

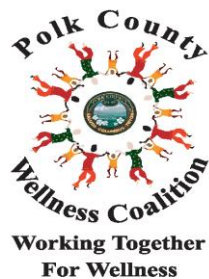
# Polk County Community Health Assessment

December 2012



St. Luke's Hospital

*Rutherford Polk McDowell*  
*District Health Department*



# **POLK COUNTY COMMUNITY HEALTH ASSESSMENT**

*December 2012*

## *Acknowledgements*

This document was developed by Polk County, in partnership with St. Luke's Hospital and the Polk, Fit, Fresh & Friendly Coalition as part of a local community health assessment process. We would like to thank several agencies and individuals for their contributions and support in conducting this health assessment:

Linda Greensfelder, Polk Fit Fresh and Friendly Chairperson, June Beddingfield, Anne Britton, Polk County, Cathy Brooks, Partnership for Children of the Foothills, Jimmi Buell, Family and Consumer Sciences Polk County Extension, Tammy Greenwell, BSN, MPH, Blue Ridge Community Health Services, Angel Jackson, Patty Martin, Nurse-Family Partnership, Lou Parton, Polk County Department of Social Services Michelle Reedy, Mary Smith, Community Transformation Grant Program, Kathy Woodham, St. Luke's Hospital, Michelle Reedy, Thermal Belt Outreach Ministry, Jimmy Hines, Rutherford Polk McDowell District Health Department.

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](http://www.WNCHealthyImpact.com)

## ***Table of Contents***

Polk County Community Health Assessment.....	2
Community Health Assessment 2012 .....	5
Median Household and Family Income.....	6
County Health Rankings.....	7
Leading Causes of Death.....	7
Gender Disparities in Lung Cancer Mortality .....	8
Diet and Nutrition .....	10
Physical Activity.....	12
Chapter 1 - Introduction.....	16
Chapter 2 – Demographic and Socioeconomic Parameters .....	20
Composition of Families with Children .....	27
Current High School Graduation Rate.....	32
Income .....	33
Median Household and Family Income .....	33
Chapter 3 – Health Status and Health Outcome Parameters.....	44
Morbidity Data .....	93
Disability and Limitations in Physical Activity.....	94
Childhood Obesity .....	100
Chapter 4 – Health Behaviors .....	108
Diet and Nutrition .....	111
Social Determinants of Diet .....	111
Physical Determinants of Diet.....	112
Chapter 5 – Clinical Care Parameters .....	120
Chapter 6 – Physical Environment .....	153
Chapter 8 - Healthcare & Health Promotion Resources .....	170
Chapter 9 - Health Priorities & Next Steps.....	177
Prioritization Process & Criteria	
Priority Health Issues	
Next Steps	
Appendix A – Data Collection Methods & Limitations	
Appendix B – On-line Survey (Additional Local Perceptions Data)	
Appendix C – WNC Healthy Impact Survey Instrument	

## Appendix D – Health Resource Inventory

# **EXECUTIVE SUMMARY POLK COUNTY 2012**

## **Community Health Assessment 2012**

Prepared by Marjorie Vestal for Rutherford Polk McDowell District Health Department

### **Overview of CHA Purpose and Process**

This document was developed by Rutherford, Polk, McDowell District Health Department in partnership with WNC Healthy Impact as part of a local community health assessment process.

We would like to thank several agencies and individuals for their contributions and support in conducting this health assessment including:

Linda Greensfelder, Polk Fit Fresh and Friendly Chairperson, June Beddingfield, Anne Britton, Polk County, Cathy Brooks, Partnership for Children of the Foothills, Jimmi Buell, Family and Consumer Sciences Polk County Extension, Tammy Greenwell Blue Ridge Community Health Services, Angel Jackson, Patty Martin, Nurse-Family Partnership, Lou Parton, Polk County Department of Social Services Michelle Reedy, Mary Smith, Community Transformation Grant Program, Kathy Woodham, St. Luke's Hospital, Michelle Reedy, Thermal Belt Outreach Ministry, Jimmy Hines, Rutherford Polk McDowell District Health Department.

### **List of Health Priorities**

In 2008 the following Priorities were chosen:

- 1) Access to mental health and substance abuse services
- 2) Access to healthcare for the uninsured
- 3) Prevention
- 4) Obesity
- 5) Education.

In 2012 the following Priorities were chosen:

- 1) Access to Care: Chronic Disease, Mental Health, Physical Health
- 2) Economy and Health
- 3) Tobacco, Substance abuse
- 4) Healthy Living: Physical activity, Nutrition, Fresh Local Foods

## General Review of Data and Trends

### Education

From the table below, it is evident that Polk County has significantly higher graduations rates than WNC and NC as a whole.

Geography	Total Number of Students	% Students Graduating				
		All Students	Males	Females	Economically Disadvantaged	Limited English Proficiency
Polk County	187	87.2	89.2	84.2	84.6	n/a
Regional Total	7,545	78.8	75.2	82.5	72.0	57.2
State Total	110,377	77.9	73.8	82.2	71.2	48.1

### Median Household and Family Income

As calculated from the most recent estimate (2006-2010), the median *household* income in Polk County was \$43,692, compared to a mean WNC median household income of \$37,815, a difference of \$5,877 *more* in Polk County.

#### Median Household and Median Family Income 5-Year Estimates (2005-2009 and 200-2010)

Geography	2005-2009				2006-2010			
	Median Household Income*		Median Family Income**		Median Household Income		Median Family Income	
	\$	\$ Difference from State	\$	\$ Difference from State	\$	\$ Difference from State	\$	\$ Difference from State
Polk County	39,246	-5,823	47,151	-8,378	43,692	-1,878	55,846	-307
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.

### Unemployment

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

**Unemployment Rate as Percent of Workforce,  
(2007 through 2011)**

Geography	Annual Average				
	2007	2008	2009	2010	2011
Polk County	3.4	4.9	9.2	9.3	8.5
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

### **County Health Rankings**

Table 4 below presents the health outcome and health factor rankings for Polk County.

**Table 4 County Health Rankings via MATCH (2012)**

Geography	County Rank (Out of 100) <sup>1</sup>						
	Health Outcomes		Health Factors				Overall Rank
	Mortality	Morbidity	Health Behaviors	Clinical Care	Social & Economic Factors	Physical Environment	
Polk County	48	14	6	48	16	8	33

Source: *County Health Rankings and Roadmaps, 2012*. Available at

<http://www.countyhealthrankings.org/app/north-carolina/2012/rankings/outcomes/overall>

### **Leading Causes of Death**

The leading causes of death in Polk County are Cancer, Heart Disease and Chronic Lung Respiratory Disease. Leading causes of death differ in rank order from the comparable lists for WNC or NC, most notably in a higher county placement for cancer.

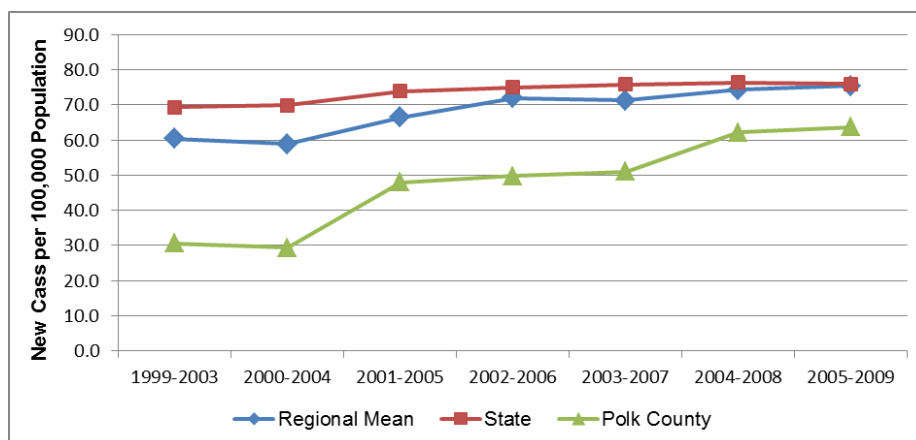
Since total cancer is a very significant cause of death, it is useful to examine patterns in the development of new cases of cancer in the county.

#### **Lung Cancer**

From this data it appears that lung cancer incidence in Polk County increased a dramatic 108.2% (from 30.6 to 63.7) between 1999-2003 and 2005-2009. 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.

#### **Lung Cancer Incidence, New Cases per 100,000 Population**

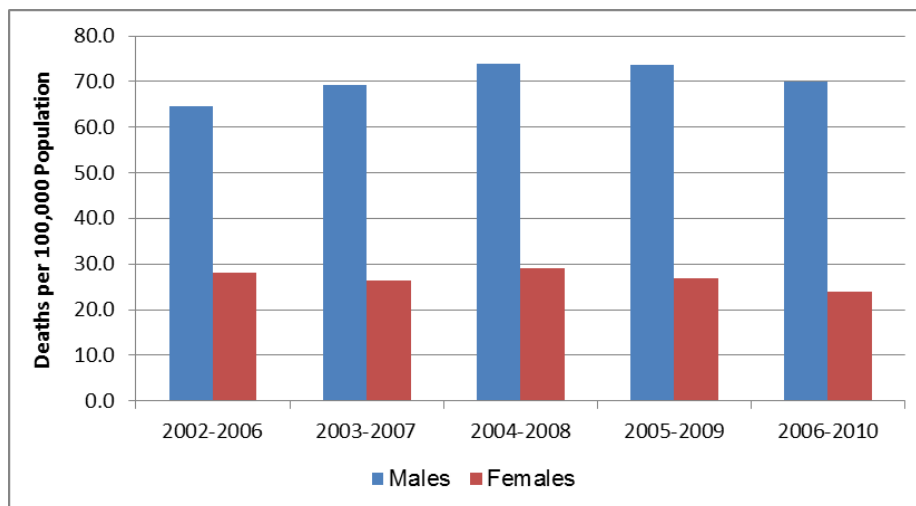
**(Five-Year Aggregates, 1999-2003 through 2005-2009)**



**Gender Disparities in Lung Cancer Mortality**

From this data it is clear that males experience disproportionately higher lung cancer mortality than females, with the lung cancer mortality rate among men from 2.3 to 2.9 *times* the rate among women over the period cited.

