-64)



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

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

Medicaid Eligibility

Table 49 presents trend data on the number and percent of persons eligible for Medicaid for several state fiscal years. This data demonstrates that in Henderson County the number and percent of Medicaid-eligible persons rose annually from SFY2004 through SFY2006 before falling each of the next two years. The annual percent of Medicaid-eligible Henderson County residents was lower than the comparable figures for WNC and NC for each year shown in the figure. With the exception of SFY2007, the mean percent of the WNC population eligible for Medicaid rose from one year to the next throughout the period cited in the table. Note that between SFY2006 and SFY2007 the number in WNC that were Medicaid-eligible rose even if the percentage did not. Further, the mean percent Medicaid-eligible in WNC exceeded the comparable percent eligible statewide for every period cited.

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

Geography	SFY 2004		SFY 2005		SFY 2006		SFY 2007		SFY 2008	
	#	%	#	%	#	%	#	%	#	%
Henderson County	14,906	15.77	15,333	15.95	15,909	16.27	15,812	15.80	16,065	15.73
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.

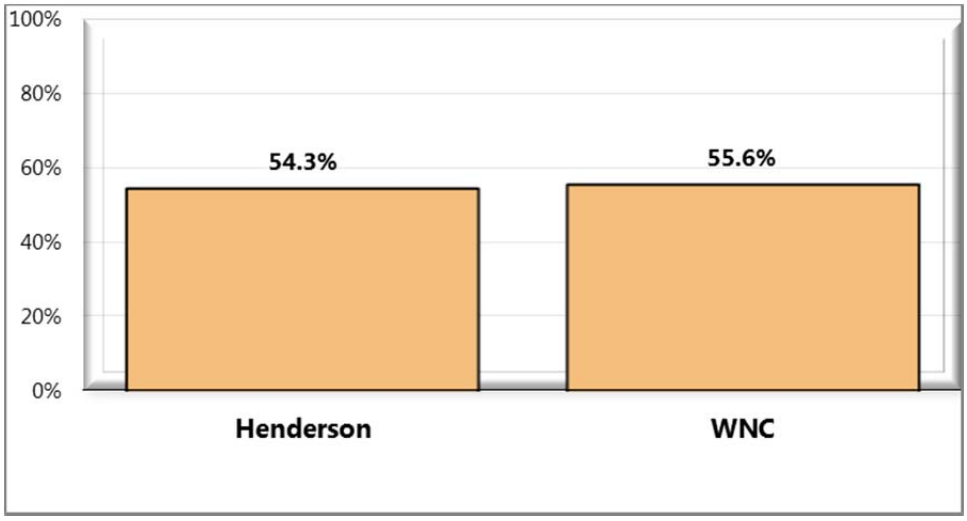
Diabetes mellitus affects an estimated 23.6 million people in the United States and is the 7th leading cause of death. Diabetes mellitus:

- 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).

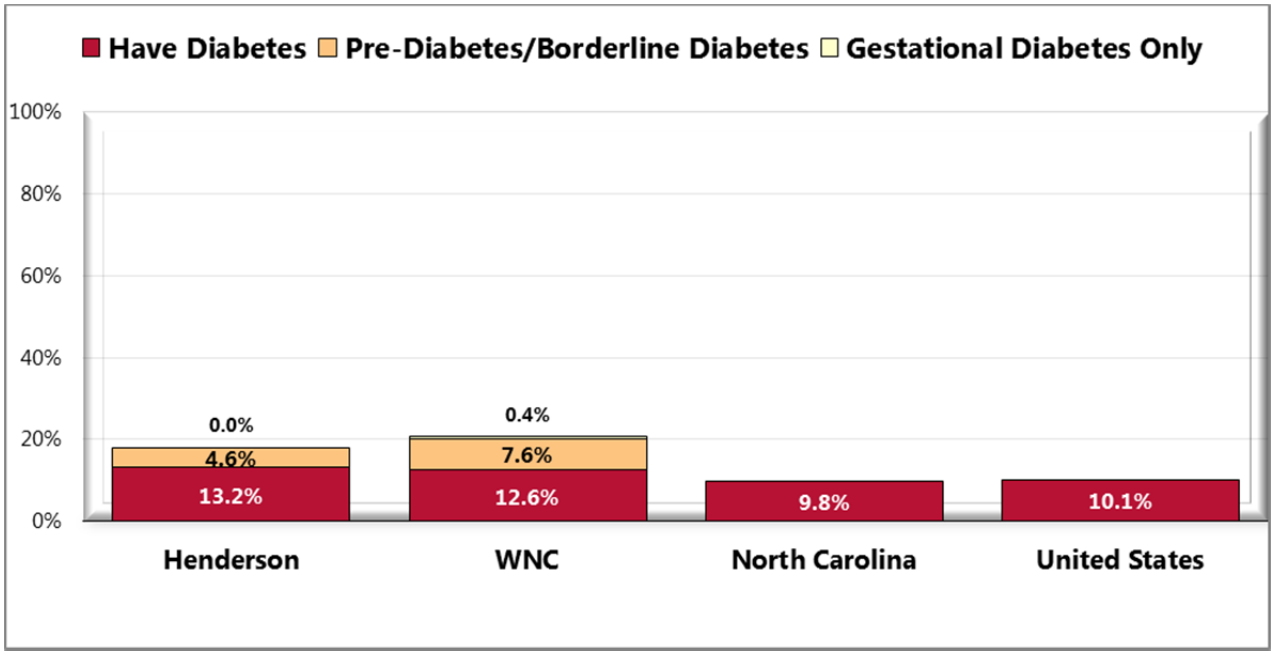
Figures 76-78 show results from the phone survey. Diabetes is more prevalent in Henderson County than in WNC, the state, and the nation.

Figure 76. Tested for Diabetes in the Past Three Years (WNC Healthy Impact Survey)
(Among Adults Who Have Not Been Diagnosed With Diabetes)



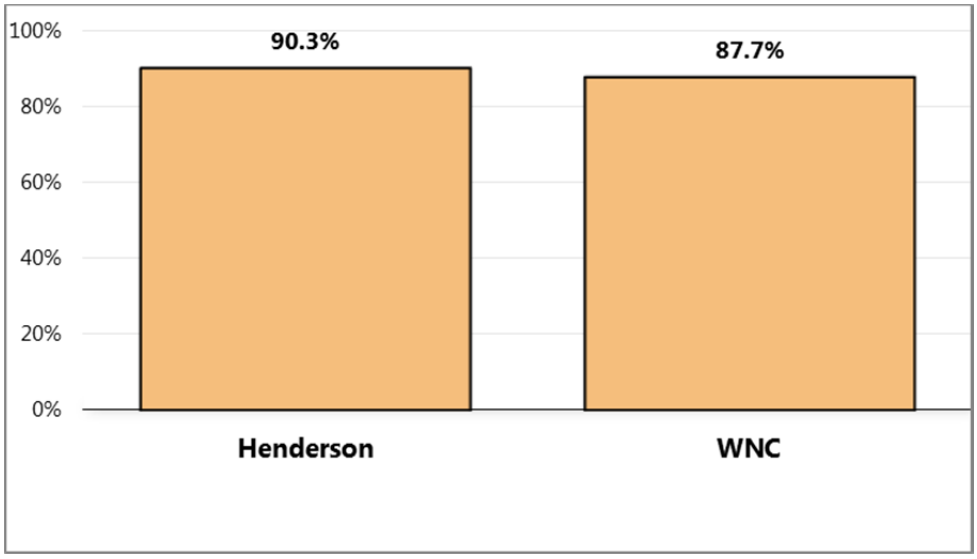
Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 19]
Notes: ● Asked of respondents who have never been diagnosed with diabetes; also includes women who have only been diagnosed when pregnant.

Figure 77. 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 78. 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]

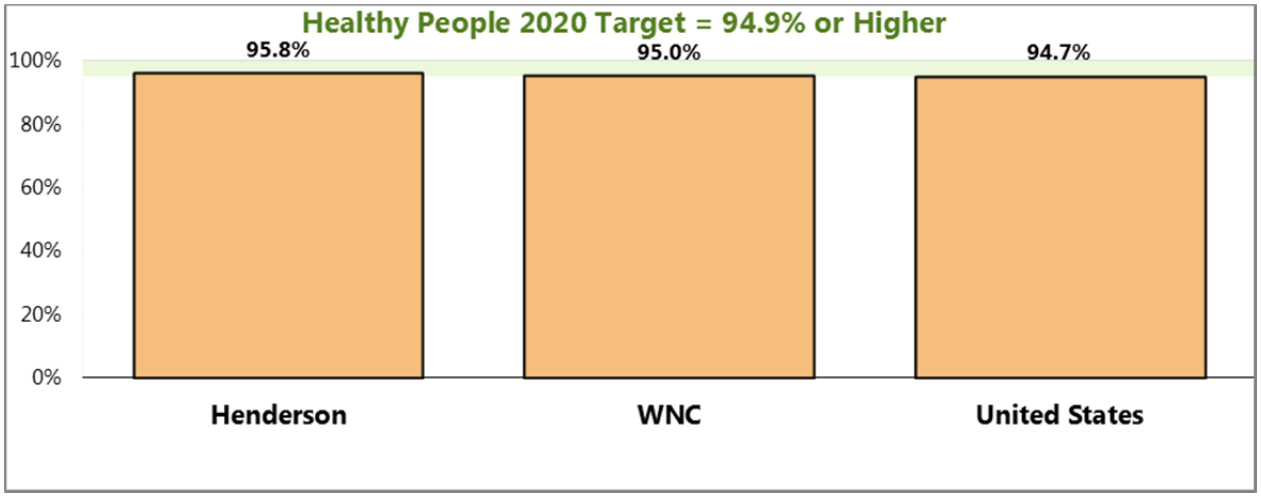
Notes:
- Asked of respondents who have been diagnosed with diabetes or prediabetes/borderline diabetes.
- In this case, the term "action" refers to taking natural or conventional medicines or supplements, diet modification, or exercising.

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).

Figures 79-81 show that Henderson County respondents' answers do not differ significantly from those in the region, state, and nation when asked about the prevalence of high blood pressure, how often blood pressure is checked, and if they control their blood pressure.

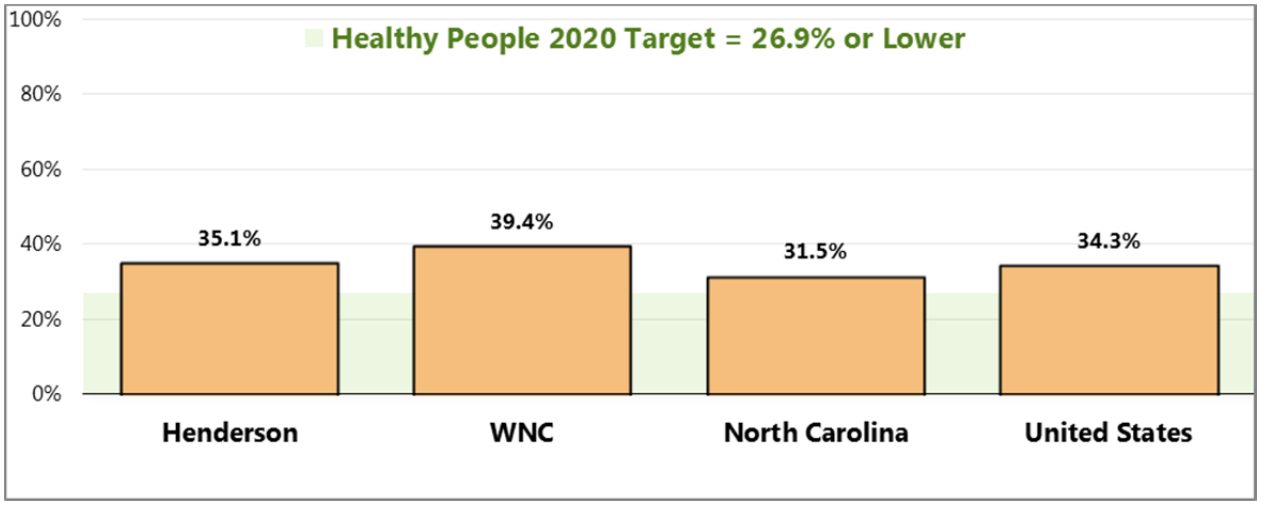
Figure 79. Have Had Blood Pressure Checked in the Past Two Years (WNC Healthy Impact Survey)



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.

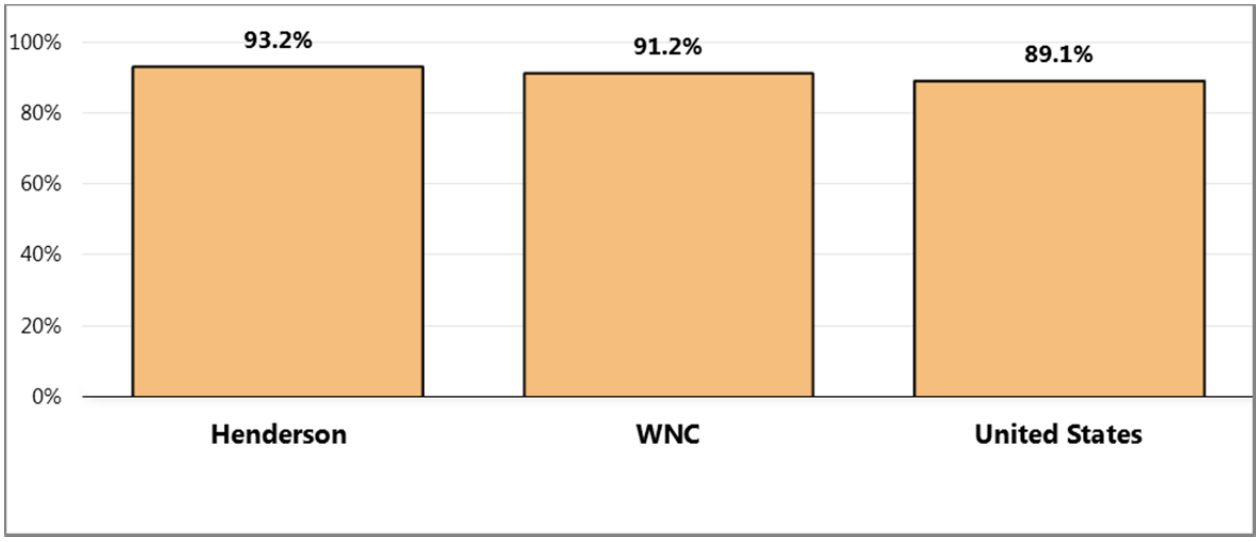
Figure 80. Prevalence of High Blood Pressure (WNC Healthy Impact Survey)



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



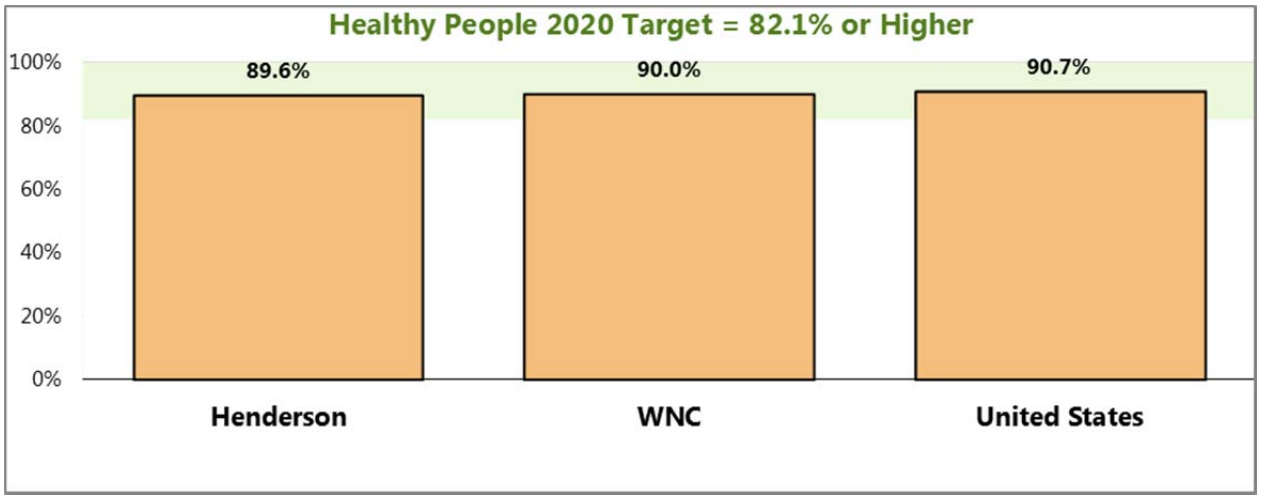
Sources:
- 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 23]
- 2011 PRC National Health Survey, Professional Research Consultants, Inc.

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.

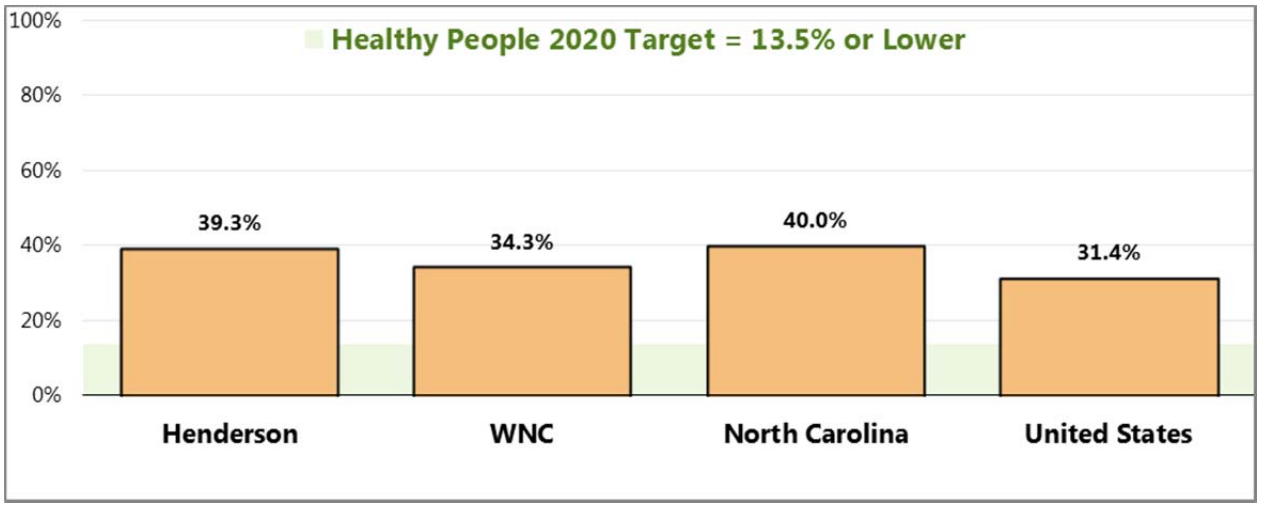
Figure 82. Have Had Blood Cholesterol Levels Checked in the Past Five Years (WNC Healthy Impact Survey)



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.

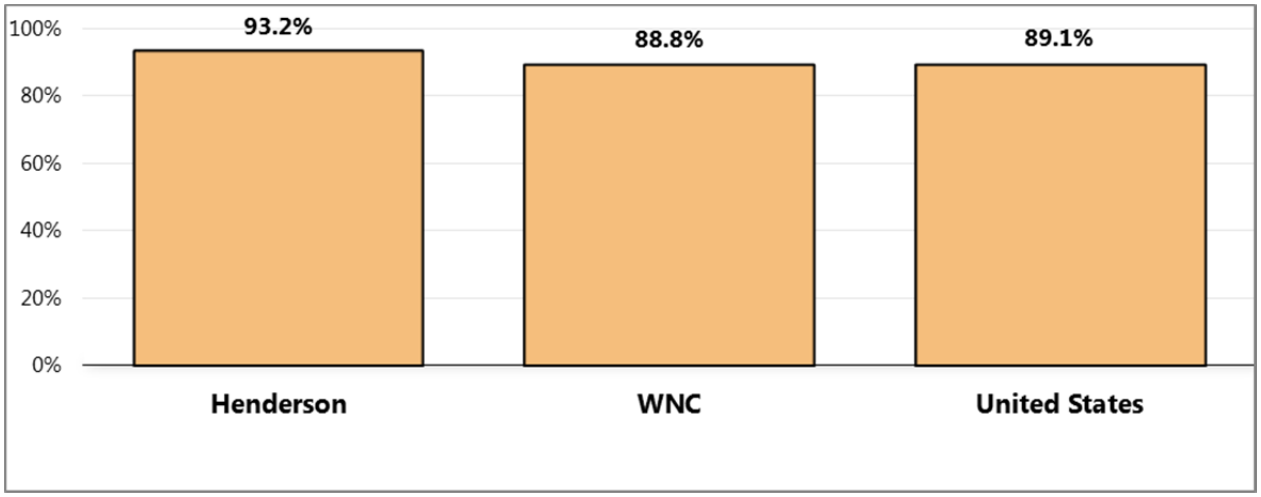
Figure 83. Prevalence of High Blood Cholesterol (WNC Healthy Impact Survey)



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 84. 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

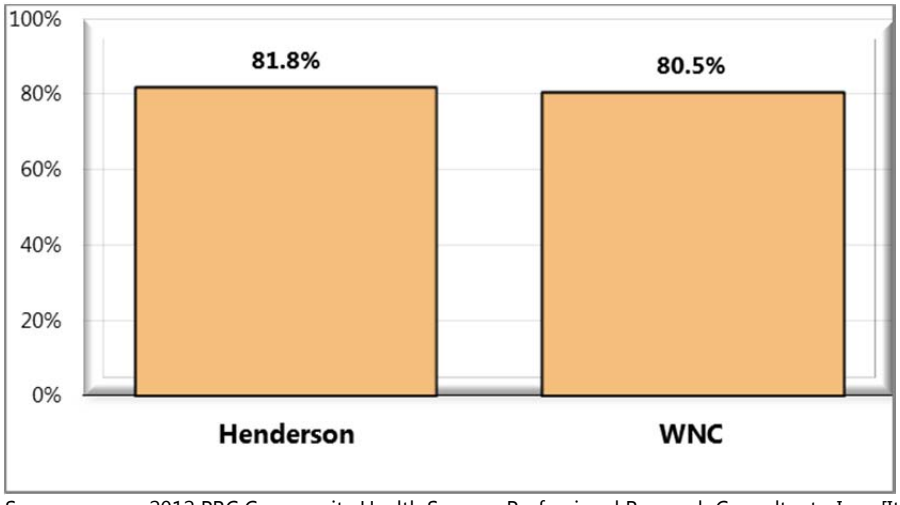
Improving health care services depends in part on ensuring that people have a usual and ongoing source of care. People with a usual source of care have better health outcomes and fewer disparities and costs. Having a primary care provider (PCP) as the usual source of care is especially important. PCPs 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).

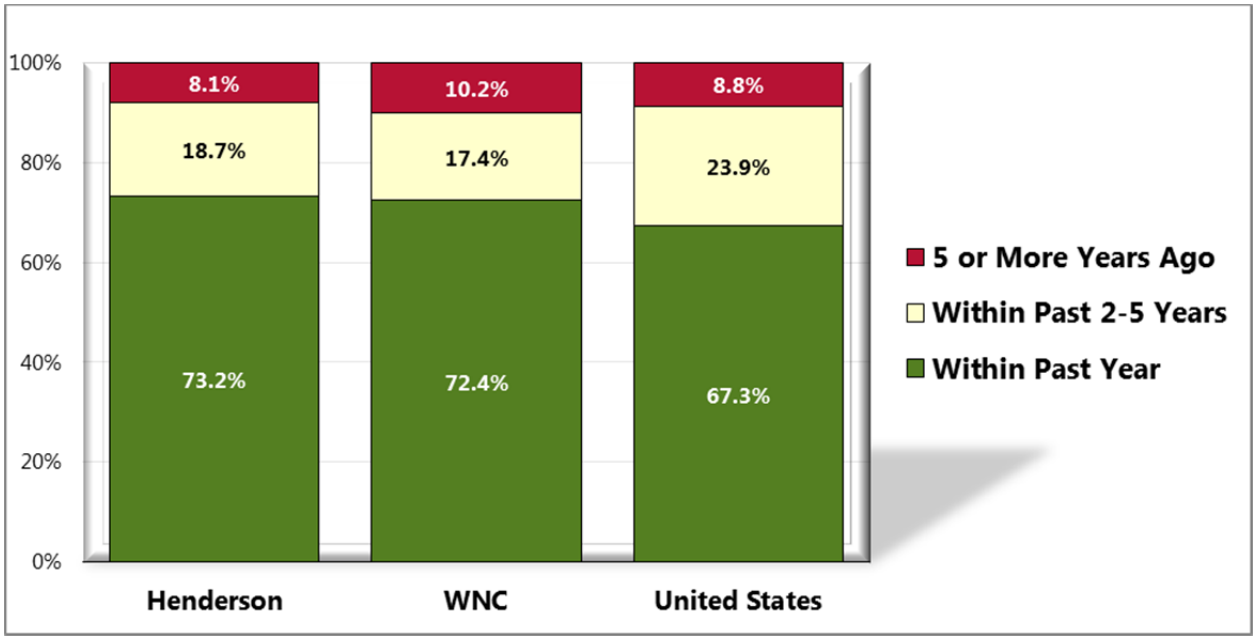
Survey respondents were asked a series of questions about their health care provider.

Figure 85. 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 86. Length of Time Since Last Routine Check-Up
(WNC Healthy Impact Survey)



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

Notes:
- Asked of all respondents.

Emergency Department Utilization

According to data in Table 50, the diagnoses associated with the highest frequency of emergency department visits in Henderson County in 2010 were chest pain/ischemic heart disease (9.77% of all ED visits), followed by psychiatric disorders (8.07%) and lower respiratory disorders (6.59%). On the regional level, the diagnoses associated with the highest frequency of ED visits were chest pain/ischemic heart disease (11.83% of all ED visits), followed by psychiatric disorders (10.98%) and lower respiratory disorders (9.48%)

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

Diagnosis	Henderson County		WNC Mean
	#	%	%
Chest pain/ischemic heart disease	4,558	9.77	11.83
Heart failure	999	2.14	2.58
Cardiac arrest	39	0.08	0.14
Lower respiratory disorders	3,077	6.59	9.48
Diabetes	2,894	6.20	8.80
Neoplasms	593	1.27	1.57
Dental problems	1,042	2.23	1.85
Stroke/TIA	208	0.45	0.62
Traumatic brain injury	132	0.28	0.30
Psychiatric disorders	3,766	8.07	10.98
Substance abuse	1,023	2.19	2.99
Total ED Visits	46,675	n/a	n/a

* % represents percent of total ED visits
** "S" indicates the data was suppressed due to a case count under 10
Note: for the full description of the disease group diagnosis codes included in each diagnosis line, see the *Data Workbook*.

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

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

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

Inpatient Hospitalizations

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

According to data in Table 52, the diagnosis resulting in the highest number of cases of hospitalization in 2010 among Henderson County residents was cardiovascular and circulatory diseases (including heart disease and cerebrovascular disease), which accounted for 2,074 hospitalizations. The next highest number of hospitalizations (1,236) was for digestive diseases, including chronic liver disease and cirrhosis, followed by injuries and poisoning (1,194 cases).

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

Diagnostic Category	Total # Cases		
	Henderson County	Region	North Carolina
INFECTIOUS & PARASITIC DISEASES	459	2,741	41,705
-- Septicemia	269	1,604	27,412
-- AIDS	3	41	1,456
MALIGNANT NEOPLASMS	379	2,599	31,225
-- Colon, Rectum, Anus	55	324	3,770
-- Trachea, Bronchus, Lung	44	346	4,541
-- Female Breast	30	157	1,498
-- Prostate	36	192	2,505
BENIGN, UNCERTAIN & OTHER NEOPLASMS	111	650	8,948
ENDOCRINE, METABOLIC & NUTRITIONAL DISEASES	402	2,905	40,208
-- Diabetes	167	1,240	18,101
BLOOD & HEMOPOETIC TISSUE DISEASES	115	770	14,011
NERVOUS SYSTEM & SENSE ORGAN DISEASES	239	1,597	19,315
CARDIOVASCULAR & CIRCULATORY DISEASES	2,074	12,961	162,327
-- Heart Disease	1,464	9,006	108,060
-- Cerebrovascular Disease	380	2,259	29,429
RESPIRATORY DISEASES	1,161	8,683	93,891
-- Pneumonia/Influenza	398	3,089	29,852
-- Chronic Obstructive Pulmonary Disease	395	2,557	30,832
DIGESTIVE SYSTEM DISEASES	1,236	8,527	95,068
-- Chronic Liver Disease/Cirrhosis	20	178	2,361
GENITOURINARY DISEASES	580	4,123	45,978
-- Nephritis, Nephrosis, Nephrotic Synd.	139	1,036	14,368
PREGNANCY & CHILDBIRTH	1,178	7,921	125,271
SKIN & SUBCUTANEOUS TISSUE DISEASES	192	1,287	17,734
MUSCULOSKELETAL SYSTEM DISEASES	983	5,950	58,753
-- Arthropathies and Related Disorders	549	3,155	30,683
CONGENITAL MALFORMATIONS	42	294	3,318
PERINATAL COMPLICATIONS	30	198	4,035
SYMPTOMS, SIGNS & ILL-DEFINED CONDITIONS	335	3,916	48,299
INJURIES & POISONING	1,194	7,474	78,637
OTHER DIAGNOSES (INCL. MENTAL DISORDERS)	1,178	7,329	84,657
ALL CONDITIONS	11,888	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 53 presents data on the percent of the Medicaid population eligible for dental care that utilizes it. This data represents the Medicaid population of all ages, but split into under-age-21 and age-21-and over-categories. In all three jurisdictions the Medicaid population under age 21 appears to be more likely to utilize dental services than the population age 21 and older. The figure for the under 21 age group is higher in Henderson County than in the other two jurisdictions.

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

Geography	Medicaid Recipients Utilizing Dental Services (by Ages Group)					
	<21 Years Old			21+ Years Old		
	# Eligible for Services	# Receiving Services	% Eligibles Receiving Services	# Eligible for Services	# Receiving Services	% Eligibles Receiving Services
Henderson County	10,800	5,533	51.2	6,694	1,930	28.8
Regional Total	85,652	42,135	49.2	62,817	18,536	29.5
State Total	1,113,692	541,210	48.6	679,139	214,786	31.6

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

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

Geography	Children (aged 1-5) Enrolled in Medicaid Who Received Any Dental Service In the Previous 12 Months)		
	# Eligible for Services*	# Receiving Services**	% Eligibles Receiving Services
Henderson County	3,683	2,049	55.6
Regional Total	26,820	14,407	53.7
State Total	n/a	n/a	51.7

Dental Screening Results among Children

Table 55 presents 2009 dental screening results for kindergarteners. While the screening process captures other data, this data covers only the average number of decayed, missing or filled teeth. The average number of decayed, missing or filled teeth discovered among kindergarteners screened in Henderson County (1.68 per child) was 23% lower than the mean percentage for WNC (2.18) but 12% higher than the state average (1.50).

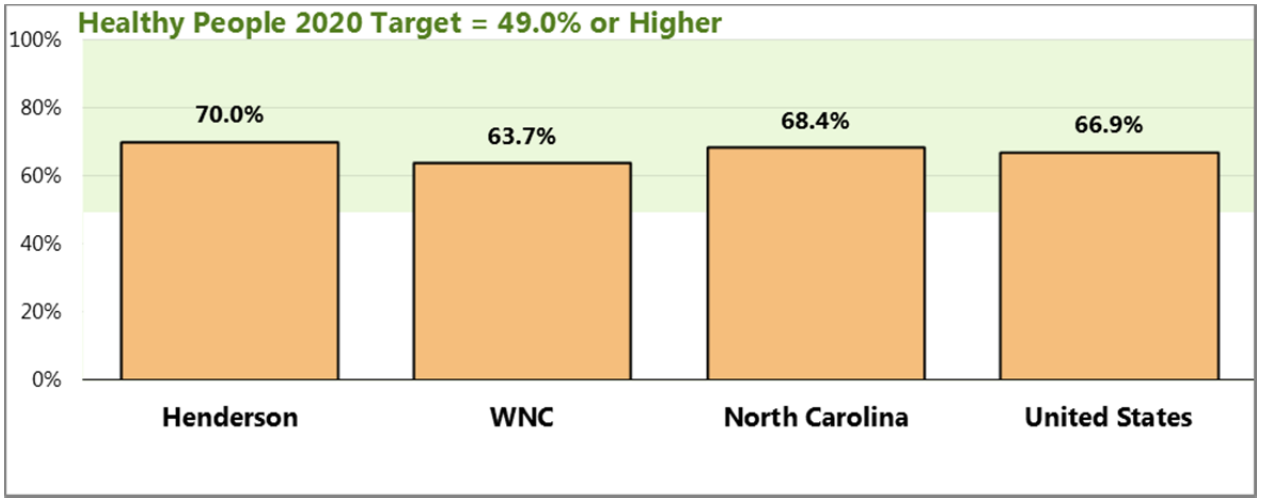
Table 55. Dental Screening Results, Kindergarteners (2009)

Geography	Average # Decayed, Missing or Filled Teeth
Henderson County	1.68
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." Henderson County respondents were more likely to have visited a dentist within the past year when compared to the region, state, and the nation.

Figure 87. 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 56 presents figures on the numbers of persons receiving services in Area Mental Health Programs in 2006 through 2010. No clear pattern of service utilization is apparent from this data in any of the three jurisdictions. It should be noted that the mental health system in NC is in some disarray, as reform of the recent past is being reconsidered.

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

Geography	# Persons Served in Area Mental Health Programs				
	2006	2007	2008	2009	2010
Henderson County	3,014	2,457	1,790	2,141	2,500
Regional Total	30,952	31,271	28,380	24,527	28,453
State Total	322,397	315,338	306,907	309,155	332,796

Table 57 presents figures on the numbers of persons receiving services in NC state alcohol and drug treatment centers. Although the pattern of increase is not straight-line in both cases, it appears that increasing numbers of persons in Henderson County and WNC have received services from NC state alcohol and drug treatment centers since 2007. Noteworthy at the regional level was a 23% increase in persons being served between 2009 and 2010. In Henderson County there was a net increase of 72% in the number of persons being served between 2007 and 2010.

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

Geography	# Persons Served in NC Alcohol and Drug Treatment Centers				
	2006	2007	2008	2009	2010
Henderson County	51	47	58	54	81
Regional Total	664	604	774	751	921
State Total	4,003	3,733	4284	4,812	4,483

Table 58 presents figures on the numbers of persons receiving services in NC state psychiatric hospitals. The number of persons in Henderson County utilizing these services fell every year from 2007 to 2010, decreasing by 60% over that period. The number of persons in WNC receiving these services also fell. The number of persons in WNC utilizing state psychiatric hospital services in 2010 (564) was 63% lower than the number utilizing services in 2006 (1,509). The decrease in persons receiving services likely is a reflection of a decreasing availability of state services, rather than a decreasing need for services.

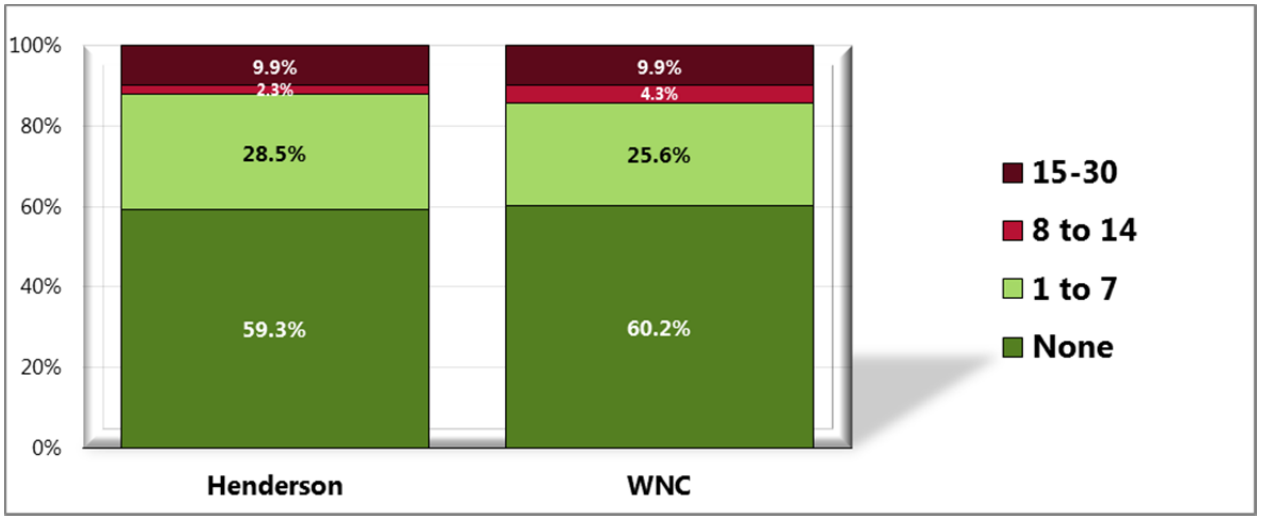
Table 58. Persons Served in NC State Psychiatric Hospitals (2006-2010)

Geography	# Persons Served in NC State Psychiatric Hospitals				
	2006	2007	2008	2009	2010
Henderson County	128	104	85	70	51
Regional Total	1,509	1,529	1190	818	564
State Total	18,292	18,498	14643	9,643	7,188

Poor Mental Health Days

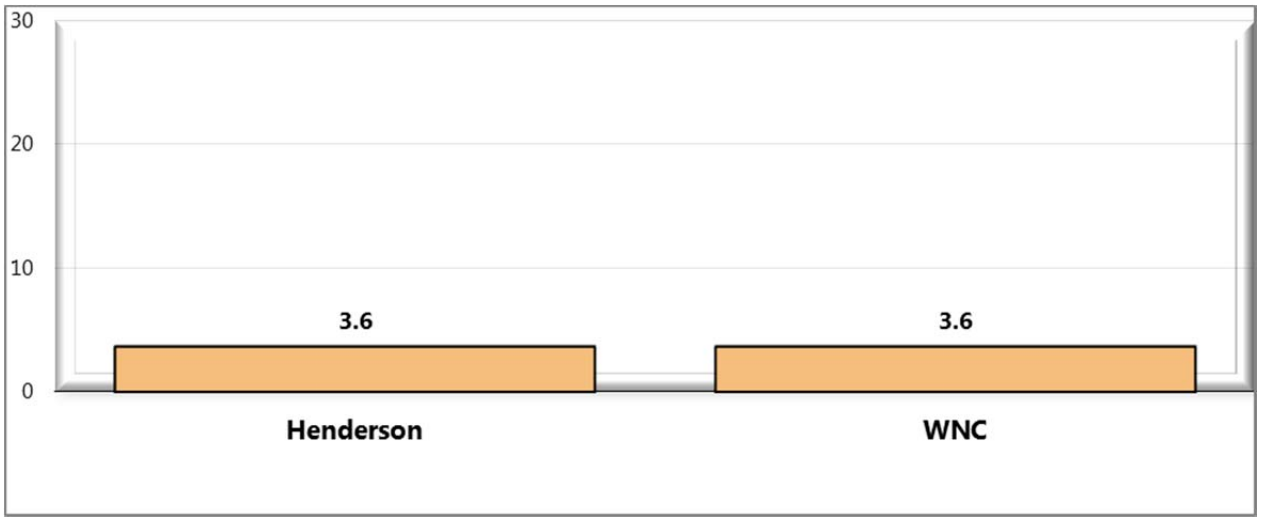
Survey respondents were asked, "Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many of the past 30 days was your mental health not good?"