**Gender Disparities in Lung Cancer Mortality, Polk County  
(Five-Year Aggregates, 2002-2006 through 2006-2010)**



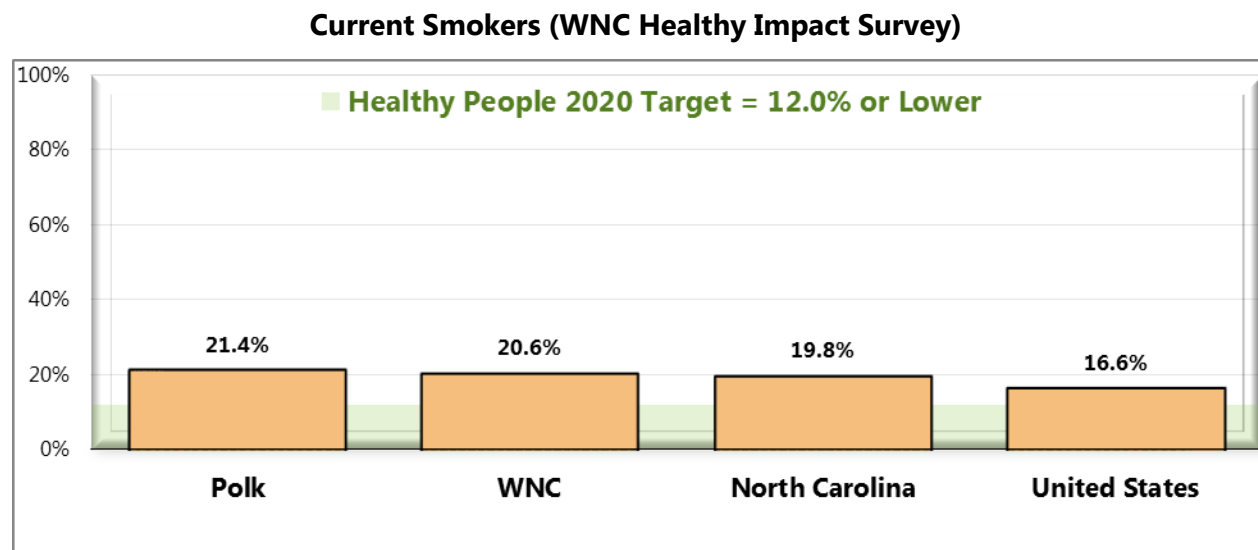
***Tobacco***

Tobacco use is the single most preventable cause of death and disease in the United States. Each year, approximately 443,000 Americans die from tobacco-related illnesses. For every person who dies from tobacco use, 20 more people suffer with at least one serious tobacco-related illness. In addition, tobacco use costs the US \$193 billion annually in direct medical expenses and lost productivity. Preventing tobacco use and helping tobacco users quit can



improve the health and quality of life for Americans of all ages. People who stop smoking greatly reduce their risk of disease and premature death. Benefits are greater for people who stop at earlier ages, but quitting tobacco use is beneficial at any age.

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

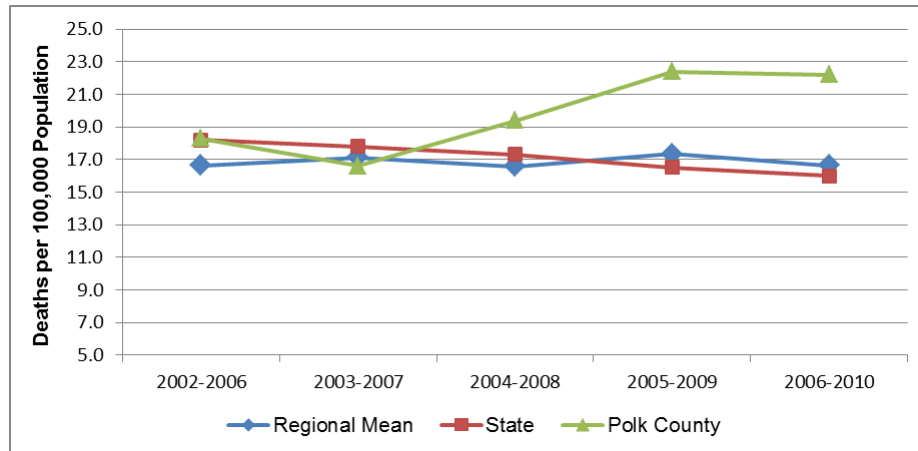


Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 86] • 2011 PRC National Health Survey, Professional Research Consultants, Inc. • Behavioral Risk Factor Surveillance System Survey Data. Atlanta, Georgia. United States Department of Health and Human Services, 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).

### ***Colorectal Cancer Mortality***

The colorectal cancer mortality rate in Polk County rose 21.3% overall, from 18.3 in the 2002-2006 aggregate period to 22.2 in the 2006-2010 aggregate period.



## 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

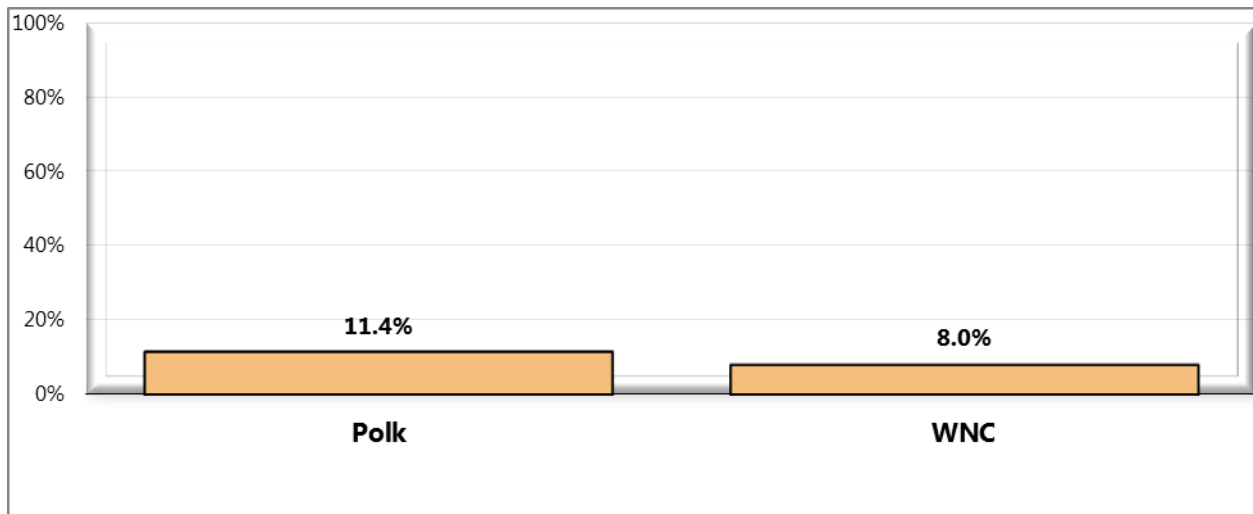
Social factors thought to influence diet include:

- 1) Knowledge and attitudes
- 2) Skills
- 3) Social support
- 4) Societal and cultural norms
- 5) Food and agricultural policies
- 6) Food assistance programs
- 7) Economic price systems

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. Survey respondents from Polk County were also asked about their frequency of having to choose between buying food and paying bills.

**Figure 59. Had an Average of Five or More Servings**

### of Fruits/Vegetables per Day in the Past Week (WNC Healthy Impact Survey)

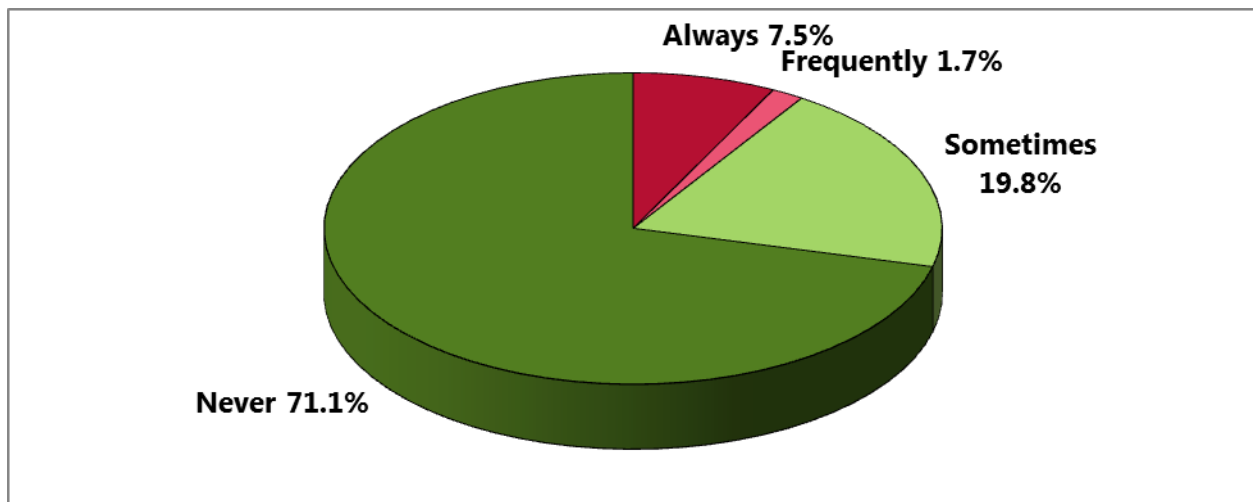


Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 79]

Notes: • Asked of all respondents.

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

### Frequency of Having to Choose Between Buying Food and Paying Bills in the Past Year (WNC Healthy Impact Survey)



Sources: 2012 PRC Community Health Survey, Professional Research Consultants, Inc.

### Adult Obesity

Table 35 presents trend data from the CDC on the estimated prevalence of diagnosed adult obesity in Polk 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.

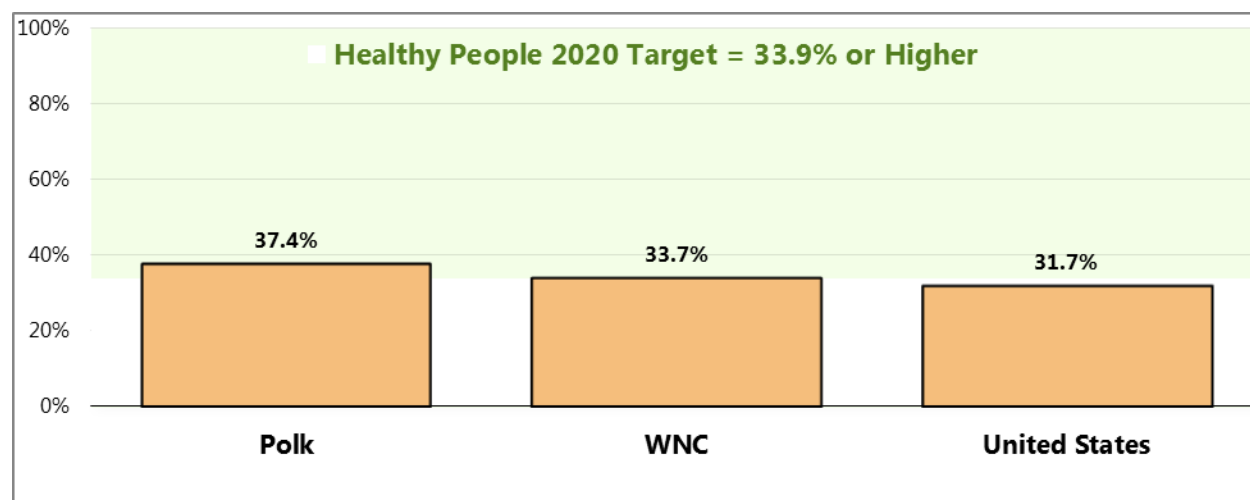
From these data it appears that the estimated prevalence of diagnosed obesity among adults in Polk County fell every year between 2005 and 2009; the decrease from 2005 to 2009 was 11.6%. The estimated mean prevalence of adult obesity in WNC increased annually throughout the period cited. Between 2005 and 2009 the estimated mean percent of the WNC population diagnosed as obese rose from 25.2% to 28.0%, a total increase of 11.1%.

### Estimate of Diagnosed Obesity Among Adults Age 20 and Older (2005-2009)

Geography	2005		2006		2007		2008		2009	
	#	%	#	%	#	%	#	%	#	%
Polk County	3,790	25.8	3,643	24.4	3,573	24.3	3,510	23.9	3,393	22.8
Regional Total	128,908	-	136,661	-	139,114	-	143,681	-	148,403	-
Regional Arithmetic Mean	8,057	25.2	8,541	26.4	8,695	26.7	8,980	27.4	9,275	28.0

### 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]

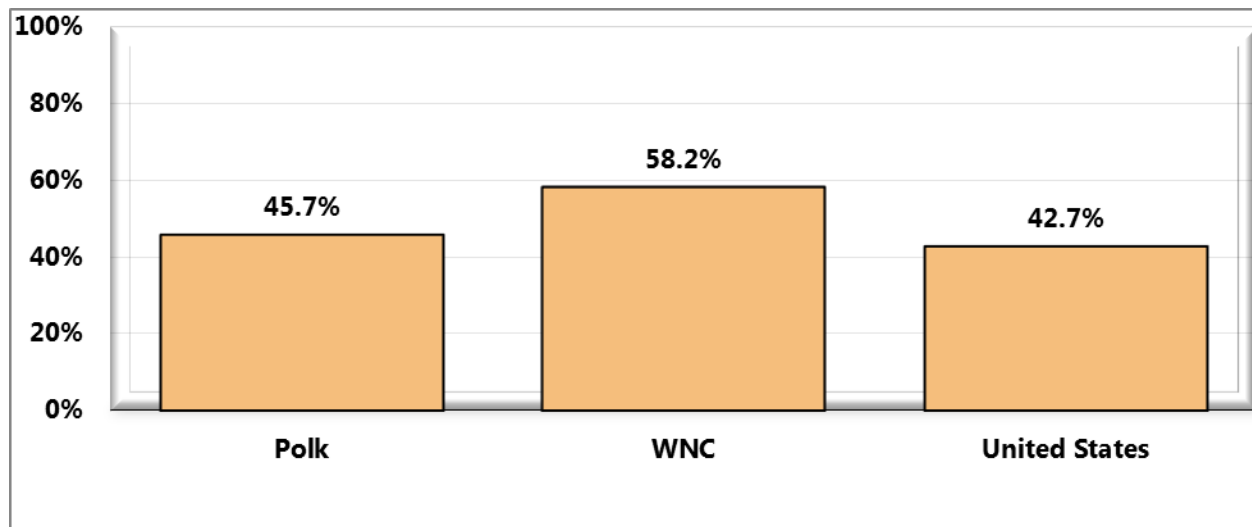
• The definition of healthy weight is having a body mass index (BMI), a ratio of weight to height (kilograms divided by meters squared), between 18.5 and 24.9.

### 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.

### Meets Physical Activity Recommendations (WNC Healthy Impact Survey)



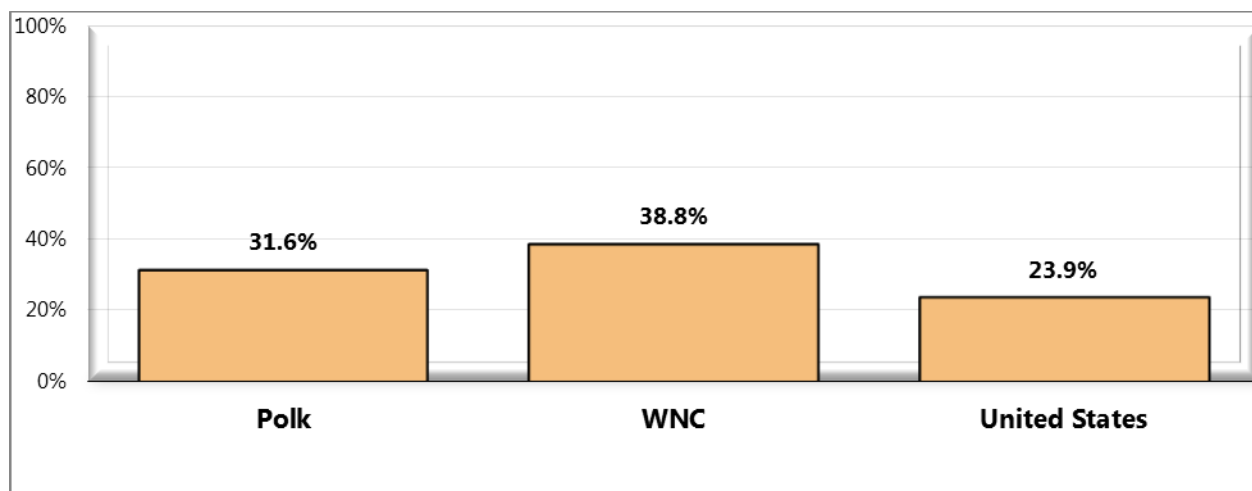
Sources:

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

Notes:

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

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



Sources:

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

Notes:

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

## Poisonings

For the five-year aggregate period 2006-2010 there were 30 unintentional poisoning deaths in Polk County, with a corresponding age-adjusted mortality rate of 29.8 per 100,000 population. The comparable mean unintentional poisoning mortality rate for WNC was 23.1 over the same period.

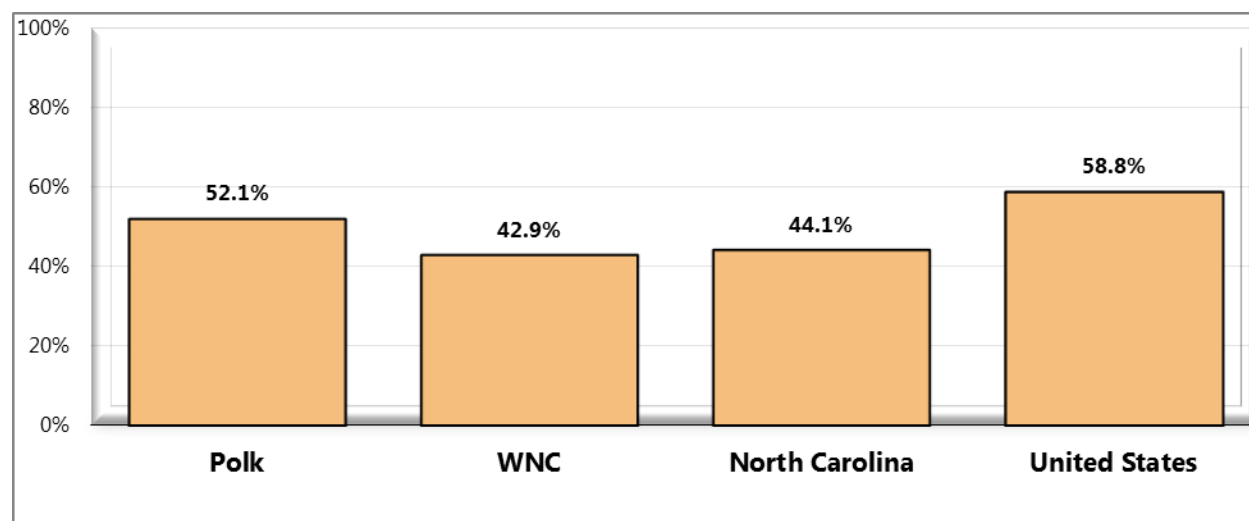
## Vehicle Crashes

The data presented for Polk County demonstrate high variability relative to the WNC means for the percent of crashes that were alcohol-related. However the percentage of alcohol-related traffic crashes in the county were above the comparable state rate in every year cited in the table except 2008. The data in the table also shows that the percentage of alcohol-related vehicle crashes in WNC were higher than the comparable percentages for the state as a whole throughout the period cited, with the difference varying from 16% to 27% depending on the year.