Figure 88. 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 89. Average Number of the Past 30 Days on Which Mental Health Was Not Good (WNC Healthy Impact Survey)

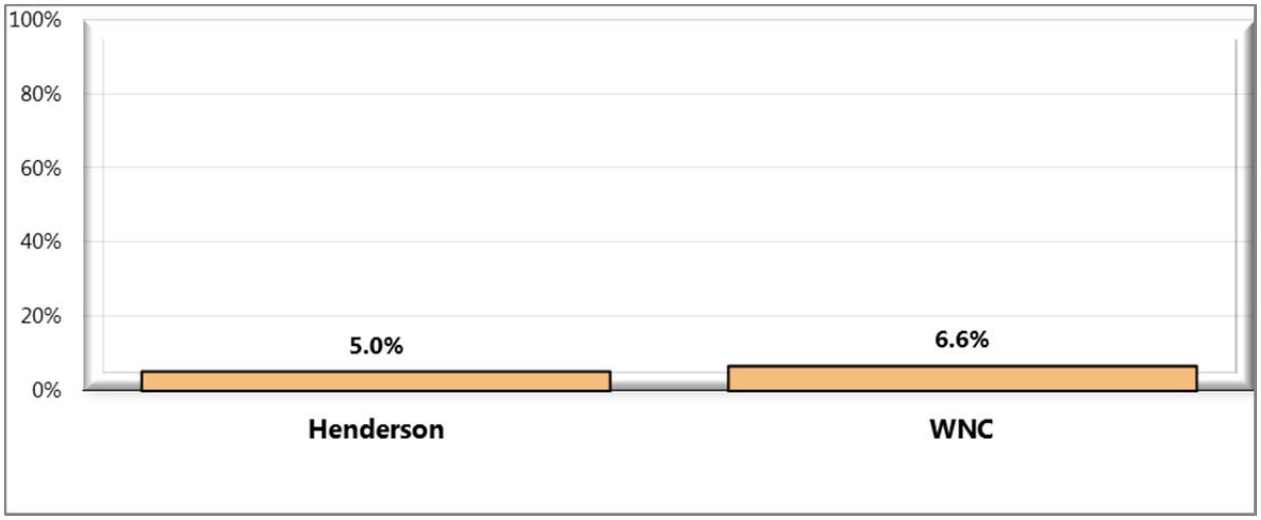


Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 64]
Notes: ● Asked of all respondents.

Access to Mental Health Services

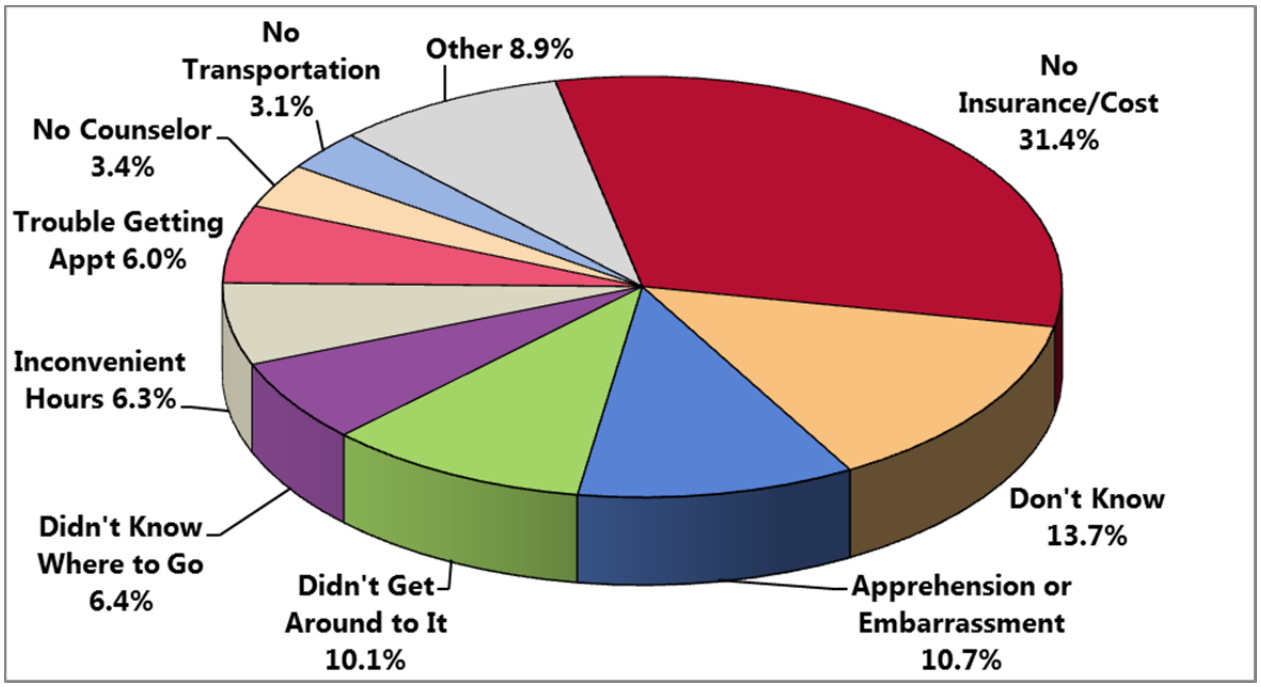
Survey respondents were asked if they had a time in the past year when they needed mental health care or counseling, but did not get it at that time. Those who responded, "yes," were asked to name the main reason they did not get mental health care or counseling. Due to small county-level sample sizes,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

Figure 90. 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 91. Primary Reason for Inability to Access Mental Health Services (WNC Healthy Impact Survey)
(Adults Unable to Get Needed Mental Health Care in the Past Year)
(Western North Carolina, 2012)



In listening sessions conducted with local residents, one consistent thread was mental health. Many participants talked about the need for mental health services. Participants felt that the move to privatize mental health left the community underserved in terms of mental health resources. Among participants, there was widespread agreement that the closure of the Trend facility created a great loss for this community.

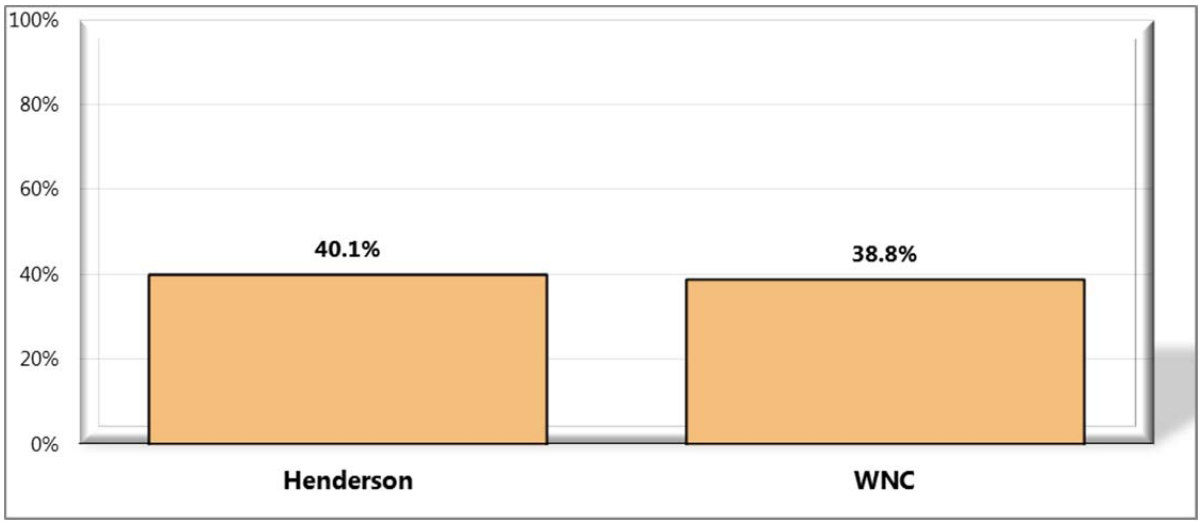
> *"We have a serious lack of mental health providers in this town and a lot of people with bipolar and schizophrenia that need help and have nowhere to go for it (care)".*

> *"State legislators closed the facility (Trend Mental Health) when they tried to privatize mental health. It (Trend) was a stellar operation. Now people have nowhere to go. It's a tragedy."*

Advance Directives

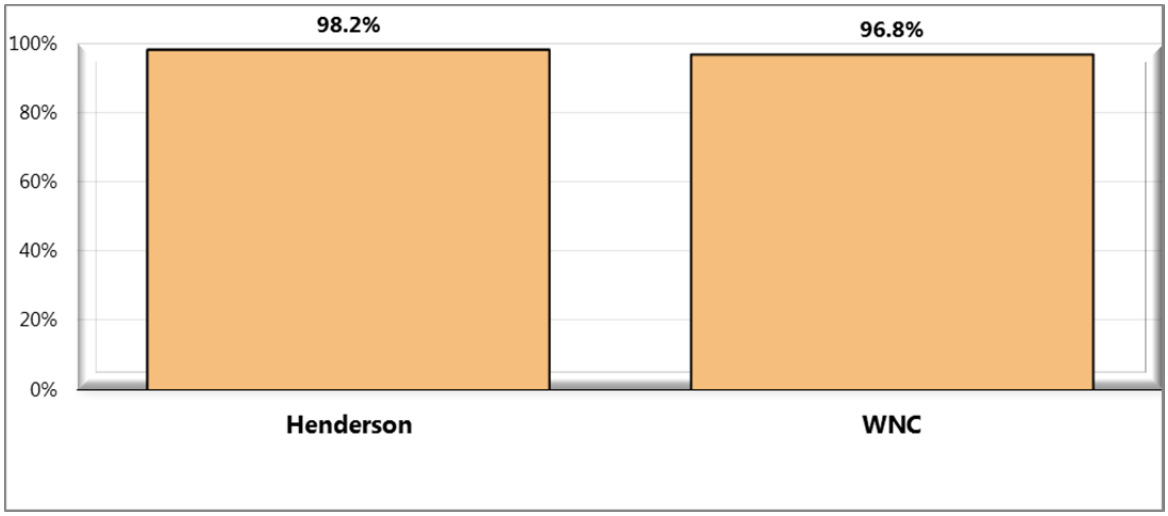
An Advance Directive is a set of directions given about the medical care a person wants if he/she ever loses the ability to make decisions for him/herself. Formal Advance Directives include Living Wills and Healthcare Powers of Attorney. Survey respondents were asked whether they have any completed Advance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

Figure 92. 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 93. Have Communicated Health Care Decisions to Family or Doctor (WNC Healthy Impact Survey)
(Among Respondents with Advance Directive Documents)

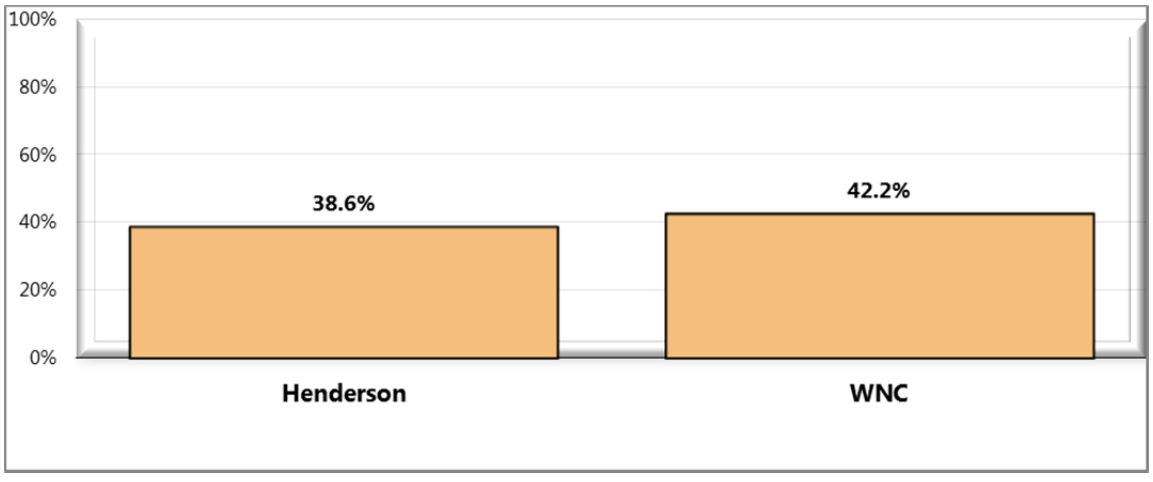


Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 35]
Notes: ● Asked of respondents with completed advance directive documents.

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.

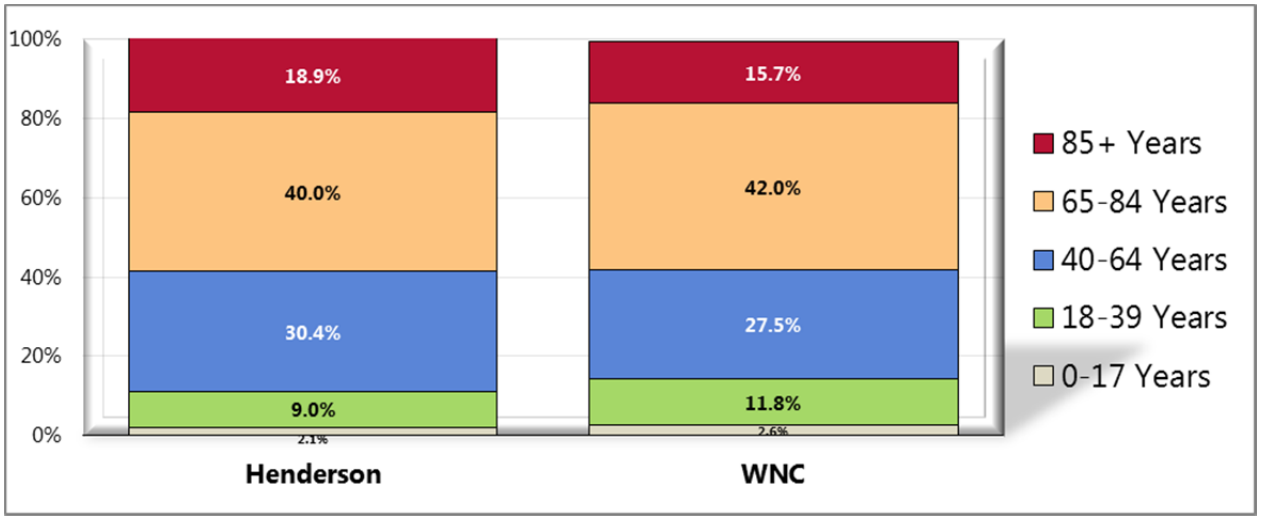
Figure 94. Provide Regular Care or Assistance to a Friend/Family Member Who Has a Health Problem or Disability (WNC Healthy Impact Survey)



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

Figure 95. Age of Person for Whom Respondent Provides Care (WNC Healthy Impact Survey)

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



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

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

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

	Aging	Alzheimers /Dementia	Cancer	Diabetes	Emotional/ Mental	Heart Disease	Stroke	Other (Each <4%)	Don't Know/Not Sure
Henderson	2.9%	12.4%	2.4%	0.8%	4.8%	8.7%	9.2%	52.4%	6.4%
WNC	7.9%	8.4%	8.6%	4.3%	4.8%	7.4%	4.9%	46.3%	7.4%

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

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

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

	Other (Each <2%)	Learning/ Remembering	Communi-cating	Moving Around the Home	Taking Care of Living Space	Taking Care of Self	Help with Anxiety/ Depression	Transportation Outside Home
Henderson	1.0%	6.2%	4.9%	3.2%	18.4%	27.1%	15.5%	23.8%
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 61 defines the AQI levels.

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

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

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

The EPA reports AQI measures for nine of the 16 counties in the WNC region: Buncombe, Haywood, Graham, Jackson, Macon, McDowell, Mitchell, Swain and Yancey. (Note that Henderson County is not one of them.) The WNC figures presented in Tables 62 and 63 below represent the arithmetic means of the values for the nine monitored counties. This data shows that in WNC there were no days rated "very unhealthy" or "unhealthy" in 2011, and only one day in WNC was rated "unhealthy for sensitive groups". Of the 2011 mean of 275 days in WNC with an assigned AQI, 227 had "good" air quality and 47 had "moderate" air quality.

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

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

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

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

Particulate matter is usually categorized on the basis of size, and includes dust, dirt, soot, smoke, and liquid droplets emitted directly into the air by factories, power plants, construction activity,

fires and vehicles (Scorecard, 2011). Particulates in air can affect breathing, aggravate existing respiratory and cardiovascular disease, and damage lung tissue (reference).

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

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

Toxic Chemical Releases

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

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

Table 64 presents the 2010 TRI Summary for Henderson County, which ranks 28th among the state's 86 ranked counties. The TRI chemicals released in the greatest quantity in Henderson County include sulfuric acid, methanol, zinc compounds, chromium compounds, and ammonia.