**Alcohol-Related Traffic Crashes (2006-2010)**

	# Crashes	% Alcohol- Related	# Crashes	% Alcohol- Related	# Crashes	% Alcohol- Related	# Crashes	% Alcohol- Related	# Crashes	% Alcohol- Related
Polk County	335	7.2	390	6.7	381	4.7	351	5.7	405	6.4
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

**Current Drinkers (WNC Healthy Impact Survey)**

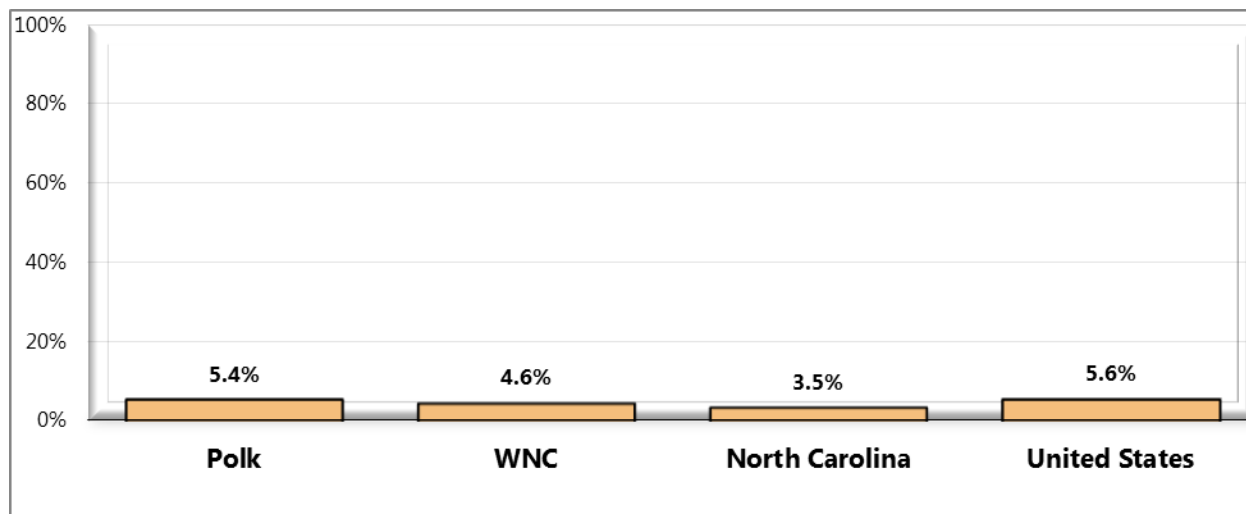


Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 88] • Behavioral Risk Factor Surveillance System Survey Data. Atlanta, Georgia. United States Department of Health and Human Services, Centers for Disease Control and Prevention (CDC): 2010 North Carolina data.

• 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.

### Chronic Drinkers (WNC Healthy Impact Survey)



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.

### Next Steps

On February 5, 2013 from 5:30 p.m. to 7:30 p.m. at the Polk Campus of ICC, the results of the 2012 Community Health Assessment will be presented at a public forum hosted by Saint Luke's Hospital, Rutherford Polk McDowell District Health Department and Polk Fit, Fresh and Friendly. Information will be circulated in the community to inform the public of this event.

Following the presentation, forum participants will identify three priority health issues they think should be addressed over the next three years in Polk County. Community Health Improvement Plans will be developed to address the priority issues adopted by the Polk Community under the leadership of Polk Fresh Fit and Friendly Coalition, St. Luke's Hospital and the Rutherford Polk McDowell District Health Department.

## Chapter 1 - Introduction

### ***Purpose of Community Health Assessment (CHA)***

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

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



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

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

### ***Definition of Community***



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

### ***WNC Healthy Impact***

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

### ***Data Collection Process***

#### **Core Dataset Collection**

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

### ***Criteria for selecting "highlights"***

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

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

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

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

### ***Additional Local Data***

A Health Behaviors Survey was distributed on line through a Survey Monkey with convenience sampling among interested Polk County Residents. Twenty-eight surveys were completed by Polk County residents. Those findings are available in Appendix D.

### ***Definitions & Data Interpretation Guidance***

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

Health data, which composes a large proportion of the information included in this report, employs a series of very specific terms which are important to interpreting the significance of the data. While these technical health data terms are defined in the report at the appropriate time, there are some data caveats that should be applied from the onset. [See Appendix A](#) for additional details and definitions.

### **Community Engagement**

In the random-sample survey that was administered in our county as part of this community health assessment, 200 community members completed a questionnaire regarding their health status, health behaviors, interactions with clinical care services, support for certain health-related policies, and factors that impact their quality of life. In addition, the Polk Fresh, Fit and Friendly Coalition, St. Luke's Hospital and the Rutherford Polk McDowell Board of Health were involved in:

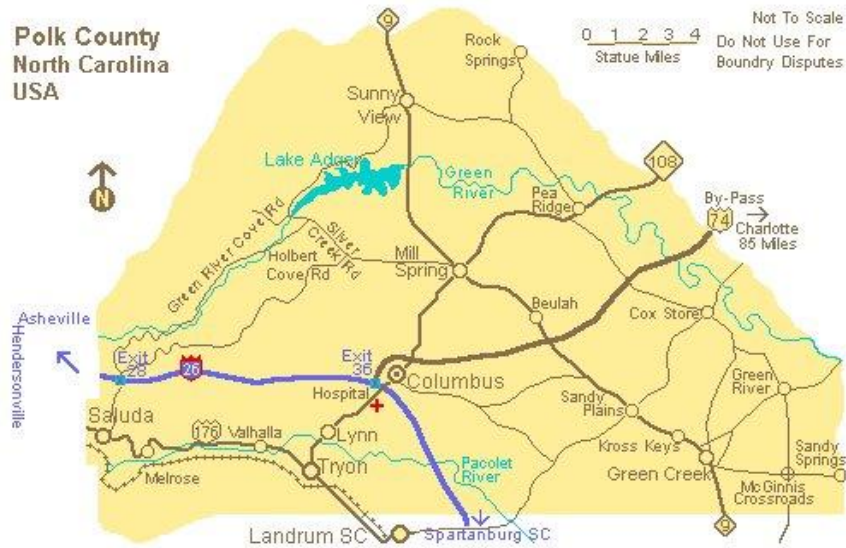
Local data review and analysis, prioritization of Health Issues, promoting and organizing the Health Forum to present CHA data to the public and to facilitate the choosing of priorities. These groups will continue to work as a team to create and follow through on Community Health Improvement Plans (CHIPs) throughout the next four years.

### ***Priority Setting***

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

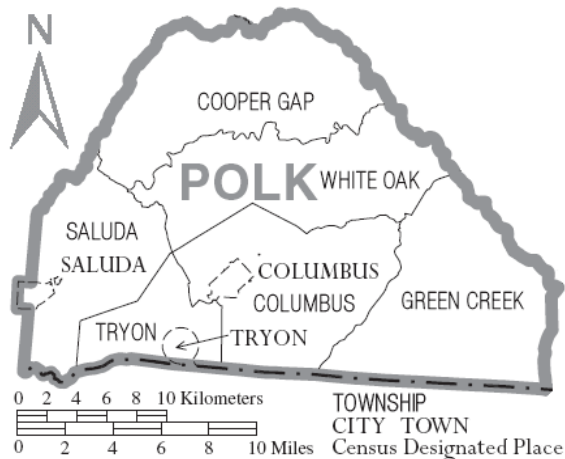
## Chapter 2 – Demographic and Socioeconomic Parameters

S



Polk County is located in the western region of North Carolina, nestled in the foothills of the Blue Ridge Mountains, bordering South Carolina. The land area of the county is 237.16 square miles. The total area is 0.31% water. The county's largest body of water is Lake Adger, located about 5 miles north of Columbus. Forested land comprises 77.6% of the county compared to 62% for NC. Total land acreage is 152,512 acres. Polk County's terrain varies from lowlands and foothills. There is one significant river running through the county, the Green River. The highest elevation in the county is Tryon Peak in Mill Spring at 3280 feet.

Adjacent Counties include: Rutherford County, NC, to the north and east, Spartanburg County, SC, to the southeast, Greenville County, SC to the southwest, and Henderson County to the west. The county is divided into six townships: Columbus, Cooper Gap, Green Creek, Saluda, Tryon, White Oak.



The populations of the three incorporated municipalities within Polk County are: Tryon - 1,760; Columbus - 992; Saluda - 575. Urban areas account for 18% of the County's population. The rural areas account for the other 82% of the total population. The largest township population is Columbus Township with a population of 5,719 (31% of the County population), second is Tryon Township with a population of 3,811 (21%), third is Green Creek Township with 2,994 (16%), next is White Oak Township with 2,094 (11%), next is Coopers Gap with 1,882 (10%), and last is Saluda with 1,869 (10%).

Tryon is the largest city in the area and is most unusual in the versatility of its residents. Tryon has a reputation as a premier retirement area. It has been listed as one of the top ten retirement communities by Money Magazine, The Wall Street Journal and other publications. Half the population has migrated from other parts of the country to enjoy the mild climate and beauty of the surrounding countryside. The transplanted residents are chiefly writers, artists, educators, professional people and industrial executives who are fascinated with the tranquility of the community life and who contribute so greatly to the social advantages of the city.

Columbus is the county seat where the government offices and the historic courthouse are located. The courthouses is one of the oldest still in use, recently renovated, in North Carolina and has been restored to its original grandeur.

Historic Saluda, on the county's western border, located on the crest of the "Saluda Grade", the steepest standard gauge railroad in the country, has retained its turn-of-the century atmosphere. The downtown business district has 16 buildings on the National Register of Historic Places, which is to say the whole town. Saluda is also known for its artists, fine crafts, and restaurants. Saluda has long enjoyed fame as a vacation area and place of retirement. Saluda is noted for its fine apple orchards which constitute the main source of farm income.

Polk County became one of the first counties in the state to complete a plan through the North Carolina Agricultural Development and Farmland Preservation Trust Fund (ADFPTF) to for local agricultural development and farmland preservation plans, i.e. a strategic approach to the future of local agriculture. The percent of county land in farms is 20.2%. Farmers grow crops, vegetables, fruits, nut berries, greenhouse and nursery items, and limited livestock.

Polk County is a beautiful county located in the central Blue Ridge Mountains and foothills. The mountain slopes of the region experience a climatic phenomenon known as the "Thermal Belt". This is due to a temperature inversion which results in a belt, rather indefinite in width, wherein the frosts of the valley - or the freezes of the higher altitudes- do not occur. Botanically, the area is rich in native flora. The thermal belt moderates the year round temperatures resulting in cooler summers and warmer winters. This phenomenon allows for a longer growing season and greater food growing potential than surrounding counties. Outdoor activities and events to be enjoyed throughout the seasons.

Polk County is truly a rural county with an average of 77 people per square mile compared to 167 people per square mile for North Carolina. The town of Tryon has 20 times the density of the Mills Spring area and 10 times the density of Saluda and Columbus.

## History

The Cherokee Indians first arrived in the Smoky Mountain region in about 1000 A.D. and are believed to have been a breakaway group of New England's Iroquois. By the time European explorers arrived in the New World, seven clans totaling over 25,000 Cherokee ruled lands that now represent parts of eight states.

By 1540, some 47 years after Columbus discovered the New World, Hernando DeSoto had arrived in the mountain country near Polk County, where he found the Cherokee Tribe already in an advanced state of civilization. The Indians lived in substantially-built log houses. Though accomplished hunters, they subsisted chiefly by their knowledge of agriculture. They raised corn, pumpkins, and beans.

The area was a fine place in which to live, as the first white settlers quickly learned. Several decades before the Revolution a sprinkling of families had set down their roots in the mountain coves in the midst of the Cherokee hunting lands.

The early tide of settlement acted as a buffer between Cherokee Indians in the West and the white settlers in the East. Cherokees had occupied the entire Alleghany Mountain area from the Blue Ridge to the Cumberland range, including the western half of Polk. Little evidence is available that they had villages in this territory. However, large numbers of the tribe used the lands as hunting grounds in summer.

Although Cherokee Indians did exist peacefully with early settlers, continued land acquisition by settlers eventually forced the Cherokee people from their homelands.

The discovery of gold in the mountains of northern Georgia and Polk County sealed the Cherokees' fate and in 1830, president Andrew Jackson signed the Removal Act, mandating the removal of all native peoples east of the Mississippi River. This was known as the Trail of Tears. With the removal of all native peoples and the "gold rush", Polk County was well prospected. White settlers came to establish farms and plantations. The number of African American slaves in the county is not known.

Across the years Polk County was a part of Bladen, then of Anson, Mecklenburg and Tryon counties. Still later it was part of Rutherford, and finally it was formed from portions of Rutherford and Henderson counties. The original formation of Polk County took place in 1847 and the area was named in honor of the late Colonel William Polk of American Revolutionary War fame.

Controversy over the location of the county seat resulted in an Act on January 16, 1849, by the General Assembly repealing the Act which had created Polk County in the first place. A supplementary Act, passed a few days after January 16, provided that the lands which had been taken from Rutherford and Henderson counties, should be returned to these counties.

Dr. Columbus Mills and Colonel William F. Jones of Cleveland were elected to the General Assembly in 1854 and their combined efforts recreated Polk County under Chapter 10, Public Laws of 1854-1855, ratified by the General Assembly on January 20, 1855. This provided that the county seat "shall be located by J. J. Irvin of Burke, Major Benjamin Burgin of McDowell and John R. Logan of Cleveland, or a majority of them, at the geographical center of the county, or within

two miles thereto." A further section of this law provided that the county seat "be named Columbus in honor of Dr. Mills whose efforts had resulted in the reestablishment of the county of Polk."

Polk was scarcely six years old and had just begun to function in the family of North Carolina counties when the Civil War intervened. In the ensuing four years of conflict (1861-1865) her economy, as in other counties in the state, was severely taxed. At the end of the war, Polk residents were in dire straits. Polk County did not recover from paralyzing lethargy following the Civil War until about 1900.

The Town of Columbus is distinguished by an imposing courthouse, built of handmade brick in 1855. The ancient slave block still remains on the courthouse lawn. The town of Saluda was incorporated by the General Assembly of 1881. In 1885 the General Assembly incorporated Tryon and Mill Spring as municipalities.

During the administration of Governor Charles Brantley Aycock, 1901-1905, there was an awakening along educational lines. One of Polk County's first major schools, still used today, was the Stearns School in Columbus, made possible by Mr. Frank Stearns who settled in Columbus from Cleveland, Ohio. Mr. Stearns gave land and funds to help build the school which had a major influence on education in the area. Hundreds of children from the mountains went to Stearns School in the days when there was a dearth of school facilities.

Descendants of many of the original families helping to establish and settle Polk County still live here. The names of Gibbs, Laughter, Pace, Arledge, Lankford, Newman, Wilkins, Green, Williams, Fagan, Durham, Bradley, Fisher, Jackson, Nodine, and Mills represent the fourth generation of Polk County pioneers and there are probably many more. Few centurion counties anywhere, of small population, can count today so high a percentage of descendants from its first settler families.

The past two decades have seen an influx of retirees into the county who relocate from all parts of the United States drawn by the horses, the beauty and the climate. When aggregate income data is reviewed, the relative affluence of the newcomers gives a false picture of the true extent of poverty among long-established residents. Polk County is designated as a Tier Two County when in fact, there are many pockets of dire poverty within the county.

## Population

Understanding the growth patterns and age, gender and racial/ethnic distribution of the population in Polk 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 Polk County is 20,510. In Polk County, as region-wide and statewide, there is a higher proportion of females than males (52.1% vs. 47.9%).

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

<b>Geography</b>	<b>Total Population (2010)</b>	<b># Males</b>	<b>% Males</b>	<b># Females</b>	<b>% Females</b>
Polk County	20,510	13,341	48.6	14,103	51.4
Regional Total	759,727	368,826	48.5	390,901	51.5
State Total	9,535,483	4,645,492	48.7	4,889,991	51.3

In Polk County 24.3% 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 Polk County is 49.1, while the regional mean median age is 44.7 years and the state median age is 37.4 years.

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

<b>Geography</b>	<b>Median Age</b>	<b># Under 5 Years Old</b>	<b>% Under 5 Years Old</b>	<b># 5-19 Years Old</b>	<b>% 5-19 Years Old</b>	<b># 20 - 64 Years Old</b>	<b>% 20 - 64 Years Old</b>	<b># 65 Years and Older</b>	<b>% 65 Years and Older</b>
Polk County	49.1	931	4.5	3,431	16.7	11,155	54.4	4,993	24.3
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, Polk County is less diverse than either WNC or NC as a whole. In Polk County the population is 90.8% white/Caucasian and 9.2% 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 5.5% in Polk 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)

<b>Geography</b>	<b>White</b>	<b>Black or African American</b>	<b>American Indian, Alaskan Native</b>	<b>Asian</b>	<b>Native Hawaiian, Other Pacific Islander</b>	<b>Some Other Race</b>	<b>Two or More Races</b>	<b>Hispanic or Latino (of any race)</b>
Polk County	90.8	4.5	0.4	0.3	0.0	2.6	1.4	5.5
Regional								
Total	89.3	4.2	1.5	0.7	0.1	2.5	1.8	5.4
State Total	68.5	21.5	1.3	2.2	0.1	4.3	2.2	8.4

#### Population Growth Trend

Between the 2000 and 2010 US Censuses the population of Polk County grew by 10.7% and the population of WNC grew by 13.0% (Table 4). The rate of growth in the county is projected to drop to zero over the next 10 years and increase little in the decade following that. These future county decadal growth rates are much smaller than the double-digit (or near double-digit) figures projected for WNC and for NC as a whole over the same period.

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

<b>Geography</b>	<b>% Total Population Growth</b>			
	<b>2000 to 2010</b>	<b>2010 to 2020</b>	<b>2020 to 2030</b>	<b>2000 to 2030</b>
Polk County	10.7	0.0	0.3	12.3
Regional				
Total	13.0	11.6	9.6	38.2
State Total	15.6	11.3	9.6	44.5

The growth rate of a population is a function of emigration and death rates on the negative side, and immigration and birth rates on the positive side. As illustrated by the data in Table 5, the birth rate in Polk County, lower than the comparable mean WNC and NC rates to begin with, decreased from 8.6 to 7.6 births per 1,000 persons over the five aggregate periods between 2002-2006 and 2006-2010 (Table 5). Region-wide the birth rate was stable at around 10.8 for several years before falling recently to 10.5. Statewide, the birth rate, stable for several years around 14.2, fell recently to 13.8.

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

<b>Geography</b>	<b>2002-2006</b>	<b>2003-2007</b>	<b>2004-2008</b>	<b>2005-2009</b>	<b>2006-2010</b>
Polk County	8.6	8.4	8.2	8.2	7.6
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 represents a larger proportion of the overall population in Polk County and WNC than in the state as a whole. In terms of future health resource planning, it will be important to understand how this segment of the population, a group that utilizes health care services at a higher rate than other age groups, is going to change in the coming years. Table 6 presents the decadal growth trend for the age 65-and-older population, further stratified into smaller age groups, for the decades from 2010 through 2030. These data illustrate how the population age 65-and-older in the county is going to increase over the coming two decades. Calculated from the figures in Table 6, the percent increase anticipated for each age group in Polk County between 2010 and 2030 is 24.0% for the 65-74 age group, 53.2% for the 75-84 age group, and 20.9% 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)

<b>Geography</b>	<b>2010 Census Data</b>				<b>2020 (Projected)</b>				<b>2030 (Projected)</b>			
	<b>Total % Age 65 and Older</b>	<b>% Age 65-74*</b>	<b>% Age 75-84</b>	<b>% Age 85+</b>	<b>% Age 65 and Older</b>	<b>% Age 65-74</b>	<b>% Age 75-84</b>	<b>% Age 85+</b>	<b>% Age 65 and Older</b>	<b>% Age 65-74</b>	<b>% Age 75-84</b>	<b>% Age 85+*</b>
Polk County	24.3	12.1	7.9	4.3	29.8	15.8	9.5	4.5	32.3	15.0	12.1	5.2
Regional Total	19.0	10.4	6.1	2.5	23.5	13.2	7.4	2.9	25.7	12.9	9.3	3.5
State Total	12.9	7.3	4.1	1.5	16.6	9.9	4.9	1.8	19.3	10.6	61.8	2.2

### **Composition of Families with Children**

Data in Table 7 illustrates that the percentage of households with children headed by a married couple is lower in Polk County than in WNC (15.8% vs. 17.2%) and in NC (15.8% 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. #	%
Polk County	9,038	1,431	15.8	179	2.0	433	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 Polk County, 50.4% of grandparents living with their minor grandchildren also are the party responsible for their grandchildren's care. In WNC as in NC as a whole, the comparable figure is about 51% (Table 8).