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

Total On-and Off-Site Disposal or Other Released, in Pounds	Compounds Released in Greatest Quantity	Quantity Released, in Pounds	Releasing Facility	Facility Location
585,037	Sulfuric acid	257,557	Blue Ridge Metals Corporation	Fletcher
	Methanol	84,817	Wilsonart International	Fletcher
			Coats NA Hendersonville Plant	Hendersonville
	Zinc compounds	77,563	Continental Automotive Systems	Fletcher
	Chromium compounds	67,274	Continental Automotive Systems	Fletcher
	Ammonia	38,403	UPM Raflatac Inc.	Fletcher

Indoor Air Quality

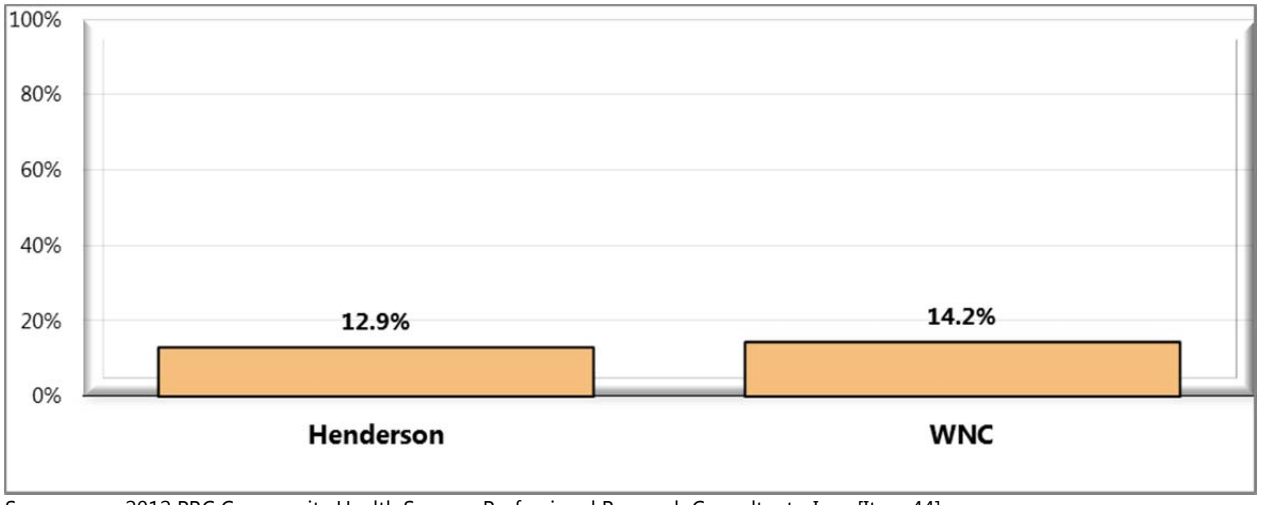
Environmental tobacco smoke

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 US 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).

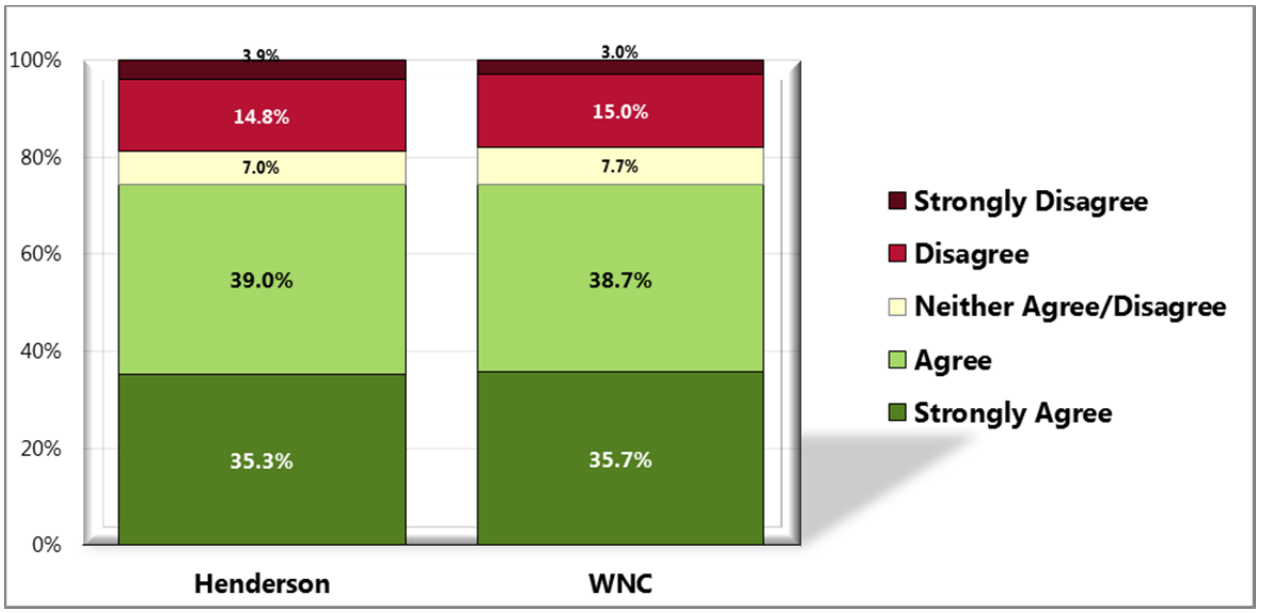
Survey respondents were asked about their second-hand smoke exposure in their workplace. Specifically, they were asked, "During how many of the past 7 days, at your workplace, did you breathe the smoke from someone who was using tobacco?" In order to evaluate community members' perceptions about environmental 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 96. Have Breathed Someone Else's Cigarette Smoke at Work in the Past Week (WNC Healthy Impact Survey)
(Among Employed Respondents)



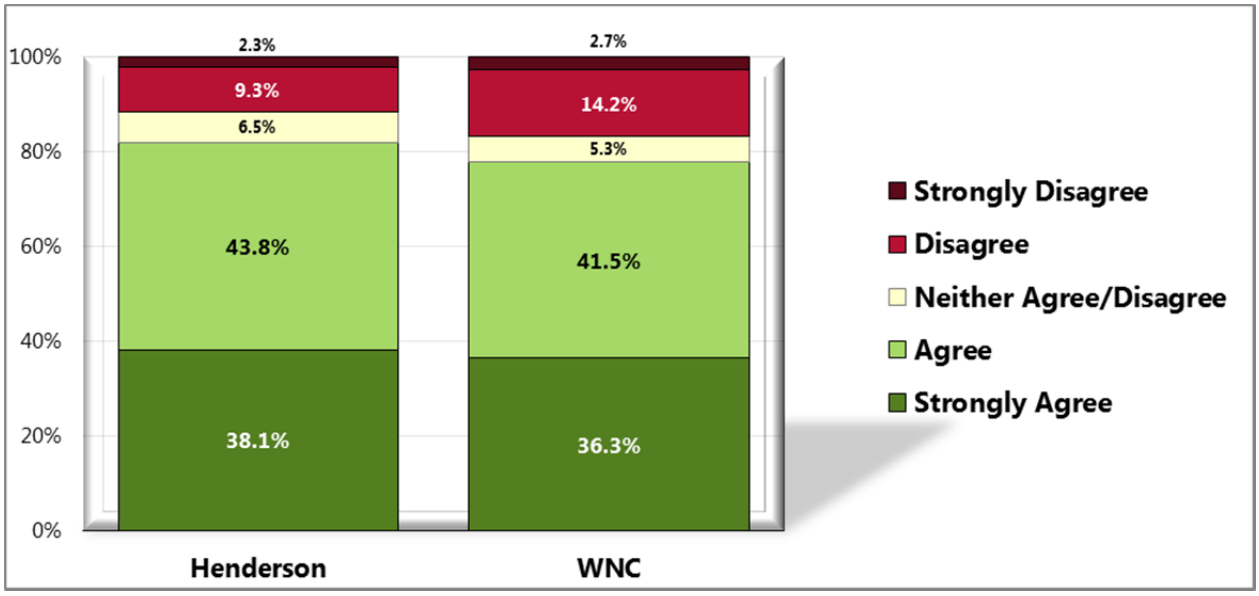
Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 44]
Notes: ● Asked of employed respondents.

Figure 97. "I believe it is important for universities and colleges to be 100% tobacco-free" (WNC Healthy Impact Survey)



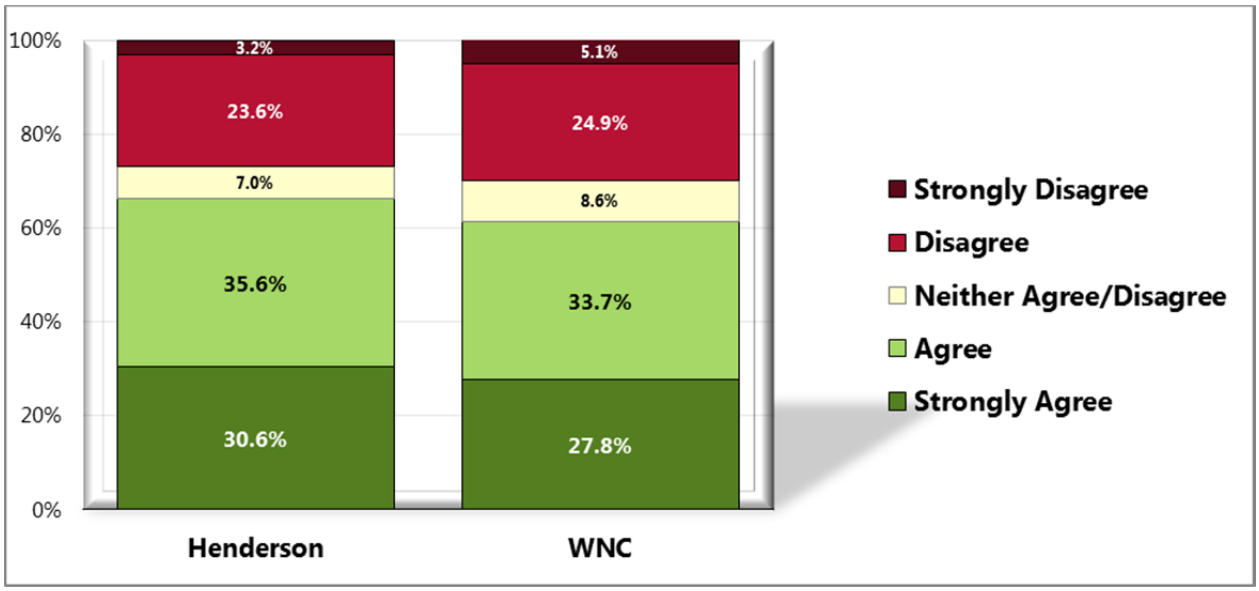
Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 45]
Notes: ● Asked of all respondents.

Figure 98. "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 99. "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 Henderson County, 62,546 of 106,740 county residents, or 58.6%, were being served by community water systems in February of 2012. Presumably the remaining 41.4% were served by wells or other sources.

Radon

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

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

There are no immediate symptoms to indicate exposure to radon. The primary risk of exposure to radon gas is an increased risk of lung cancer (after an estimated 5-25 years of exposure). Smokers are at higher risk of developing radon-induced lung cancer than non-smokers. There is

no evidence that other respiratory diseases, such as asthma, are caused by radon exposure, nor is there evidence that children are at any greater risk of radon-induced lung cancer than are adults (NC Department of Environment and Natural Resources).

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

According to one recent assessment, the regional mean indoor radon level for the 16 counties of WNC was 4.3 pCi/L, over three times the national indoor radon level of 1.3 pCi/L. According to this same source, the level for Henderson County was 5.8 pCi/L, almost 4.5 times the national indoor radon level (*Data Workbook*).

Built Environment

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

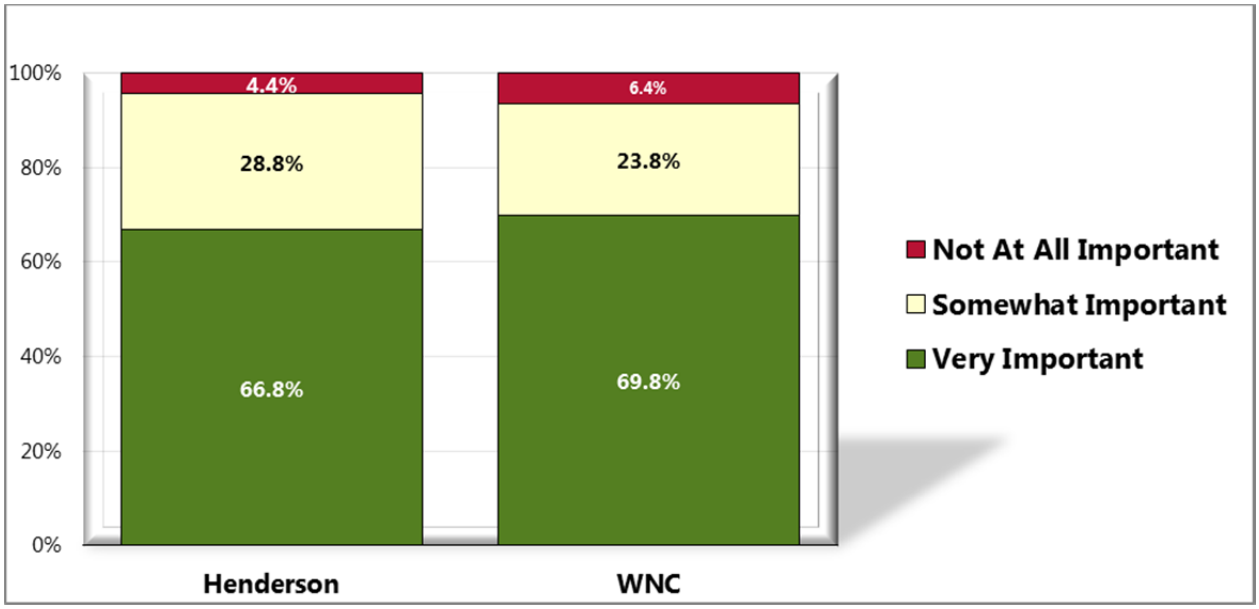
Access to Farmers' Markets and Grocery Stores

According to the US Department of Agriculture (USDA) Economic Research Service's *Your Food Environment Atlas,* there were a total of 49 farmers' markets in the 16 WNC counties in 2009. This number was reported to have grown by 5, to a total of 54, in 2011, an increase of 10%. According to this source, in Henderson County there were five farmers' markets in 2009 and four in 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 Henderson County there were 22 grocery stores in both 2007 and 23 in 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 100. 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 Henderson County the number of fast food restaurants rose from 54 to 59 over the same period (*Data Workbook*).

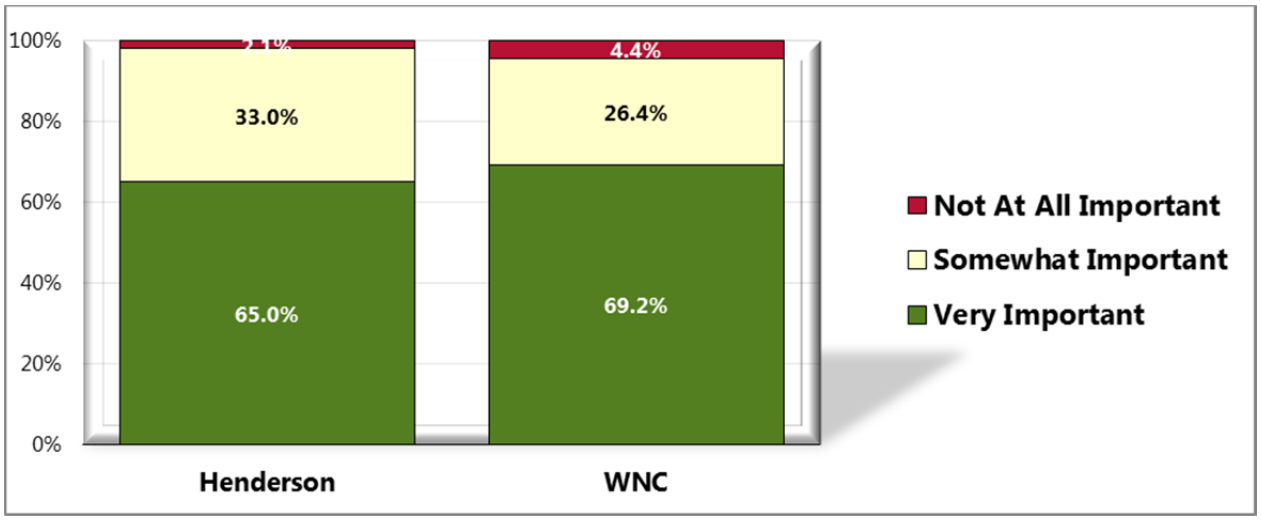
Also according to the USDA, mean per capita fast food expenditures in WNC rose 45% (from $514 to $746) between 2002 and 2007, and mean per capita restaurant expenditures in WNC also rose 45% (from $449 to $665) over the same period (*Data Workbook*).

Access to Recreational Facilities

According to the same source cited above, there were a total of 81 recreation and fitness facilities in the 16 WNC counties in 2007. This number was reported to have dropped by 26, to a total of 55, in 2009, a decrease of 32%. In Henderson County the number of recreational and fitness facilities fell from 12 to seven over the same period (*Data Workbook*).

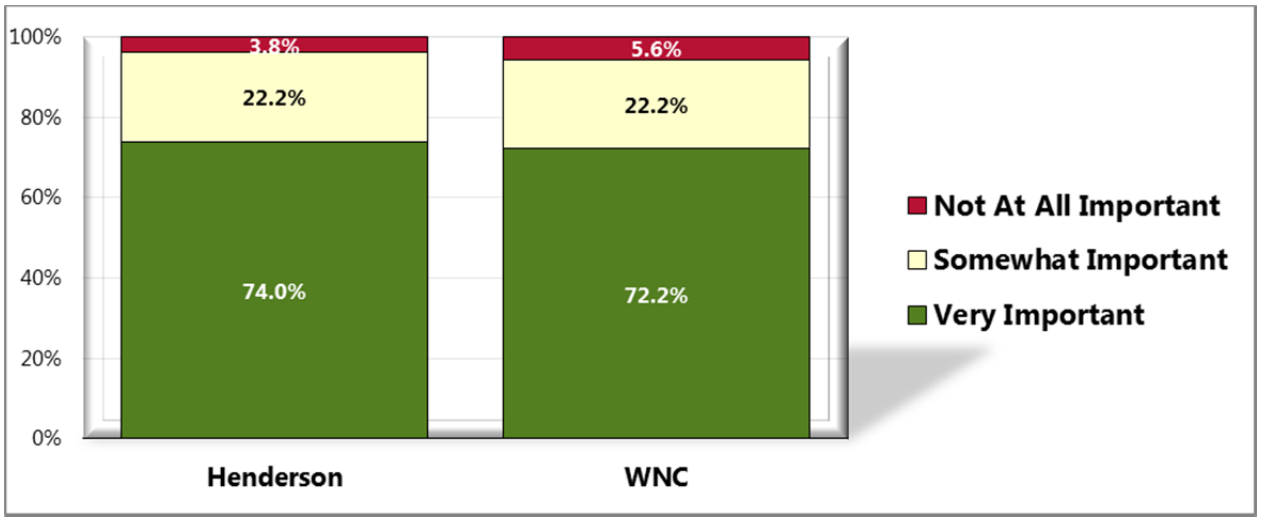
Survey respondents were asked whether they feel it is important for community organizations to explore ways to increase the public's access to physical activity spaces during off-times, as well as whether it is important for communities to improve access to trails, parks, and greenways.