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

Geography	Family Composition	
	# Grandparents Living with Own Grandchildren (<18 Years)*	Grandparent Responsible for Grandchildren (under 18 years)

		Est. #	%
Polk County	361	182	50.4
Regional Total	13,470	6,971	51.8
State Total	187,626	95,027	50.6

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

### *Military Veteran Population*

Military veterans compose a higher proportion of the total civilian population in WNC than in either NC or the US as a whole. Calculating from figures in Table 9, veterans make up 14.3% of the civilian population in Polk County, compared to 12.4% in the WNC region, 10.8% statewide, and 9.9% nationally. In Polk County, approximately 49% 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
Polk County	21,928	2,951	18,977	5.9	18.5	26.3	23.8	25.5
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, Polk County had a lower proportion than WNC as a whole of residents age 25 or older possessing a high school diploma or its equivalent (30.8% vs. 32.2%), but a 9% higher proportion than NC as a whole (28.2%). The overall proportion of the Polk County population with some college (20.1%) was slightly lower than the comparable percentages for either WNC (20.5%) or NC (20.9%). On the other hand, at the bachelor's and greater level the proportional attainment in the county (27.2%) was 35% larger than the comparable mean regional figure (20.2%) and 4% larger than statewide figure (26.1%).

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

Geography	2005-2009				2006-2010			
	Total Populat ion Age 25 Years and Older	% High School Graduatio n Rate (Includes equivalen cy)	% Some Colle ge	% Bachelo r's Degree or Higher	Total Populat ion Age 25 Years and Older	% High School Graduati on Rate (Includes equivale ncy)	% Some Colle ge	% Bachelo r's Degree or Higher
Polk County	14,427	29.7	19.8	26.3	15,288	30.8	20.1	27.2
Regional Total	511,076	n/a	n/a	n/a	532,838	n/a	n/a	n/a
Regional Arithmetic Mean	31,942	32.2	19.6	19.9	33,302	32.2	20.5	20.2
State Total	5,940,248	28.6	20.4	25.8	6,121,611	28.2	20.9	26.1

### *Drop-Out Rate Trend*

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

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

Geography	SY2006-2007		SY2007-2008		SY2008-2009		SY2009-2010		SY2010-2011	
	#	Rate	#	Rate	#	Rate	#	Rate	#	Rate
Polk County	27	3.45	39	4.87	31	3.87	19	2.41	26	3.25
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 9<sup>th</sup> graders entering high school in SY2007-2008 and graduating in SY2010-2011 are presented in Table 12. In Polk County the graduation rates for all subpopulations exceeded the mean graduation rate for the 17 school districts in WNC, as well as the comparable rates for NC as a whole. The graduation rate for the population of economically disadvantaged students in Polk County was 2.6 percentage points lower than the county's overall graduation rate. At the region- and state-level the graduation rate for economically disadvantaged students was approximately 6.7 percentage points lower than the comparable overall graduation rates.



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

Geography	Total Number of Student s	% Students Graduating				
		All Student s	Males	Female s	Economically Disadvantage d	Limited English Proficiency
Polk County	187	87.2	89.2	84.2	84.6	n/a
Regional						
Total	7,545	78.8	75.2	82.5	72.0	57.2
State Total	110,377	77.9	73.8	82.2	71.2	48.1

## Income

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

### Median Household and Family Income

As calculated from the most recent estimate (2006-2010), the median household income in Polk County was \$43,692, compared to a mean WNC median household income of \$37,815, a difference of \$5,877 more in Polk County. The median household income in Polk County was lower than the comparable state average for both the periods cited in Table 13 (\$5,823 lower in 2005-2009 and \$1,878 lower in 2006-2010); the gap narrowed by \$3,945 from 2005-2009 to 2006-2010.

As calculated from the most recent estimate (2006-2010), the median family income in Polk County was \$55,846, compared to a mean WNC median family income of \$47,608, a difference of \$8,238 more in Polk County. The median family income in Polk County in 2005-2009 was \$8,378 lower than the comparable state average, but in 2006-2010 the gap narrowed to \$307, representing a gain of \$8,071 in Polk County.

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

Geography	2005-2009				2006-2010			
	Median Household Income*		Median Family Income**		Median Household Income		Median Family Income	
	\$	\$ Difference from State	\$	\$ Difference from State	\$	\$ Difference from State	\$	\$ Difference from State
Polk County	39,246	-5,823	47,151	-8,378	43,692	-1,878	55,846	-307
Regional Arithmetic Mean	37,107	-7,962	46,578	-8,951	37,815	-7,756	47,608	-8,545
State Total	45,069	n/a	55,529	n/a	45,570	n/a	56,153	n/a

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

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

#### *Population in Poverty*

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

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

The 100%-level poverty rate in Polk County was 13.4% in the 2005-2009 period, but fell to 12.9% in the 2006-2010 period; this change represents a decrease of 3.7% in the percent of persons living in poverty. In both periods cited, the poverty rate in Polk 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 Polk County was 37.0% in the 2005-2009 period and fell to 38.6% in the 2006-2010 period, a decrease of 3.7%. In WNC the 200% poverty rate was 36.6% in the 2005-2009 period and rose to 37.3% in the 2006-2010 period, an increase of 1.9%. Statewide, the 100%-level poverty rate rose from 15.1% to 15.5% (an increase of 2.6%) and the 200%-level poverty rate rose from 35.0% to 35.6% (an increase of 1.7%) over the same time frame.

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

Geography	2005-2009				2006-2010			
	Population Estimate	# Below Poverty Level	% Below Poverty Level	# Below 200% Federal Poverty Level	Population Estimate	# Below Poverty Level	% Below Poverty Level	# Below 200% Federal Poverty Level
Polk County	18,652	2,494	13.4	6,901	19,971	2,584	12.9	6,291
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 Polk County the 2005-2009 poverty rate for young persons (22.4%) was 67.2% higher than the overall rate (13.4%), and the 2006-2010 poverty rate for young people (22.1%) was 71.3% higher than the overall rate (12.9%). 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 Polk County decreased 1.3%, from 22.4% to 22.1%.

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
Polk County	3,634	813	22.4	3,900	862	22.1
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 Polk County, the percentage of rental housing units costing more than 30% of household income was 46.5% in the 2005-2009 period and 51.6% in the 2006-2010 period, an increase of 11.0%. 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 Polk County costing more than 30% of household income was 42.0% in 2005-2009 and 38.0% in 2006-2010, a decrease of 9.5%. 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 Polk 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%
Polk County	1,766	46.5	2,001	51.6	3,182	42.0	3,503	38.0
Regional								
Total	82,441	38.9	86,022	40.5	122,383	33.0	132,668	32.6
	1,131,480		1,157,690		1,634,410		1,688,790	
State Total		43.0		44.0		31.4		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 Polk County the five sectors employing the greatest proportions of the workforce are, in descending order: (1) Health Care and Social Assistance (39.81%), (2) Retail Trade (10.87%), (3) Public Administration (9.32%), (4) Manufacturing (7.96%), and (5) Construction (5.93%). In WNC, the five leading employment sectors are: (1) Health Care and Social Assistance (18.52%), (2) Retail Trade (13.86%), (3) Accommodation and Food Services (11.43%), (4) Manufacturing (11.28%) and (5) Educational Services (9.19%). Statewide the comparably ordered list is composed of: (1) Health Care and Social Assistance (14.45%), (2) Retail Trade (11.66%), (3) Manufacturing (11.33%), (4) Educational Services (9.58%) and (5) Accommodation and Food Services (8.95%). The county, WNC and NC lists are quite similar, with variations in WNC stemming from its relative lack of manufacturing jobs and the regionally greater significance of the tourism industry, represented by the Accommodations and Food Service sector.

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

<b>Sector</b>	<b>Polk County</b>		<b>WNC</b>	<b>NC</b>
	<b>Avg. No. Employed</b>	<b>% Total Employment in Sector**</b>	<b>% Total Employment in Sector**</b>	<b>% Total Employment in Sector**</b>
Agriculture, Forestry, Fishing & Hunting	135	3.55	0.58	0.74
Mining	n/a	n/a	0.24	0.08
Utilities	*	n/a	0.36	0.35
Construction	226	5.93	4.75	4.53
Manufacturing	303	7.96	11.28	11.33
Wholesale Trade	106	2.78	2.35	4.38
Retail Trade	414	10.87	13.86	11.66
Transportation & Warehousing	49	1.29	2.53	3.27
Information	42	1.10	1.35	1.82
Finance & Insurance	146	3.83	2.25	3.88
Real Estate & Rental & Leasing	32	0.84	0.93	1.23
Professional, Scientific & Technical Services	145	3.81	3.32	4.96
Management of Companies & Enterprises	n/a	n/a	0.49	2.01
Administrative & Waste Services	86	2.26	4.90	6.53

Educational Services	*	n/a	9.19	9.58
Health Care & Social Assistance	1,516	39.81	18.52	14.45
Arts, Entertainment & Recreation	103	2.70	1.73	1.58
Accommodation & Food Services	45	1.18	11.43	8.95
Public Administration	355	9.32	7.18	6.18
Other Services	105	2.76	2.76	2.49
Unclassified	*	n/a	0.00	n/a
TOTAL ALL SECTORS	3,808	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 Polk County (\$32,355) is \$211 higher than the comparable figure for employees region-wide (\$32,144) but \$14,417 lower than the average annual wage statewide (\$46,772).