Figure 101. 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 102. Importance That Communities Improve Access to Trails, Parks, and Greenways (WNC Healthy Impact Survey)



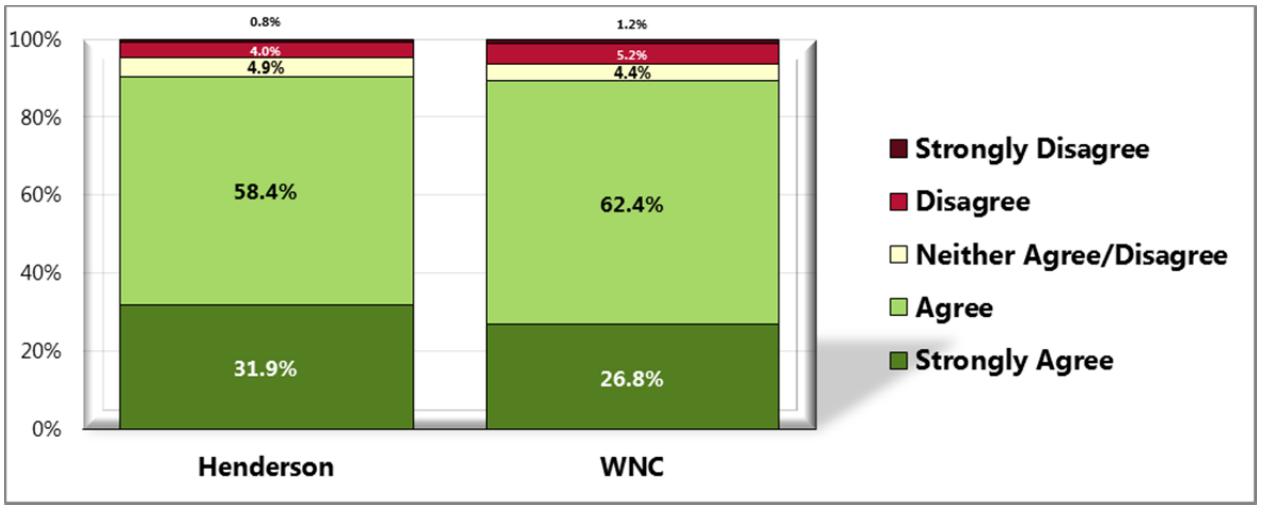
Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 61]
Notes: ● Asked of all respondents.

CHAPTER 7 – QUALITY OF LIFE

Perception of County

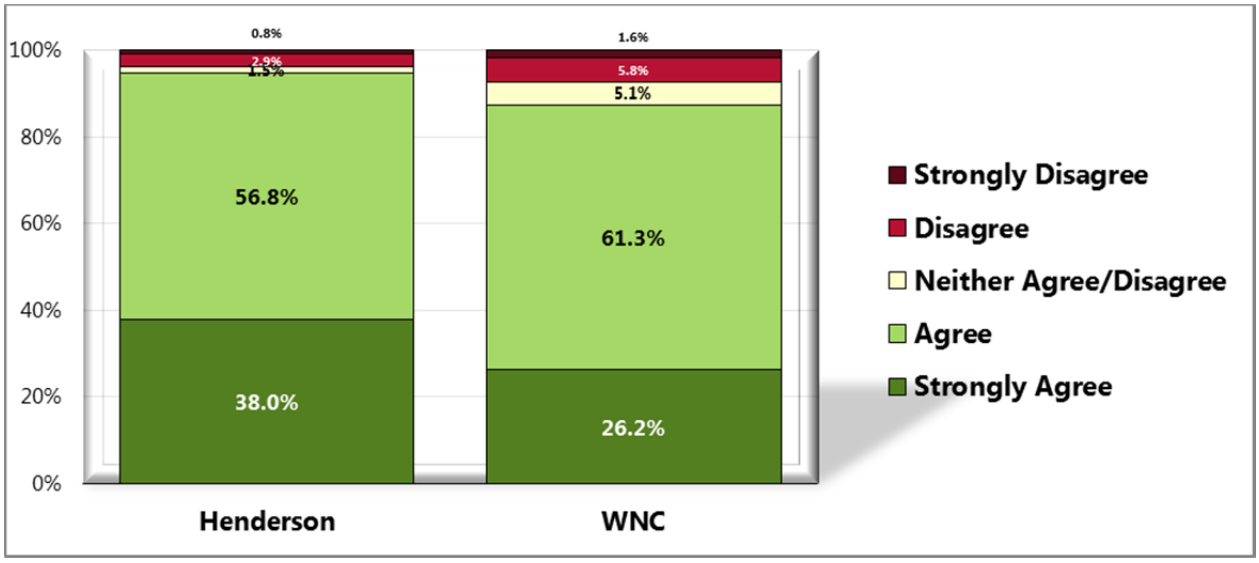
In order to evaluate community members' perceptions about the quality of life in Western North Carolina (WNC), survey respondents were given a series of three statements regarding life in their county (my county is a good place to raise children, my county is a good place to grow old, and there is plenty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

Figure 103. "My county is a good place to raise children"
(WNC Healthy Impact Survey)



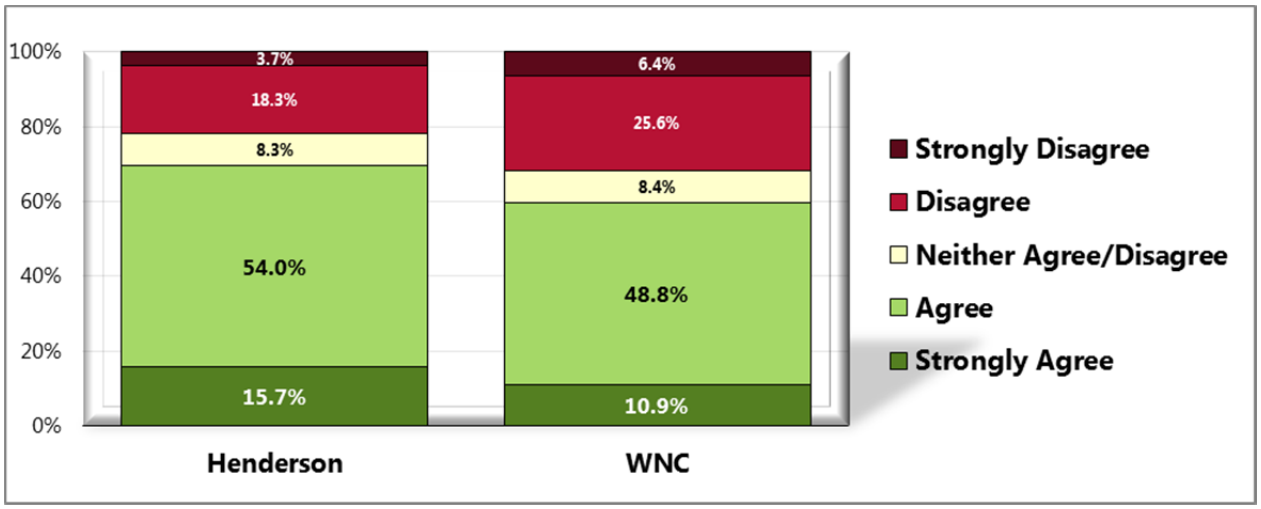
Sources: ● 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 5]
Notes: ● Asked of all respondents.

Figure 104. "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 105. "There is plenty of help for people during times of need in my county."
(WNC Healthy Impact Survey)



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

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

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

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

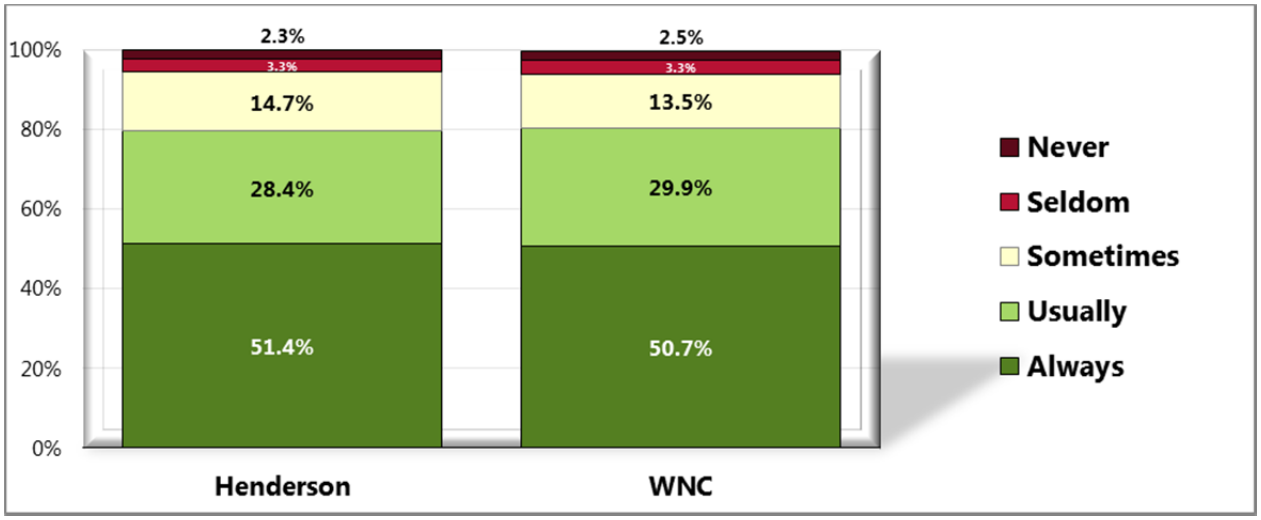
Table 66. Top Three Neighborhood/Community Issues Perceived as in Most Need of Improvement (WNC Healthy Impact Survey)

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

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

Social and Emotional Support

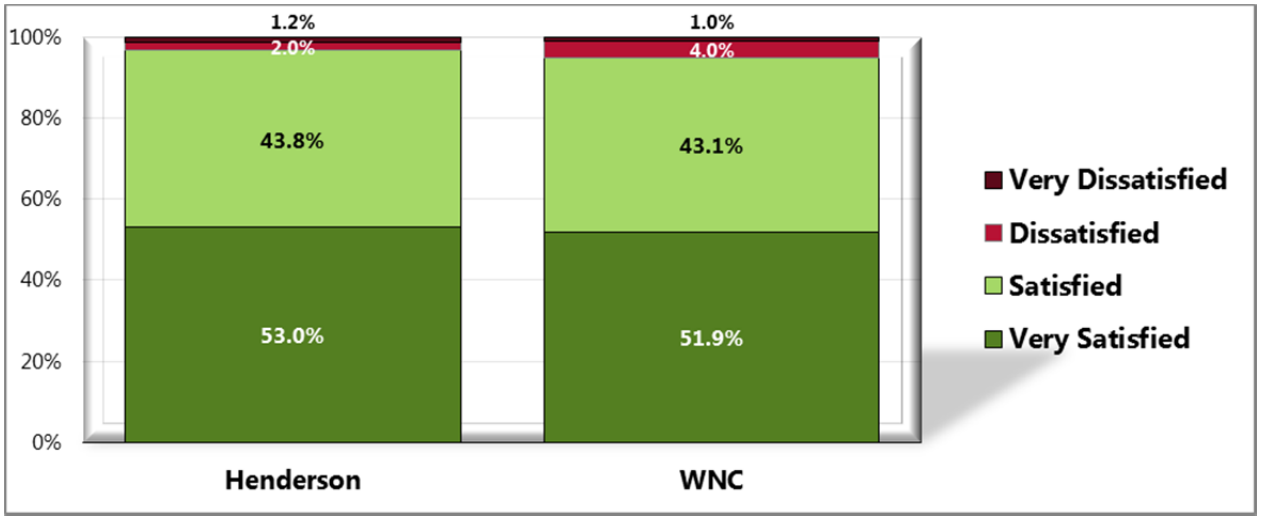
Figure 106. Frequency of Getting Needed Social/Emotional Support (WNC Healthy Impact Survey)



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

Satisfaction with Life

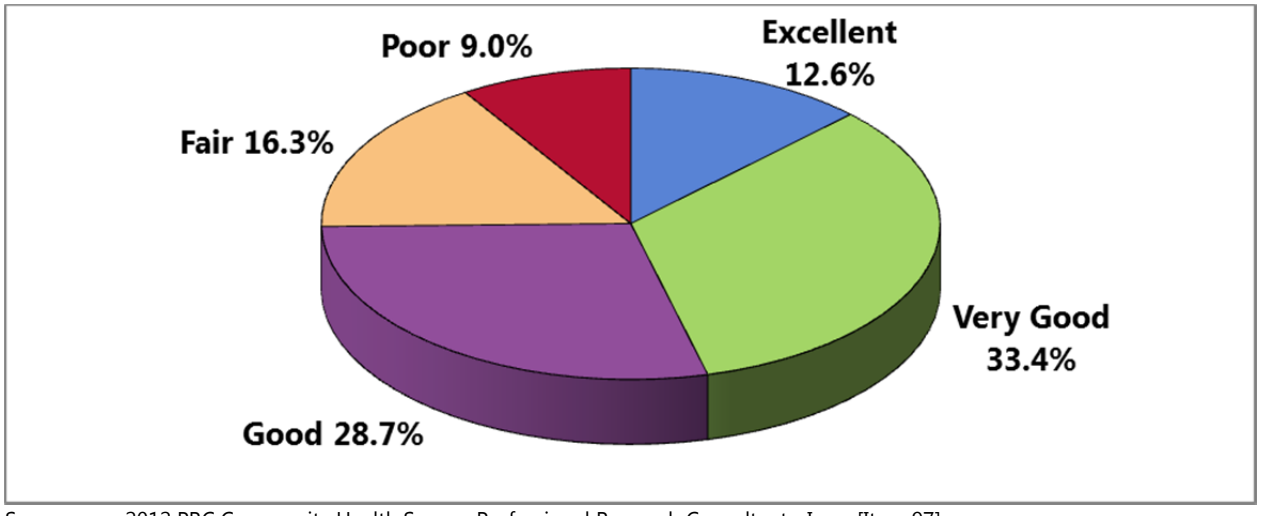
Figure 107. Satisfaction with Life
(WNC Healthy Impact Survey)



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

Availability of Affordable Housing

Figure 108. Evaluation of the Availability of Affordable Housing



Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 97]
Notes: • Asked of all respondents.

CHAPTER 8 - HEALTHCARE & HEALTH PROMOTION RESOURCES

Health Resources

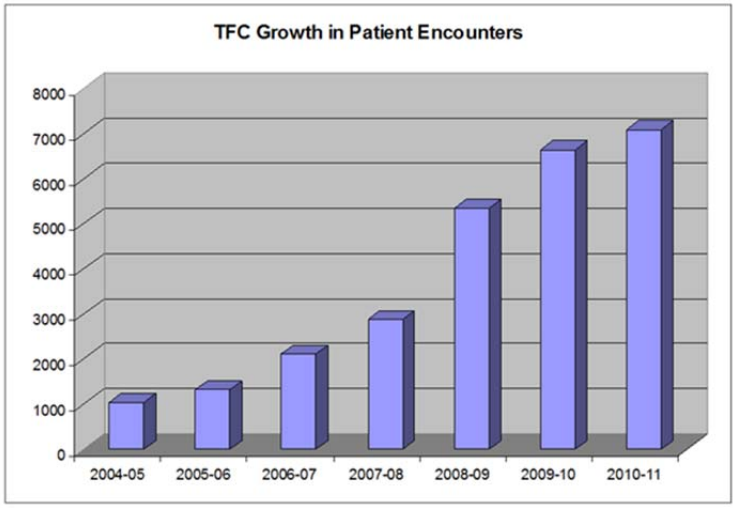
Information provided in this section is a brief description of existing health resources available in Henderson County. See Appendix B for a description of the data collection methods use to gather this information. See Appendix E for a general list of the healthcare and health promotion resources and facilities available in Henderson County to respond to the health needs of the community.

Henderson County is home to two hospitals. **Pardee Hospital,** a county-owned hospital, was founded in 1953 and is managed by UNC Health Care. It is the first and only hospital in North Carolina to be accredited with the International Organization for Standardization (ISO 9001:2008) for quality healthcare standards. The hospital is licensed for 222 acute care beds and is the second largest employer in Henderson County. The hospital has several locations separate from the main campus, including a comprehensive physician practice network.

Park Ridge Health was built by Henderson County residents, and more than 100 years later is a growing health care network, providing quality, compassionate care in a Christian environment. In 1986, Park Ridge Health partnered with Adventist Health System, joining a family of 44 not-for-profit community hospitals across the country. Park Ridge Health provides personalized care throughout the region, offering a dedicated network of more than 100 primary care and specialty physicians and providers.

The Free Clinics (TFC) provides free care to low-income, uninsured residents of Henderson, Polk, and Transylvania Counties. In Henderson County, 23% of adults ages 18-64 have no insurance and 26% of the population live in households with less than $25,000. One in five residents is both uninsured and earns less than 200% of the federal poverty level. (Source: TFC)

Figure 109. The Free Clinics Growth in Patient Encounters



Source: The Free Clinics

TFC work collaboratively with the local community health center, health department, social service agencies, and hospitals to augment the healthcare system and provide vital services that are not duplicated. TFC works with over 250 active local volunteers to provide the "wrap-around" services that enable primary care physicians to offer quality healthcare to their low-income, uninsured patients, while ensuring the accessibility of quality healthcare. TFC currently provides 16 programs in five areas: acute care, specialty and chronic care, mental health, patient education, and pharmaceutical support. Thanks to 92 healthcare partners who provide care for patients upon referral, TFC is able to make approximately 150 specialty referrals and arrange over 60 surgical procedures each year. TFC also hosts the collaborative Bridges to Health program with Pardee Hospital.

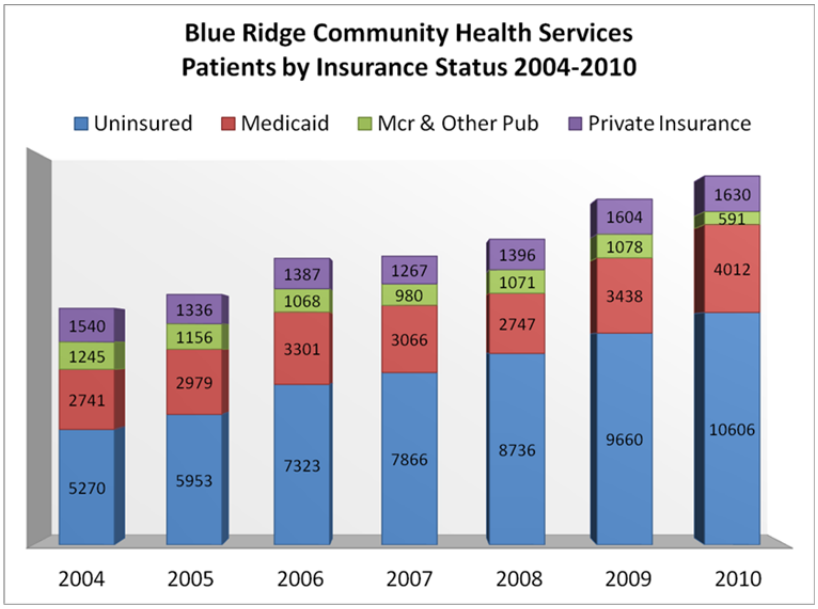
The number of patient encounters at The Free Clinics has increased 221% since July 2008, which corresponds with the economic crisis of the fall of 2008. (Source: The Free Clinics Annual Report 2010-11)

Blue Ridge Community Health Services (BRCHS) is a nonprofit community health center. For nearly 50 years, Blue Ridge Community Health Services, Inc. has served as the medical home for those most in need in Henderson County. As the local population has grown, BRCHS has expanded its services and sites to continue to meet the local need. BRCHS is a critical component in the local health care system, providing comprehensive health care for close to 17,000 patients annually.

More than 12% of the county's total population utilize BRCHS services. Since 2006, the number of patients has grown 29% from 13,079 to 16,839. As one of the largest safety net outpatient providers of health care services in Western North Carolina, BRCC provides high quality, affordable family medicine, pediatric medicine, dentistry, pharmacy, school health, medical interpreting, and behavioral health services, including psychiatry and substance abuse services. Ninety-eight percent of the patients BRCHS served in 2010-11 live at or below 200 percent of

the Federal Poverty Level. Eighty-one percent of BRCHS patients live at or below 100% of the Federal Poverty Level and more than 10,000 BRCHS patients are uninsured, which represents an

Figure 110. Patients by Insurance (Blue Ridge Community Health Services)



Source: Blue Ridge Community Health Services

increase of 30% since 2006. BRCHS makes health care available and accessible to all in the area, but its programs and services are targeted to the local populations most in need.

BRCHS moved into a new 27,000 sq. ft. medical facility in October 2011. The new facility provides access to health care to more than 20,000 patients. Both insured and uninsured are served through its 24 exam rooms, four consult rooms, two treatment rooms for family medicine and pediatrics, and a pharmacy. The building also includes behavioral health services and, in collaboration with Pardee Hospital, radiology and laboratory services. BRCHS dentistry and community outreach programs are housed on the same campus in the building next door.

The Henderson County Department of Public Health (HCDPH) has provided essential public health services to Henderson County citizens for over 60 years. In September of 2006, HCDPH moved to its new state of the art shared facility with the Department of Social Services and Veterans Administration. The new facility continues to allow the agency to expand and improve public health services. In December 2007, HCDPH became an Accredited Health Department for North Carolina.

HCDPH's mission statement is the guiding principle on meeting the needs of Henderson County. Public health focuses fluctuate as the dynamics and demographics of the community

Table 67. Clients and Encounters (Department of Public Health)

Fiscal Year 2010/2011		
Program/Service	***Clients***	***Encounters***
Clinical Health	*5,391*	*14,321*
Nutrition & WIC	*2,422*	*9,688*
School Health	*Serves 13,500+ students*	
Immunizations	*4,650*	*8,782*
Dental Health	*1,210*	*N/A*
Environmental Health	*N/A*	*1,763*

SOURCE: HENDERSON COUNTY DEPARTMENT OF PUBLIC HEALTH

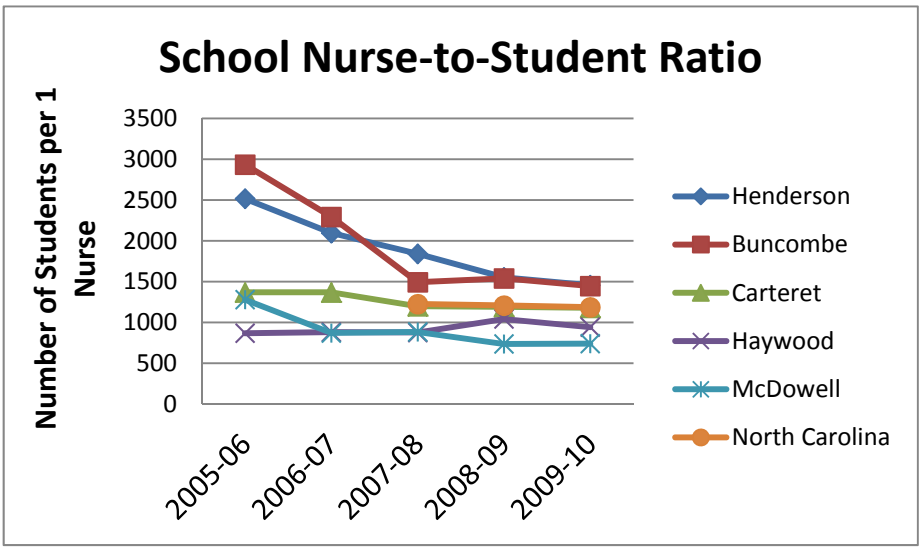
changes. Staff and management reflect the cultural diversity of our community. More than 50% of the clinic and WIC clients are of Hispanic origin and Spanish is the primary language. The agency employs several interpreters and staff who are fluent in Spanish.
HCDPH personal health programs and services include immunizations, foreign travel vaccinations, nutrition and WIC services, women's health, men's health, child health, behavioral health, community health, school health and dental health. HCDPH's Environmental Health division is responsible for the permitting and inspection of food service establishments, septic system approval and inspections, food and waterborne disease investigation and well inspection and approval. Table 67 summarizes the number of clients and encounters for the agency's major program/service areas.

HCDPH is the lead community agency in bioterrorism preparedness and communicable disease investigation, treatment, prevention and education. Since 2007, HCDPH has been the recipient of several grants including a 2008 NC Childhood Obesity Prevention Demonstration Project, five Eat Smart Move More mini-grants and a recent award from Blue Cross Blue Shield of North Carolina Foundation for a Dental Education project for preschool and kindergarten children in Henderson County.

Through a collaborative agreement with the county schools, HCDPH provides schools nurses who cover the 21 county schools, the alternative school, charter school, and early college program. The 2009-10 nurse to student ratio in Henderson County was 1:1456. This has improved significantly since 2003, when the ratio was 1:3000. However, the county is ranked 98 in the state among the 115 Local Education Agencies (LEAs) in Nurse-to-Student ratios.

Thirty-six percent of the LEAs meet the national recommendation of one nurse per 750 students. While the county falls short on the national recommendation, there has been improvement in this indicator over the past eight years.

Figure 111. Henderson County School Nurse-to-Student Ratio



Source: NC Department of Public Instruction

The Children and Family Resource Center (CFCR) held an interactive community forum in October 2007 to set priorities for health, safety, and well-educated children. More than 280 residents attended. Increasing the number of school nurses was identified as a top priority. CFRC mobilized the community and led the charge to address this issue. In June 2008, County Commissioners approved two full-time school nurses, bringing the total to nine.

In 2010, the Department of Public Health partnered with Blue Ridge Community Health Services to pilot a school nurse project at the school-based clinic at Apple Valley Middle School. A school-based clinic nurse and a school nurse have different functions. The pilot program tested the viability of combining these roles and proved to be successful.

Currently there are ten school nurse positions, eight funded by Henderson County and two funded by the School Nurse Funding Initiative through the state. There are also four school-based health centers. The clinics at Hillandale Elementary and Bruce Drysdale Elementary share a nurse. Apple Valley Middle School and North Henderson High School each have a nurse in the school clinic.

Healthy Environments – Both hospitals and all Henderson County Public Schools provide 100% tobacco free campus environments, and all county government buildings enjoy a tobacco free environment as well. In addition, the Henderson County Human Services Building, which houses the Department of Public Health and the Department of Social Services, prohibits tobacco use within fifty feet of the building. This ordinance was adopted in 2006.

On January 2, 2010, the Smoke Free Restaurant and Bar Law went into effect. The law requires that restaurants, bars, and lodging establishments that are subject to the new law post no-smoking signs in conspicuous locations, remove indoor ashtrays and other smoking receptacles,

and direct any person who is smoking to extinguish the cigarette, cigar, or other item. Failure to comply with the law can result in fines to individual smokers and to restaurant owners/managers. After nearly two years of implementing the law, the state currently receives only a couple of complaints each week. Henderson County residents and businesses have been very supportive and compliant. Only two complaints have been investigated since January 2010. This shows the level of support and the cooperation received from local businesses.

Recreation - There are a variety of health promotion resources available to county residents. Henderson County Parks and Recreation maintains seven parks and two activity centers. They offer a variety of community sports teams including basketball, soccer, softball, tennis, baseball, and BMX. The county is home to numerous golf courses both public and private. In addition, the nearby Blue Ridge Mountains provide thousands of acres of hiking, whitewater rafting, biking horseback riding, and other outdoor activities.

The City of Hendersonville has 11 designated parks ranging in size from ¼ acre to 60 acres. In addition, the City has completed conceptual plans for a park located on South Grove Street. The City's Oklawaha Greenway Trail begins behind the Henderson County Parks & Recreation building, travels through the Jackson Park Nature Trail, passes by King Memorial and Sullivan Park, through Mud Creek and ends in Patton Park. From beginning to end the trail distance is 1.89 miles. There are plans for Phase three which will connect Patton Park to Berkley Park. The City also operates the Patton Park swimming pool, which is open Memorial Day weekend through Labor Day. An accessible chairlift is available to assist those who need help entering and exiting the pool. The City of Hendersonville's Skate Park is located in Patton Park across from Patton Pool.

According to the City of Hendersonville Park & Greenspace Master Plan, there is a strong desire and need for an increase in paved and soft surface trails for walking and biking, playgrounds, off leash dog parks and picnic tables. There also exists a desire for pool type facilities including an indoor pool and splash park. Desire for a downtown park/outdoor event space was also indicated. According to the Plan, efforts to locate new park facilities should be concentrated in those areas that are currently underserved by not having park facilities within ½ mile.
The Town of Fletcher contains two parks and over 4.5 miles of park paths and greenway trails. The master plan for greenways and trails envisions over thirteen miles of winding pathways, weaving alongside Cane Creek, and enhancing the viability of the proposed Town Center.

Resource Gaps

Henderson County and neighboring Buncombe County offer a wide variety of health care resources but there are some gaps. Dental care for low-income children and adults and mental health care were both recognized in listening sessions as issues that need addressing.

According to the US Department of Health and Human Services, North Carolina has a shortage of dentists. The state needs 222 additional dentists to remove the shortage designation. In

2010, the County had 4.6 dentists per 10,000 population, which is slightly higher than the state's 4.4 average. However, the average is lower than the national average of 5.7.

Access to dental care has improved greatly since 1996 when the dental decay rate in kindergarteners was 25%. In 2010, the dental decay rate had dropped to 14%. One factor is the Smart Start Preventive Dental Program at the Department of Public Health, which for 12 years has annually screened over 700 children and provided dental fluoride varnish to over 400 children. The Department of Public Health is currently funded through Smart Start of Henderson County and Blue Cross Blue Shield of North Carolina Foundation to screen and educate preschool and kindergarten children. The program also works to identify children who do not have a dentist and assist them in getting a permanent dental home.

While access to dental services for low-income and Medicaid children have improved over the years, it is still difficult obtaining dental services for low-income adults. Blue Ridge Community Health Services – Stokes Dental Clinic provides use of their clinic for a weekly extraction clinic run by volunteer dentists through The Free Clinics. In 2010-11, 457 adults were seen. This is an increase from 431 seen in 2009-10. The Stokes Dental Clinic is a primary provider of dental services for low-income children and adults in Henderson County many of whom are uninsured. Options are still limited for adults. There are few resources in the county for low-income adults who need restorative care.

Access to mental health services and substance abuse treatment for low income clients became more difficult in 1999 when the state implemented mental health reform. A Local Management Entity, Western Highlands, was established to assist with access to services for Medicaid and the uninsured clients in the western region. Efforts to privatize and regionalize services have been hampered by insufficient funding and capacity.

Henderson County government and non-profit agencies have responded to the need in unique and innovative ways. The Free Clinics began a program to offer access to acute mental health services to the uninsured through a mental health clinic staffed by volunteer counselors and psychiatrists with referral to other programs for ongoing services. The Free Clinics also provides access to psychiatric medications. Henderson County Department of Public Health provides counseling services in English and Spanish to health department clients. Blue Ridge Community Health Services provides counseling, psychiatric services and medications to clients who receive services at any of their sites including the school health clinics. In Fiscal Year 2012, county government provided over $500,000 in grants to local agencies to assist with providing services to low income and uninsured clients. Agencies include The Free Clinics, Henderson County Department of Public Health, Blue Ridge Community Health Services, the Healing Place, Mainstay, Parkway Behavioral Health, and others.

Henderson County Public Schools have some unique partnerships to increase access to mental health services for students. Collaboration between the Department of Social Services and Family Preservation will address the needs of families involved with those at risk of involvement with social services. Blue Ridge Community Health Services is beginning a Tele-Mental Health

Program with the installation of videoconferencing equipment at all middle and high schools that do not have on site access to provide mental health services to all school. While innovative program exists, the need continues to exceed the capacity of the systems in place.

Gaps Identified Through 2-1-1 Data

United Way's 2-1-1 of WNC is a community service information and referral line that links people to health and human services. Services are free, confidential and available 24/7 to speakers of all languages.

WNC Healthy Impact requested information on most frequent types of needs expressed in calls made to 2-1-1 as well as the top *unmet* needs. This call data helps create a better understanding of the types of gaps in resources in Henderson County. Note that this is a point-in-time summary list, and greater details on these services can be accessed by calling 2-1-1 to speak to a trained staff person or visiting www.NC211.org

According to the 2-1-1 results, the top five unmet needs in Henderson County are housing expense, utility service expense, utility deposit expense, transportation, and automotive repair. Of the 5,322 calls in 2011, twenty-five percent were related to housing and utilities, twelve percent were related to health care, and eleven percent of callers had questions about legal, consumer, and public safety services.

Table 68. Top 25 Needs in Henderson County, 2011 (United Way 2-1-1)

Top 25 Needs YTD	Calls
Utility Service Payment Assistance	335
Food Pantries	229
Housing Expense Assistance	203
General Legal Aid	125
Homeless Shelter	122
Community Clinics	95
Home Rental Listings	92
Food Stamps/SNAP	91
Specialized Information and Referral	79
Central Intake/Assessment for Psychiatric Services	72
Christmas Programs	72
Medical Appointments Transportation	71
General Dentistry	59
Social Security Disability Insurance	58

Comprehensive Information and Referral	57
Hospitals	57
Discounted Utility Services	55
Prescription Expense Assistance	55
Case/Care Management	54
County Clerk of the Courts Offices	54
Sheriff	54
Home Rehabilitation Programs	49
Section 8 Housing Choice Vouchers	49
Public Housing	46
Utility Deposit Assistance	46

Table 69. Top Unmet Needs in Henderson County, 2011
(United Way 2-1-1)

Top Unmet Needs (By Call Count)	Not Met	Partially Met	Service Pending	Total
Housing Expense Assistance	71		3	74
Utility Service Payment Assistance	53	1	6	60
Utility Deposit Assistance	36		1	37
Transportation Expense Assistance	25		1	26
Automotive Repair	23			23
General Furniture Provision	21		2	23
Food Pantries	11		7	18
Medical Care Expense Assistance	8	1	4	13
Automobile Insurance Payment Assistance	11			11
Automobiles	10			10
General Legal Aid	7	1	2	10
Homeless Shelter	8		2	10
Prescription Expense Assistance	8		2	10
Rental Deposit Assistance	10			10
Total:	302	3	30	335

CHAPTER 9 - HEALTH PRIORITIES & NEXT STEPS

Prioritization Process & Criteria

Henderson County conducted a Community Health Assessment in 2011 as required by the NC Department of Health and Human Services. Having met the state requirement, this Community Health Assessment was conducted to work with local hospitals on a Community Health Needs Assessment and to collaborate with Western North Carolina Healthy Impact's regional assessment initiative. Since a forum was held on November 15, 2011 to present the data to the public and to the Community Health Assessment Team, another public meeting was not held in 2012. At the 2011 forum, findings were presented from the primary and secondary data and participants were asked to identify leading community health problems that should be addressed over the next four years. Participants ranked the ten major problems as high, medium, low, or not at all. See Appendix F for the Prioritization Form.

Criteria used to rate the issues included:

- The problem affects a lot of Henderson County residents – including low income and underserved residents.
- More resources are needed for this issue; it is not being sufficiently addressed by existing programs.
- There's a good chance that the problem could be reduced if local groups were dedicated to working on it.
- It will be beneficial to use a collaborative approach involving a variety of community stakeholders in addressing this issue.

The Department of Public Health also has a monthly column in the local newspaper. The November 2011 column included an invitation to the public forum and information about the online survey. In addition, the Henderson County Board of Health also heard the presentation on November 8, 2011 and provided input to the priorities.

The PowerPoint presentation was also posted on the Department of Public Health website and a survey was posted on Survey Monkey in English and Spanish to allow others not in attendance to have a voice in determining health priorities.

Priority Health Issues

In November 2011, after reviewing the surveys and considering input from the Board of Health, the three top priorities for Henderson County for 2011-2015 were selected:

- ☑ *Obesity*
- ☑ *Substance Abuse/Prescription Drug Abuse*
- ☑ *Access to Mental Health Care*

In October 2012, key leaders from the Department of Public Health, Pardee Hospital, and Park Ridge Health meet to review the new data and determine if new health priorities should be identified. New data supported the need for the three priorities to remain the focus in the new Community Health Assessment. In addition to the three priorities selected in 2011, two additional priorities were also identified:

- ☑ *Prenatal and Maternal Health*
- ☑ *Need for Disease Prevention, Screening, and Early Detection*

Health officials recognized the gains made over the past few years in reducing infant mortality, reducing the number of mothers who smoked during pregnancy, and the increase in mothers receiving prenatal care during the first trimester, and wanted to continue efforts to maintain and improve these areas. Early prenatal care helps assure the healthiest pregnancies and the best birth outcomes possible. Babies of mothers who do not get prenatal care are three times more likely to have a low birth weight and five times more likely to die than those born to mothers who do get care.

There was also recognition that prevention, screening, and early detection are critical in improving morbidity and mortality. The four leading causes of death in Henderson County, heart disease, cancer, chronic lower respiratory disease, and cerebrovascular disease are related to lifestyle and behavior. Smoking, high blood pressure, and overweight-obesity are all preventable risk factors, and are responsible for the largest number of deaths in the US. Early detection of cancer greatly increases the chances for successful treatment. The breast cancer incidence rate in Henderson County rose 8.4% between 1999 and 2009 and the prostate cancer was the third leading cause of cancer deaths between 2006 and 2010. The prostate cancer incidence rate increased 45.3% from 1999 to 2009. Education and screening are the two major components of early detection.

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 the National Association of City and County Health Officials and the Centers for Disease Control and

Prevention 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.

Henderson County, will work with our local hospitals and community partners on collaborative action planning which results in a Community Health Improvement Plan (CHIP). This planning process will begin in early 2013. Work groups will consist of county residents and representatives of agencies/organizations with special expertise or interest in the issue, and/or those who are affected by the issue. Community Health Assessment Action Plan Teams will develop plans of action for addressing each of the five health priorities. This includes tools for developing intervention and prevention activities. Action Plans will be completed by June 2013 and submitted to the NC Division of Public Health.

The Henderson 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 Henderson County Department of Public 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

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 Plans – The Henderson County Department of Public Health will disseminate the 2012 Community Health Assessment Report and the CHIP throughout the community. A press release will be sent to media contacts in the community and a representative from the health department, Pardee Hospital, and Park Ridge Health will be available to present findings from this report as requested by community groups and organizations.

A simplified, plain-language summary of CHA findings will be developed and all reports will be publicly available on the Henderson County Department of Public Health website at www.hendersoncountync.org/health, the WNC Healthy Impact website, and local libraries. A presentation will be made to the Henderson County Board of Health and they will receive copies.

Information will be submitted to the *Times News* newspaper for the 2013 Medical Directory, published in February every year. The Medical Directory includes articles on health related issues as well as a listing of medical professionals in the county.

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.

If you have questions about this report, or if you would like more information on becoming involved with new projects or serving on the Community Health Assessment Action Teams, please contact the Henderson County Department of Public Health at 828-692-4223.

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WNC Healthy Impact Regional Secondary Data Workbook – http://www.WNCHealthyImpact.com – Resources Page.