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

Sector	Average Annual Wage per Employee		
	Polk County	WNC	NC
Agriculture, Forestry, Fishing & Hunting	\$26,682	\$23,145	\$28,752
Mining	n/a	41,662	45,828
Utilities	n/a	72,196	76,552
Construction	29,034	31,190	41,316
Manufacturing	27,479	38,443	52,613
Wholesale Trade	44,515	36,182	61,194
Retail Trade	23,529	22,109	24,650
Transportation & Warehousing	38,247	39,117	43,400
Information	33,597	38,682	63,833
Finance & Insurance	90,316	42,881	75,088
Real Estate & Rental & Leasing	30,711	24,051	38,476
Professional, Scientific & Technical Services	34,602	36,584	66,951
Management of Companies & Enterprises	n/a	43,518	88,763
Administrative & Waste Services	22,696	25,753	30,258
Educational Services	n/a	32,604	39,787
Health Care & Social Assistance	29,843	32,843	42,811
Arts, Entertainment & Recreation	16,832	20,936	28,474
Accommodation & Food Services	13,194	14,424	14,877
Public Administration	29,674	33,818	43,641
Other Services	26,726	24,660	28,182
Unclassified	n/a	12,056	n/a
TOTAL ALL SECTORS	\$32,355	\$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 Polk 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
Polk County	3.4	4.9	9.2	9.3	8.5
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 Polk 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 Polk County was lower than the mean WNC index crime rate from 2001 through 2010. 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
Polk County	1,607. 2	2,246. 2	2,008. 5	2,105. 8	2,124. 3	2,009. 5	1,975. 4	2,164. 7	1,762. 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

<sup>a</sup> – Denotes only incomplete data available

Table 21 separates the violent crime rate from the overall index crime rate for the same period cited above. As with overall index crime, the violent crime rate in Polk County was lower than the comparable mean WNC rate every year between 2001 and 2010 except 2004. The violent

crime rate in Polk County was but lower than the state rate for the entire period from 2001 through 2010. The mean violent crime rate in WNC was significantly lower than the rate for NC as a whole throughout the period cited in the table. According to data from the NC SCHS, there were a total of 148 homicides in the 16 WNC counties during the five-year period from 2006 through 2010, two of them in Polk 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
Polk County	124.9	138.1	169.6	216.9	173.9	121.0	73.4	156.9	130.2	---*
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

<sup>a</sup> – Denotes only incomplete data available

Table 22 separates the property crime rate from the overall index crime rate for the same period cited above. Comparing these figures to the index crime rate, it is clear that the majority of all index crime committed is property crime. In keeping with the pattern noted for index crime, the property crime rate for Polk County was lower than the comparable WNC mean rate every year cited except 2002, and lower than the NC rate every year throughout the period from 2001-2010. 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
Polk County	1,482	2,108	1,838	1,888	1,950	1,888	1,902	2,007	1,632	--- <sup>a</sup>
Regional	.3	.1	.9	.9	.3	.5	.0	.8	.3	
Arithmetic	1,981	2,093	2,215	2,423	2,410	2,298	2,468	2,494	2,262	2,228
Mean	.9	.9	.2	.1	.3	.7	.3	.0	.1	.4
State Total	4,501	4,317	4,257	4,180	4,144	4,170	4,178	4,103	3,774	3,581
	.4	.3	.1	.7	.3	.9	.1	.9	.1	.4

<sup>a</sup> – Denotes only incomplete data available

## CHAPTER 3 – HEALTH STATUS AND HEALTH OUTCOME PARAMETERS

### Health Rankings

#### *America's Health Rankings*

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

America's Health Rankings are based on several kinds of measures, including determinates (socioeconomic and behavioral factors and standards of care that underlay health and well-being) and outcomes (measures of morbidity, mortality, and other health conditions). Together, the determinates and outcomes help calculate an overall rank. Table 23 shows where NC stood in the 2011 rankings relative to the "best" and "worst" states (where 1="best"). When comparing county or regional health data with data for the state as a whole it is necessary to keep in mind that NC ranks 32<sup>nd</sup> 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
<b>Vermont</b>	1	1	5
<b>North Carolina</b>	32	31	38
<b>Mississippi</b>	50	48	50

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

#### *County Health Rankings*

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

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

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

<b>Health Outcomes – Mortality</b>	<b>Social and Economic Factors</b>
<b>Premature death</b>	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
<b>Health Factors</b>	Violent crime rate
Health Behaviors	<b>Physical Environment</b>
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 Polk County.

Table 24. County Health Rankings via MATCH (2012)

Geography	County Rank (Out of 100) <sup>1</sup>						
	Health Outcomes		Health Factors				Overall Rank
	Mortality	Morbidity	Health Behaviors	Clinical Care	Social & Economic Factors	Physical Environment	
Polk County	48	14	6	48	16	8	33

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

## Pregnancy and Birth Data

### *Pregnancy Rate*

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

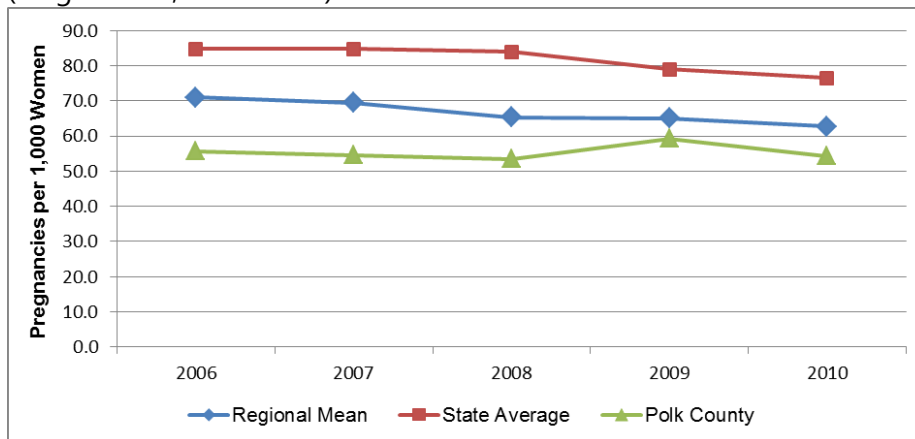
Reproductive age = 15-44

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

The NC SCHS stratifies much of the pregnancy-related data it maintains into two age groups: ages 15-44 (all women of reproductive age) and ages 15-19 ("teens"). Figures 1 and 2 present pregnancy rate data for ages 15-44 and 15-19, respectively. Note that regional rates are presented as arithmetic means (sums of individual county rates divided by the number of county rates). These means are approximations of true regional rates, which NC SCHS does not compute.

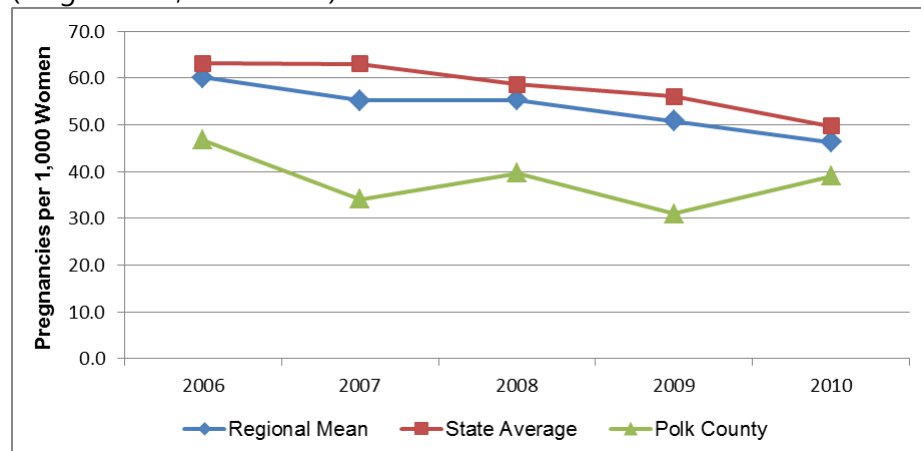
Data in Figure 1 illustrate that the pregnancy rate for women ages 15-44 in Polk County was lower than the comparable state rate and the mean WNC rate over the entire period cited. The pregnancy rates in WNC decreased between 2006 and 2010, by 11.6% in WNC, and by 9.9% in NC. The pregnancy rate in Polk County was relatively static over the same period, and decreased 2.3%, from 55.6 to 54.3. The 2010 pregnancy rate was 54.3 in Polk 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)



Data in Figure 2 illustrate that the pregnancy rate for teens (ages 15-19) in Polk County was between the comparable WNC and NC rates over the entire period cited. Note that the teen pregnancy rate in all three jurisdictions decreased between 2006 and 2010, by 16.5% in Polk County, by 22.9% in WNC, and by 21.2% in NC. The 2010 teen pregnancy rate was 39.0 in Polk County, 46.3 in WNC, and 49.7 in NC.

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



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

## Pregnancy Risk Factors

### Smoking During Pregnancy

Smoking during pregnancy is an unhealthy behavior that may have negative effects on both the mother and the fetus. Smoking can lead to fetal and newborn death, and contribute to low birth weight and pre-term delivery. In pregnant women, smoking can increase the rate of placental problems, and contribute to premature rupture of membranes and heavy bleeding during delivery (March of Dimes, 2010).

Table 25 presents data on the number and percent of births resulting from pregnancies in which the mother smoked during the prenatal period. The percentage frequency of smoking during pregnancy in Polk County was significantly lower than the comparable mean percentage for WNC, but lower than the comparable state rate in all of the time periods cited in the table. The WNC mean was significantly higher than (e.g., double) the comparable percentages statewide throughout the period cited. The frequency of smoking during pregnancy in Polk County, WNC, and NC all improved over the period cited, by 9.2% in Polk County, by 8.0% in WNC, and by 14.7% in NC.