APPENDICES

APPENDIX A – COMMUNITY HEALTH ASSESSMENT TEAM AND ROLES

Member	Agency	Role
Betsy Alexander	Henderson County Department of Public Health	Provided data
Angie Alley	The Healing Place	Provided data, provided site for listening session
Tim Auwarter	Pardee Hospital	Provided data, selected priorities
Ruth Birge	United Way of Henderson County	Provided data, selected priorities
Tom Bridges	Henderson County Department of Public Health	Provided support and access to the Board of Health
Kaye Brownlee	Henderson County Department of Public Health	Provided data, arranged listening sessions
Milton Butterworth	Blue Ridge Community Health Services	Provided data, selected priorities, provided site for listening session with staff and clients
Linda Charping	Henderson County Department of Public Health	Team Leader
David Cook	Interfaith Assistance Ministry	Provided data, selected priorities, provided site for listening session with staff
Rick Davis	Henderson County Sheriff's Department	Provided data
Graham Fields	Park Ridge Health	Provided data, selected priorities
Elisha Freeman	Children and Family Resource Center	Provided data
Sonia Gironda	Smart Start of Henderson County	Provided data
Jennifer Hastings	Henderson County Family YMCA	Provided data
Tim Hopkin	Henderson County Parks and Recreation	Provided data, provided site for listening session
David Jones	Henderson County Public Schools	Provided data
Judith Long	The Free Clinics	Provided data
Carolina McCready	El Centro	Provided data, provided site and bilingual staff for listening session
Andrea Orben	UNC-CH MPH Student Intern	Conducted listening sessions
Marvin Owings	NC Cooperative Extension Service	Provided data
Kris Peters	Pardee Hospital	Selected priorities
Phil Sellers	Board of Health, Chair	Provided data and access to the Board of Health
Karen Smith	Council on Aging for Henderson County	Provided data, provided site for listening session
Anthony Star	Henderson County Planning Department	Provided data
Tricia Stauffer	Henderson County Department of Public Health	Team Leader
Rachel Stein	Children & Family Resource Center	Provided data, provided site for listening session with teen parents
Alan Stephenson	Blue Ridge Community College	Provided data, provided site for listening session

Penny Summey	Department of Social Services	Provided data
Seth Swift	Henderson County Department of Public Health	Provided data
Terri Wallace	Volunteer	Community Health Resource Directory
David White	Western Carolina Community Action	Provided data

APPENDIX B - 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" data for the purposes of our assessments (and related requirements). County data may not be available for some of the data parameters included in this report; in those cases state-level data is compared to US-level data or other standardized measures. Where appropriate and available, trend data has been used to show changes in indicators over time.

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

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

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

Data Definitions

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

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

Error

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

Age-adjusting

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

Rates

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

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

Regional arithmetic mean

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

Describing difference and change

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

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

Data limitations

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

WNC Healthy Impact Survey (Primary Data)

Survey Methodology

Survey Instrument

To supplement the secondary core dataset, meet additional stakeholder data needs, and hear from community members about their concerns and priorities, a community survey, *2012 WNC Healthy Impact Survey* (a.k.a. 2012 PRC Community Health Survey), was developed and implemented in 16 counties across western North Carolina. The survey instrument was developed by WNC Healthy Impact's data workgroup, consulting team, and local partners, with assistance from Professional Research Consultants, Inc. (PRC). Many of the questions are derived from the Centers for Disease Control and Prevention (CDC) Behavioral Risk Factor Surveillance System (BRFSS), as well as other public health surveys; other questions were developed specifically for WNC Healthy Impact to address particular issues of interest to communities in Western North Carolina. Each county was given the opportunity to include three additional questions of particular interest to their county, which were asked of their county's residents. See Appendix G.

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.

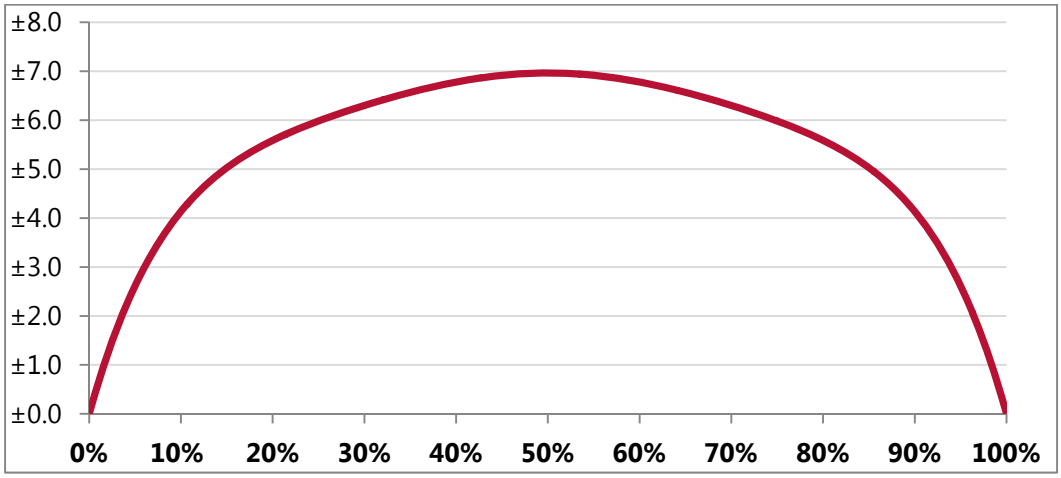
The primary advantages of telephone interviewing are timeliness, efficiency and random-selection capabilities.

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. Henderson 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

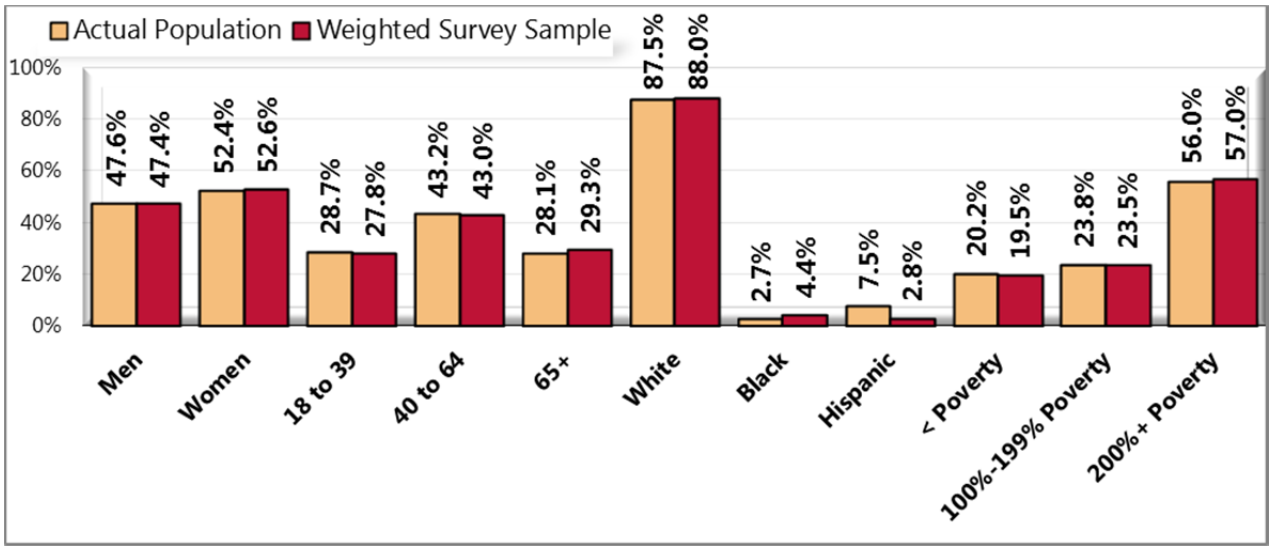
To accurately represent the population studied, PRC worked to minimize bias through application of a proven telephone methodology and random-selection techniques. And, while this random sampling of the population produces a highly representative sample, it is a common and preferred practice to "weight" 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

(Henderson 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.

Supplementary to this Community Health Assessment is the WNC Healthy Impact Secondary Data Workbook (Data Workbook) that contains complete county-level data from a wide range of sources, as well as the state and regional averages and totals described here. Readers can consult the Data Workbook if looking for the direct source information and links to this secondary data for all counties in the region.

This data workbook was created by WNC Healthy Impact to manage and report the large amount of secondary data collected from a variety of sources during our regional process. This process and product were part of our regional effort to improve efficiency and standardization of data collection and reporting across a sixteen county region.

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

Listening Sessions

During July 2011, eleven listening sessions were conducted in Henderson County to identify the community's perceptions and concerns about community health and other issues important to residents. Groups consisted of 8-10 people. Groups are listed in Appendix C. The groups were selected in order to gain information from or about segments of the community with a focus on demographics: race, ethnicity, and age; disparate populations: including lower income adults, elderly, ethnic populations; and professionals and service providers who work with these populations.

Goals of the listening sessions were to:

- Gain an understanding of the health concerns within the community (concerns)
- Gain an understanding of the health care systems within the community (services and resources)
- Identify the factors that affect the health of the community (determinants) and
- Determine the availability of health resources within the community (services and resources)

Questions were developed with the intent to discover the community's viewpoint and concerns about life in the community, health concerns, and other issues important to residents. Participants were asked how they define a "healthy community", how people stay healthy, what they thought were the most serious health problems in the community, challenges to meet health care needs, and ways to improve the health or county residents. Questions are listed in Appendix D.

Health Resource Inventory

The Health Resource Inventory was developed as a catalog including a list of agencies, organizations, providers, and other entities that affect the health of our county. Agency and organization webpages were reviewed and calls were made to clarify and/or check accuracy. United Way's 2-1-1 Annual Report for Henderson County (2011) was also used to assess local resources and needs. The complete Health Resource Inventory can be seen in Appendix E.

APPENDIX C – COMMUNITY HEALTH ASSESSMENT LISTENING SESSIONS GROUPS

Agency/Location	Group/Demographic
Blue Ridge Community Health Services	Medical Professionals
Interfaith Assistance Ministry	Volunteers
Children and Family Resource Center	Teen parents
Blue Ridge Community Health Services	Clinic clients (minorities)
Mills River Presbyterian Church	Middle age – older county residents
Union Grove Baptist Church	African-Americans
Latino Advocacy Coalition	Latinos
Sammy Williams Senior Center	Older adults
Henderson County Parks and Recreation	Older adults
The Healing Place	Professionals

APPENDIX D - LISTENING SESSION QUESTIONS

- When you hear the words "healthy community", what comes to mind? How do you describe a healthy community?
    - First name and how you describe a healthy community
- What do folks in this community do to stay healthy? What do you personally do?
- On a scale of 1 to10 (1 being least healthy and 10 being the most healthy) how healthy are the citizens of Henderson County (as a single population)? Why did you choose that number?
- From your perspective, what are the most serious health problems or concerns facing this community?
- What are the causes of these problems? In other words, what keeps people in your community from being healthy?
- On the other end of the spectrum, what helps people maintain or enhance (better) their health?
- Is there any group not receiving enough health care? If so, why?
- Thinking of your own health needs and the needs of your friends and family, are you all able to get care when needed? What are the challenges to meeting your health care needs?
- If I asked you to pick one thing to focus on to make Henderson County healthier, what would you pick and what would you do?
- What is the main way you get information about how to stay healthy?
- Is there anything else you would like to add, or you think would be helpful for us to know?

APPENDIX E - HEALTH RESOURCE INVENTORY

Category	Provider Name	Telephone #	Providers Website Address
ABUSE AND SEXUAL ASSAULT			
	The Healing Place	828-692-3931	www.thehealingplace.info
	Mainstay	828-693-3840	www.mainstayhelp.org
BREASTFEEDING SUPPORT			
	Henderson Co. Dept. of Public Health	828-692-4223	www.hendersoncountync.org/health
	La Leche League of Hendersonville	828-693-9899 or 828-808-1490	www.lllofnc.org/groups/Hendersonville.html
CANCER SERVICES			
	Henderson Co. Dept. of Public Health-Breast & Cervical Cancer Control Program (B&CCCP)	828-692-4223	www.hendersoncountync.org/health
	Park Ridge Health	828-684-8501	www.parkridgehealth.org
	Pardee Hospital - Women Helping Women	828-696-1000	www.pardeehospital.org
CARDIAC REHAB			
	Pardee Hospital	828-698-4694	www.pardeehospital.org
	Park Ridge Health	828-684-8501	www.parkridgehealth.org
CHILDREN'S SERVICES			
	Children & Family Resource Center	828-698-0674	www.childrenandfamily.org
	Henderson County Dept. Of Social Services	828-697-5500	www.hendersoncountync.org/dss/
COMMUNITY HEALTH DATA & INFORMATION			
	2-1-1 Information	828-252-4357	http://www.211wnc.org . http://www.211wnc.org . Www.211wnc.org
	Henderson Co. Dept. of Public Health	828-692-4223	www.hendersoncountync.org/health
DENTAL HEALTH			
	Blue Ridge Community Health Services-Stokes Dental Center	828-692-4289	www.brchs.com
	Greg Denton, DDS-ABC Dental Center	828-692-9075	www.abcdentalcenter.com/
	Henderson Co. Dept. of Public Health-Smart Start/Blue Cross Blue Shield	828-694-6067	www.hendersoncountync.org/health
	Smile Starters	828-350-1076	www.smilestartersdental.com
	The Free Clinics	828-697-8422	www.thefreeclinics.org
DEVELOPMENTAL DISABILITIES - PHYSICAL OR MENTAL			
	Children's Developmental Services Agency	828-694-7975	maggie.panther@dhhs.nc.gov
	Henderson County Public Schools Preschool Program	828-779-0310 or 828-654-3225	www.hendersoncountypublicschoolsnc.org

Category	Provider Name	Telephone #	Providers Website Address
	Western Highlands Area Authority	800-975-3792 or 828-225-2800	www.westernhighlands.org
	Preschoolers Reaching Educational Potential (P.R.E.P.)	828-698-0674	www.childrenandfamily.org
DIALYSIS CENTERS			
	DaVita Hendersonville Dialysis Center	866-571-6766	www.dialysiscenters.org/nc/hendersonville/
EDUCATION			
	Blue Ridge Community College	828-691-1700	www.blueridge.edu
	Captain Gilmer School	828-684-8221	www.captaingilmer.com
	Fletcher Academy	828-587-5100	www.fletcheracademy.com
	Henderson County Home School Association		www.homeschool-life.com/nc/hcha
	Henderson County Public Schools	828-697-4733	www.hendersoncountypublicschoolsnc.org
	Hendersonville Christian Academy	828-692-0556	www.hendersonvillechristianschool.org
	Heritage Hall School	828-692-6845	www.heritagehallschool.com
	Immaculate Conception Catholic School	828-693-3277	www.immac.org
	The Mountain Community School	828-696-8480	www.tmcschool.org
	Upward Seventh-Day Adventist School	828-693-6532	no web page
	Veritas Academy	828-681-0546	www.veritasnc.org
FITNESS/GYMS/RECREATIONAL FACILITIES/WELLNESS PROGRAMS			
	Apex Fitness	828-890-4049	no web page
	Body Shop	828-692-7902 828-692-1166 828-653-1348	www.bodyshopgyms.com
	Curves	828-697-5633 828-698-1600	www.curves.com
	Fitness Fusion	828-489-3855	No web page
	Flat Rock Fitness	828-697-0866	www.flatrockonline.com/explore.html
	Healthworks Wellness Center	828-698-8233	no web page
	Henderson County Family YMCA	828-692-5774	www.ymcahendersoncounty.org
	Hendersonville Racquet Club	828-693-0040	www.hendersonvillerc.com
	Lelia Patterson Center	828-209-6900	www.lpcenter.org
	NC Cooperative Extension Program	828-697-4891	http://henderson.ces.ncsu.edu
	Pardee Health Education Center	828-682-4600	www.pardeehospital.org
	Pardee Rehab & Fitness	828-698-6774	www.pardeehospital.org
	Park Ridge Health W.O.W.	828-681-2730	www.parkridgehealth.org
	Pump House	828-698-9447	www.pumphousefitnesscenter.com
	Sonrise Fitness	828-891-6559	www.sonrisefitness.com
	Ultimate Fitness Center	828-698-0403	www.ultimatefitnesswnc.com
	WNC Activity Center	828-697-0084	www.wncac.com

Category	Provider Name	Telephone #	Providers Website Address
FREE CLINICS			
	The Free Clinics	828-697-8422	www.thefreeclinics.org
HOME CARE/IN-HOME SERVICES			
	Pardee Home Care	828-692-1846	www.pardeehospital.org
	Park Ridge Home Health	828-698-5261	www.parkridgehealth.org
HOSPICE CARE			
	Four Seasons Compassion for Life	828-692-6148	www.fourseasonscfl.org
HOSPITALS			
	Pardee Hospital	866-696-1000	www.pardeehospital.org
	Park Ridge Health	828-684-8501	www.parkridgehealth.org
HOSPITAL BILL ASSISTANCE			
	Pardee Charity Fund	828-696-7339	www.pardeehospital.org
	Park Ridge Health Charity Fund	828-681-2108	www.parkridgehealth.org
MEDICAID/HEALTH CHOICE			
	Blue Ridge Community Health Services	828-692-4289	www.brchs.org
	Henderson Co. Dept. of Public Health	828-692-4223	www.hendersoncountync.org/health
	Henderson Co. Dept. of Social Services	828-697-5500	http://ww2.hendersoncountync.org/dss/
MEDICAL TRANSPORTATION			
	Apple Country	828-698-8571	www.wcca.net/transports.html
	Medicaid Transportation (For Medicaid recipients only)	828-694-6161 or 828-694-6163	www.wcca.net/transports.html
MEDICATION ASSISTANCE			
	Blue Ridge Community Health Services	828-692-4289	www.brchs.org
	Community Pharmacy @ The Free Clinics	828-697-8422	www.thefreeclinics.org
	Eblen Charities	828-255-3066	www.eblencharities.org
	Henderson County Dept. of Public Health	828-692-4223	www.hendersoncountync.org/health
	Medi-Find Program @ The Free Clinics	828-697-4822	www.thefreeclinics.org
MEDICATION ASSISTANCE (CONTINUED)			
	Salvation Army	828-693-4181	http://www.salvationarmycarolinas.org/commands/hendersonville/
MENTAL HEALTH SERVICES - SUBSTANCE ABUSE-ALCOHOL AND DRUG			
	6th Ave. Clubhouse	828-697-9765	www.sixth-avenue.org
	AAT Un Nuevo Dia	828-606-1718	No web page
	ARP Addiction, Recovery & Prevention (Crossroads)	828-693-7377	www.arpnc.org/crossroads
	Blue Ridge Community Health Services	828-692-4289	www.brchs.org
	Families First	828-698-8588	No web page
	Family Preservation	828-697-4187	No web page

Category	Provider Name	Telephone #	Providers Website Address
MENTAL HEALTH SERVICES - SUBSTANCE ABUSE-ALCOHOL AND DRUG (CONTINUED)			
	Four Circles Treatment Center	828-891-2221	www.fourcirclesrecovery.com
	Healthcare Solutions	828-684-4228	No web page
	Hope Behavioral Health (Park Ridge Health)	800-954-4673	www.parkridgehealth.org
	NAMI Four Seasons	888-955-6264	www.namifourseasons.org
	NC Mentor	828-696-2667	www.nc-mentor.com
	Parkway Behavioral Health	828-697-2660	www.parkwaybh.com
	SUICIDE HOTLINE	800-273-8255	
	The Free Clinics	828-697-8422	www.thefreeclinics.org
	Western Highlands Area Authority	800-951-3792 or 828-225-2800	www.westernhighlands.org
OCCUPATIONAL THERAPISTS			
	Pardee Rehab and Wellness	828-698-6774	www.pardeehospital.org
PEDIATRIC CARE			
	Henderson County Dept. of Public Health	828-692-4223	www.hendersoncountync.org/health
	Hendersonville Family Health Center	828-696-1234	www.pardeehospital.org/health_services/
	Hendersonville Pediatrics	828-693-3296	www.hendersonvillepediatrics.com
	Park Ridge Pediatrics	828-650-8032	www.parkridgehealth.org
	Rainbow Pediatrics	828-698-8135	www.rainbowpediatrics.net
	Blue Ridge Community Health Services	828-692-4289	www.brchs.org
PHARMACIES-SPECIAL ASSISTANCE			
	The Free Clinics	828-697-8422	www.thefreeclinics.org
	Fletcher Community Pharmacy	828-684-3756	www.parkridgehealth.org
PHYSICAL THERAPY			
	Pardee Rehab & Wellness	828-698-6774	www.pardeehospital.org
	Park Ridge Physical Therapy	828-681-2162	www.parkridgehealth.org
PRIMARY/GENERAL HEALTH CARE			
	Blue Ridge Community Health Services	828-692-4289	www.brchs.org
	Henderson County Dept. of Public Health	828-692-4223	www.hendersoncountync.org/health
	Hendersonville Family Health Center	828-696-1234	www.pardeehospital.org
	Laurel Park Medical Center	828-697-4336	www.parkridgehealth.org
	The Free Clinics	828-697-8422	www.thefreeclinics.org
SENIOR CENTERS			
	Sammy Williams Center for Active Living	828-692-3220	www.swcforactiveliving.org
	Opportunity House	828-692-0575	www.opportunityhouse.org

Category	Provider Name	Telephone #	Providers Website Address
SKILLED NURSING			
	Beystone Health & Rehab Center	828-684-4857	no web page
	Brian Center	828-693-4361	no web page
	Fleisher's Fairview Health Care Center	828-628-2800	no web page
	Golden Living Center	828-693-8461	http://www.goldenlivingcenters.com/locations-staff/find-care-location/welcome/golden-livingcenter-hendersonville-nc.aspx
	Laurels of Hendersonville	828-692-6000	www.laurelsofhendersonville.com
	Life Care of Hendersonville	828-697-4348	no web page
	Spring Arbors of Hendersonville	828-633-4050	www.springarborliving.com/locations/hendersonville-nc.htm
SOCIAL SECURITY/SSI			
	Social Security Office (Call for appointment)	800-772-1213	www.socialsecurity-disability.org/social-security-disability-locations/north-carolina
SOCIAL SERVICE PROGRAMS			
	Council On Aging	828-692-4203	www.coahc.org
	Henderson County Dept. of Social Services	828-697-5500	www.hendersoncountync.org/dss/
	Habitat for Humanity	828-694-0340	www.habitat-hvl.org
	Housing Assistance Corporation	828-692-4744	www.housing-assistance.com
	Interfaith Assistance Ministries	828-697-7029	www.iamhendersoncounty.org
	Pisgah Legal Services	828-692-7622	www.pisgahlegal.org
	Manna Food Bank	828-399-3663	www.mannafoodbank.org
	Salvation Army	828-693-4181	www.salvationarmycarolinas.org/commands/hendersonville
SENIOR SERVICES/SERVICES FOR ELDERLY & AGING			
	Aging In Place/Aging Projects Inc.	No Phone	http://www.agingprojectsinc.org/aahome/key.php
	Council On Aging	828-692-4203	www.coahc.org
	Senior Care Solutions	828-685-0485	no web page
	Stacie's Personal Care Services	866-550-9290	www.staciespcs.com
TRANSPORTATION			
	Apple Country	828-698-8571	www.wcca.net/transports.html
	Fish Volunteer Service	828-693-5100	no web page
UNINSURED ASSISTANCE			
	Community Care of Western North Carolina	828-259-3879	www.communitycarewnc.org
	The Free Clinics	828-697-8422	www.thefreeclinics.org

Category	Provider Name	Telephone #	Providers Website Address
WOMEN'S HEALTH/PREGNANCY SERVICES			
	Blue Ridge Community Health	828-692-4289	www.brcsh.com
	Ellis, Dr. David	828-698-5500	no web page
	Four Seasons Women's Med Center	828-693-0736	no web page
	Henderson Co. Dept. of Public Health	828-692-4223	www.hendersoncountync.org/health
	Hendersonville Family Health Center	828-696-1234	no web page
	Hendersonville OB/GYN (A Service of Park Ridge Health	828-687-3800	www.parkridgehealth.org
	New Beginnings OB/GYN (A service of Park Ridge Health)	828-651-8933	www.parkridgehealth.org
	Open Arms Crisis Pregnancy Center	828-692-7935	www.openarms329.com
	Pardee Center for Women's Health - OB/GYN Associates & Nurse Midwifery	828-696-0897 or 828-698-7181	www.pardeehospital.org
	Park Ridge Health Women's Services	828-698-9934	www.parkridgehealth.org

APPENDIX F – PRIORITIZING HEALTH ISSUES

Individually, **please rate each of the following health and human service issues indicating how high a priority it is** for the community to address in the next several years.

Criteria to use in rating these issues:

- The problem **affects a lot of Henderson County residents** – including low income and underserved residents.
- **More resources are needed** for this issue; it is not being sufficiently addressed by existing programs.
- There's a good chance that the **problem could be reduced** if local groups were dedicated to working on it.
- It will be beneficial to use a **collaborative approach** involving a variety of community stakeholders in addressing this issue.

Health Issue (Use a ✓ to indicate choice)	High	Medium	Low	Not at all
Obesity				
Access to Mental Health Services				
Access to Medical Services				
Substance Abuse including Prescription Drug Abuse				
Tobacco Use				
Access to Dental Services				
Suicide				
Teen Pregnancy				
Lack of Recreation Facilities				
Services for Seniors				

Please indicate if you are interested in volunteering for an Action Team to determine strategies to address the problem. ***Circle the issue(s) above*** *that you would be interested in working on and complete the following:*

Please print.

Name Agency/group (if applicable) Phone number e-mail address

Thank you for participating in the Community Health Assessment process!

APPENDIX G - 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.

11. Now I would like to ask, where do you get most of your health care information?

[Don't Know/Not Sure]
[Refused]
[Don't Receive Any]
Books/Magazines
Child's School
Church
Family Physician
Friends/Relatives
Health Department
Help Lines
Hospital
Hospital Publications
Insurance
Internet
Newspaper
Pharmacist
Other (Specify)

NOTE: If Q2 is "Swain County", "Mitchell County", "Yancey County", "Graham County", or "Clay County", ASK Q98.

All Others, SKIP to 12.

98. Do you currently have access to the internet for PERSONAL use, either at home, work or school?

Yes
No
[Don't Know/Not Sure]
[Refused]
[Terminate Interview]

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APPENDIX H – WNC HEALTHY IMPACT: CORE DATASET LIST

This list represents all data that is included in the WNC Healthy Impact core dataset.

Data	Date	Source
I. DEMOGRAPHIC AND SOCIOECONOMIC PARAMETERS		
A. Population		
1. Current population	2010	U.S. Census Bureau
2. Overall population growth trend	2000 - 2030, by decade	NC Office of State Budget and Management
3. Birth rate trend	Five 5-year aggregates, 2002-2006 through 2006-2010	NC State Center for Health Statistics (NC SCHS)
4. Elderly population growth trend	2000 - 2030, by decade	NC Office of State Budget and Management
5. Family composition trend by household type	5-year estimate, 2006-2010	U.S. Census Bureau
6. Military veterans	5-year estimate, 2006-2010	U.S. Census Bureau
B. Education		
1. Educational attainment by level	5-year estimates, 2005-2009 and 2006-2010	U.S. Census Bureau
2. Literacy rate (not described in narrative report)	1992 and 2003	National Center for Education Statistics
3. High School dropout rate trend	School Year 2006-2007 through SY2010-2011	Department of Public Instruction (DPI)
4. 4-year High School graduation rate	School Year2007-08 entering 9th graders, graduating in SY10-11	Department of Public Instruction (DPI)
C. Income		
1. Median household and family income trend	Two 5-year estimates, 2005-2009 and 2006-2010	U.S. Census Bureau
2. Population in poverty trend	Two 5-year estimates, 2005-2009 and 2006-2010	U.S. Census Bureau
3. Housing expense as percent of income	5-year estimates, 2005-2009 and 2006-2010	U.S. Census Bureau
D. Employment/Unemployment		
1. Employment by sector	2011	Employment Security Commission
2. Unemployment rate trend	Five single years, 2007 through 2011	NC Department of Commerce
E. Crime		
1. Homicide	2006-2010	NC SCHS
2. Index crime trend	Ten single years, 2001-2010	NC Department of Justice
3. Violent crime trend	Ten single years, 2001-2010	NC Department of Justice
4. Property crime trend	Ten single years, 2001-2010	NC Department of Justice
II. HEALTH STATUS/HEALTH OUTCOME PARAMETERS		
A. Health Rankings		
1. America's Health Rankings	2011	United Health Foundation
2. County Health Rankings	2012	Robert Wood Johnson Foundation and the University of Wisconsin Population Health Institute

B. Pregnancy and birth data		
1. Pregnancy rates and abortion rate trend for all women aged 15-44 (abortion rates by race, not described in narrative report)	Five single years, 2006 through 2010	NC SCHS
2. Pregnancy rate trend and abortion rates for teens aged 15-17 and 15-19 (pregnancy trend, ages 15-17 and abortion by race, ages 15-19, not described in narrative report)	Five 5-year aggregates, 2002-2006 through 2006-2010; Five single years, 2006 through 2010	NC SCHS
3. Pregnancy risk factors		
a. Smoking during pregnancy trend	Five 5-year aggregates, 2001-2005 through 2005-2009	NC SCHS
b. Late or no prenatal care trend	Five 5-year aggregates, 2001-2005 through 2005-2009	NC SCHS
4. Birth outcomes		
a. Low birth weight births trend	Five 5-year aggregates, 2002-2006 through 2006-2010	NC SCHS
b. Infant mortality rate trend	Five 5-year aggregates, 2002-2006 through 2006-2010	NC SCHS
c. Unintended pregnancy (only state data available, not described in narrative report)	Three single years, 2007, 2008 and 2009	NC SCHS
C. Mortality data		
1. Life expectancy (at birth)	Single 3-year aggregate, 2006-2008	NC SCHS
2. 15 leading causes of death (age-adjusted)	Single 5-year aggregate, 2006-2010	NC SCHS
3. Top 3 leading causes of death by age group (unadjusted)	Single 5-year aggregate, 2006-2010	NC SCHS
4. Mortality rates for the 15 leading causes of death and 4 major site-specific cancers (age-adjusted)	Five 5-year aggregates, 2002-2006 through 2006-2010	NC SCHS
5. Diabetes prevalence trend	Single years, 2005 through 2009; 2012 Survey Data	CDC; WNC Healthy Impact Survey
6. Obesity		
a. Adult obesity prevalence trend	Single years, 2005 through 2009; 2012 Survey Data	CDC; WNC Healthy Impact Survey
b. Child obesity prevalence trend	Single year, 2009, 2010	NC Nutrition and Physical Activity Surveillance System (NC-NPASS)
7. Fatal Injuries		
a. Falls – elderly age groups (age-adjusted) – not all counties	Single 5-year aggregate, 2006-2010	NC SCHS
b. Vehicular crashes trend (including details on alcohol-related crashes and injuries)	Five single years, 2006 through 2010	Highway Safety Research Center at the University of North Carolina at Chapel Hill
c. Vehicular crashes involving distracted drivers (only state and national data available)	Single year, 2010	National Highway Traffic Safety Administration
d. Work-related injury – mortality rate (only state and national data available)	Single years, 2008 and 2009	NC SCHS
e. Unintentional poisoning – not all	Single 5-year aggregate, 2006-	NC SCHS

counties	2010	
D. Morbidity data		
1. General		
a. Self-reported overall health	2012	WNC Healthy Impact Survey
b. Disability/physical activity limitations	2012	WNC Healthy Impact Survey
2. Injuries		
a. Falls	2012	WNC Healthy Impact Survey
5. Communicable disease		
a. STIs trend (chlamydia and gonorrhea only) (chlamydia testing results, ages 15-24 not described in narrative report)	Five single years, 2007 through 2011; Five 5-year aggregates 2002-2006 through 2006-2010	NC DHHS Communicable Diseases Branch; NC SCHS
b. HIV incidence trend (only some counties have stable rates)	Three single years, 2008 through 2010; Five 3-year averages, 2004-2006 through 2008-2010	NC DHHS Communicable Disease Surveillance Unit
6. Immunization		
a. Vaccine utilization (only state and national data available, not described in narrative report)	2010	CDC, National Immunization Survey (NIS)
III. HEALTH BEHAVIORS		
A. Physical activity	2012	WNC Healthy Impact Survey
B. Diet and Nutrition	2012	WNC Healthy Impact Survey
C. Substance use/abuse		
1. Illicit and prescription drugs	2012	WNC Healthy Impact Survey
2. Alcohol, including binge drinking	2012	WNC Healthy Impact Survey
3. Tobacco use, including quitting behavior	2012	WNC Healthy Impact Survey
D. Health information and education		
1. Places for obtaining health-related information	2012	WNC Healthy Impact Survey
IV. CLINICAL CARE PARAMETERS		
HEALTH ACCESS		
A. Medical care access		
1. Ratios of specific types of providers/population	Three single years, 2008 through 2010	Cecil G. Sheps Center for Health Services Research, NC Health Professions Data System
2. Self-reported	2012	WNC Healthy Impact Survey
B. Perception of healthcare	2012	WNC Healthy Impact Survey
C. Health care coverage		
1. Rates of uninsured non-elderly adults trend (medical insurance)	Biennial periods 2006-2007, 2008-2009 and 2009-2010	NC Institute of Medicine (NCIOM)
2. Medicaid population participation rate	Five State Fiscal Years, SFY2004 through SFY2008	NC DHHS - NC Division of Medical Assistance (NC DMA)
3. Medicaid eligible, age 65 and over (not described in narrative report)	January 2012 through June 2012	NC DHHS – NC Division of Medical Assistance (NC DMA)
4. Lack of health insurance coverage	2012	WNC Healthy Impact Survey
SCREENING AND PREVENTION		
A. Diabetes		
1. Test for diabetes in the past 3 years	2012	WNC Healthy Impact Survey
2. Pre-diabetes/borderline diabetes	2012	WNC Healthy Impact Survey

prevalence		
3. Action to lower/control high blood sugar	2012	WNC Healthy Impact Survey
B. Hypertension		
1. Have had blood pressure checked in the past 2 years	2012	WNC Healthy Impact Survey
2. Prevalence of high blood pressure	2012	WNC Healthy Impact Survey
3. Taking action to control hypertension	2012	WNC Healthy Impact Survey
C. Cholesterol		
1. Have had blood cholesterol levels checked in the past 5 years	2012	WNC Healthy Impact Survey
2. Prevalence of high blood cholesterol	2012	WNC Healthy Impact Survey
3. Taking action to control high blood cholesterol (among adults with high blood pressure)	2012	WNC Healthy Impact Survey
D. Preventative Health Screening Behavior (only national and regional data available, not described in narrative report)	2010	NC SCHS
HEALTHCARE UTILIZATION		
A. Medical home		
1. Utilization	2012	WNC Healthy Impact Survey
2. Routine check-ups	2012	WNC Healthy Impact Survey
B. Hospital charges for top 10 DRG procedures (not described in county narrative report; is described in regional report)	Fiscal Year 2011	North Carolina Hospital Association (NCHA)
C. Emergency department utilization		
1. Numbers and rates of utilization	2010	NC DETECT
2. Most common first-listed diagnosis codes in ED	2010	NC DETECT
D. Inpatient hospital utilization by principal diagnosis, and county of residence	Single year, 2010	NC SCHS
E. Dental Services		
1. Utilization of dental services by Medicaid population	Single year, 2010	NC SCHS and NC DMA
2. Child dental screening results	Single year, 2009	NC SCHS
3. Utilization of preventative dental care by general population	2012	WNC Healthy Impact Survey
F. Behavior/Mental Health		
1. MH/DD/SA services utilization data		
a. Persons served in mental health programs	Five single years, 2006 through 2010	Log into North Carolina (NC LINC)
b. Persons served in NC state alcohol and drug treatment centers	Five single years, 2006 through 2010	NC LINC
c. Persons served in North Carolina state psychiatric hospitals	Five single years, 2006 through 2010	NC LINC
d. Child and adolescent depression and anxiety problems (only state and national data available, not described in narrative report)	2007	National Survey for Children's Health, SLAITS (state)
e. Tobacco, Alcohol and Other Drug Use Among High School Students, Grades 9-12 (only state and national data available, not described in narrative	Single years, 2007 and 2009	CDC, Youth Risk Behavior Survey

report)		
2. Poor mental health days among adults	2012	WNC Healthy Impact Survey
3. Access to mental health services	2012	WNC Healthy Impact Survey
G. Advanced Directives	2012	WNC Healthy Impact Survey
H. Caregiving	2012	WNC Healthy Impact Survey
V. PHYSICAL ENVIRONMENT PARAMETERS		
A. Air		
1. Outdoor air quality		
a. AQI	2011	US EPA
b. Toxic Release Inventory (TRI) air issues	2010	US EPA
2. Indoor air quality		
a. Self-reported second-hand smoke exposure	2012	WNC Healthy Impact Survey
b. Second-hand smoke exposure at work	2012	WNC Healthy Impact Survey
c. Smoke-free policies and regulations – community and private colleges, county buildings (DHHS data is not described in narrative report)	Varied years, 2009 and 2010; 2012 survey data	NC DHHS, Tobacco Prevention and Control Branch; WNC Healthy Impact Survey
B. Populations using community water systems	2012	US Census Bureau, US EPA
C. Radon		
1. Current average indoor rate and comparison to state and/or national norm	2012	NC Radon Information; NC Department of Environment and Natural Resources
D. Built Environment		
Healthy Food Access		
1. Access to Farmer's Markets	Single years, 2009 and 2011	USDA
2. Access and proximity to grocery stores	Single years, 2007 and 2009	USDA
3. Access to and utilization of fast food restaurants	Single years, 2007 and 2009	USDA
4. Access to recreational facilities	Single years, 2007 and 2009	USDA
5. Importance that communities make it easier to access farmer's markets, including mobile/tailgate markets	2012	WNC Healthy Impact Survey
Physical Activity and Recreation		
1. Importance that community organizations make physical activity spaces available for public use after hours	2012	WNC Healthy Impact Survey
2. Importance that communities improve access to trails, parks and greenways	2012	WNC Healthy Impact Survey
Tobacco-Free Environments		
1. Importance that universities and colleges are 100% tobacco free	2012	WNC Healthy Impact Survey
2. Importance that government buildings and grounds are 100% tobacco-free	2012	WNC Healthy Impact Survey
3. Importance that parks and public walking/biking trails are 100% tobacco-free	2012	WNC Healthy Impact Survey
VI. SOCIAL ENVIRONMENT/QUALITY OF LIFE		
1. Perception of county as place to raise children	2012	WNC Healthy Impact Survey
2. Perception of county as place to grow old	2012	WNC Healthy Impact Survey
3. Perception of social support/ help	2012	WNC Healthy Impact Survey

4. Quality of life	2012	WNC Healthy Impact Survey
5. Neighborhood Improvements	2012	WNC Healthy Impact Survey
Ambulatory Care Sensitive Hospitalizations (not described in narrative report)	2010	NC DHHS, NC SCHS