Table 25. Births to Mothers Who Smoked During the Prenatal Period (Five-Year Aggregates, 2001-2005 through 2005-2009)

Geography	2001-2005		2002-2006		2003-2007		2004-2008		2005-2009	
	#	%	#	%	#	%	#	%	#	%
Polk County	129	15.2	120	14.8	116	14.5	104	13.3	108	13.8
Regional	7,496	22.4	7,442	22.1	7,361	21.7	7,106	21.2	6,919	20.6

Total State Total	76,712	12.9	74,901	12.4	73,887	11.9	72,513	11.5	70,529	11.0
----------------------	--------	------	--------	------	--------	------	--------	------	--------	------

## Late or No Prenatal Care

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

Table 26 shows data summarizing utilization of prenatal care during the first three months of pregnancy. The percent of births in Polk County that included early prenatal care was smaller than both the figures for WNC and for NC in every aggregate period cited in the figure except for 2003-2007. Overall, the Polk County percentage fell from 83.1% in 2001-2005 to 81.8% in 2005-2009, a decrease of 1.6%. The frequency of early prenatal care utilization was higher in WNC than in the state as a whole for every period noted in the figure, but the percentages for both the region and the state decreased over the period cited, by 2.7% in WNC and by 1.7% in NC.

Table 26. Births to Mothers Receiving Prenatal Care During the First Trimester  
(Five-Year Aggregates, 2001-2005 through 2005-2009)

Geography	2001-2005		2002-2006		2003-2007		2004-2008		2005-2009	
	#	%	#	%	#	%	#	%	#	%
Polk County	705	83.1	671	82.5	661	82.6	641	81.8	642	81.8
Regional										
Total	35,375	89.3	35,799	89.0	36,433	88.9	36,806	88.0	37,049	86.9
	497,89		503,33		510,95		519,09		524,90	
State Total	5	83.5	1	83.0	4	82.5	8	82.1	2	82.1

## Birth Outcomes

### Low Birth Weight

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

Table 27 summarizes data on the number and percent of low birth weight ( $\leq$  2500 grams or 5.5 pounds) births. (Note that NC SCHS also maintains data on very low birth weight [ $\leq$ 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 mean 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 Polk County over the time span from 2002-2006 through 2006-2010, low birth weight data demonstrated some variability, but the county percentage was higher than comparable figures for both the region and the state in every period cited except 2006-2010. The fraction of low birth weight births in Polk County decreased 7.6% overall between 2002-2006 and 2006-2010.

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

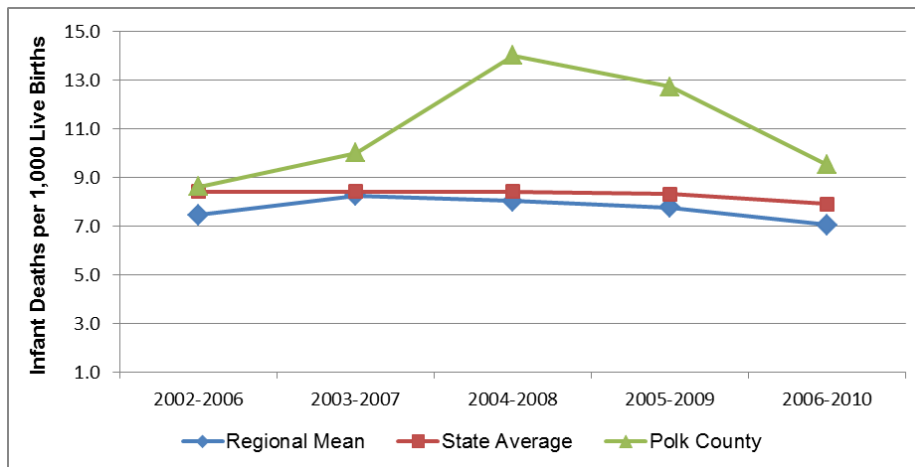
Geography	2002-2006		2003-2007		2004-2008		2005-2009		2006-2010	
	#	%	#	%	#	%	#	%	#	%
Polk County	75	9.2	80	10.0	76	9.7	72	9.2	63	8.5
Regional										
Total	3,447	8.2	3,473	8.4	3,467	8.3	3,434	8.2	3,373	8.2
	54,99		56,54		57,82		58,46		58,26	
State Total	1	9.1	1	9.1	3	9.1	1	9.1	0	9.1

### *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. While the infant mortality rate for Polk County plotted in Figure 3 appears higher than both the comparable WNC and NC rates, it should be noted that all five of the plotted rates are unstable due to small numbers of infant deaths (n=7-11 per aggregate period).

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



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

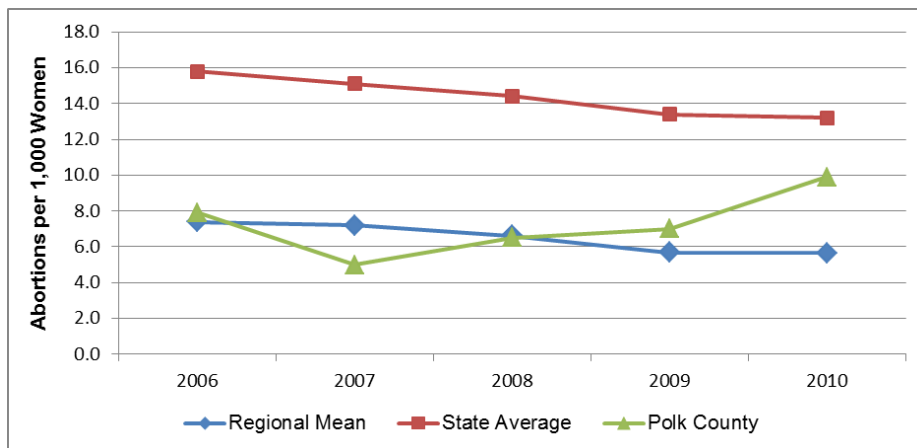
Due to small non-white populations and similarly small numbers of infant deaths among them in both Polk County and WNC it is not possible to calculate stable minority infant mortality rates for those jurisdictions. Statewide, the infant mortality rate among non-Hispanic African Americans is more than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

### *Abortion*

Figures 4 and 5 depict abortion rates for the region and state. Data in Figure 4 show that the mean abortion rate in WNC for women ages 15-44 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 Polk County fluctuated around the mean WNC rate but was below the NC rate throughout the period cited. Fluctuations in the county data plotted in Figure 4 may be due partly to the relatively small numbers of events used in calculating the rates ( $n=15-29$  abortions per year), although each data point represents a stable rate as determined by NC SCHS. The abortion rate in Polk County rose 98% between 2007 and 2010. In 2010 the abortion rate was 9.9 in Polk County.

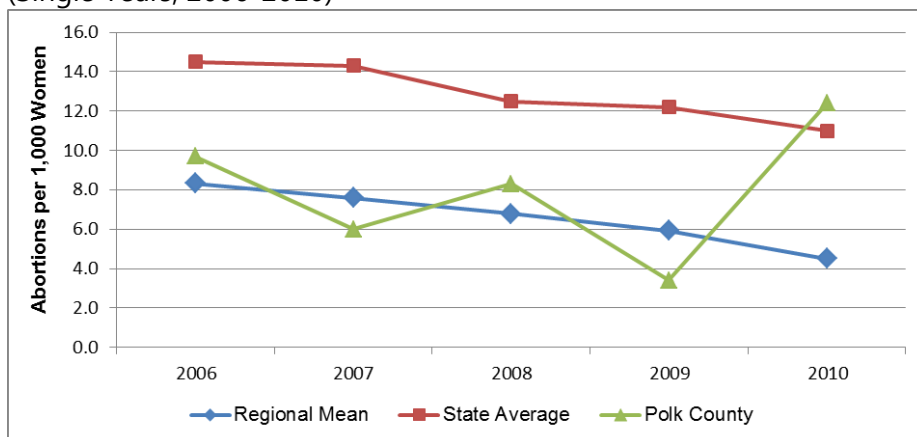
Figure 4. Pregnancies Ending in Abortion, Ages 15-44, per 1,000 Population (Single Years, 2006-2010)



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

Data in Figure 5 show that the mean abortion rate in WNC for teens ages 15-19 was slightly more than half the teen abortion rate for the state as a whole for the first three years cited in the figure and less than half the state rate in the most recent two years. The rate in both jurisdictions fell over the time period cited in the figure, by 45.8% in WNC and by 24.1% in NC. The teen abortion rate in Polk County fluctuated around the mean WNC rate from 2006 through 2009 before increasing to a point above both the WNC and NC rate in 2010. In 2010 the teen abortion rate in Polk County was reported as 12.4. However, all teen abortion rates for Polk County for the period cited likely are unstable due to small numbers of abortions (n=2-7 per year).

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

The leading causes of death in Polk County differ in rank order from the comparable lists for WNC or NC, most notably in a higher county placement for cancer and kidney disease. In Polk County the mortality rate for Alzheimer's disease (32.2) exceeds the mean WNC rate (30.7) by 4.9%. Other differences in mortality statistics will be covered as each cause of death is discussed separately below. It should be noted from the onset, however, that for some causes of death (e.g., conditions ranked 9 through 15 below) there may not be stable county mortality rates, due to small numbers of deaths. Some unstable data will be presented in this document, but always accompanied by cautions regarding its use.

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

Leading Cause of Death	Polk County		WNC Mean		NC	
	Rank	Rate	Rank	Rate	Rank	Rate
Heart Disease	2	161.7	1	194.4	1	184.9
Total Cancer	1	167.2	2	180.3	2	183.1
Chronic Lower Respiratory Disease	3	43.4	3	51.1	4	46.4
Cerebrovascular Disease	5	38.3	4	44.0	3	47.8
All Other Unintentional Injuries	4	38.9	5	42.9	5	28.6
Alzheimer's Disease	6	32.2	6	30.7	6	28.5
Diabetes Mellitus	7	20.6	7	19.6	7	22.5
Pneumonia and Influenza	8	15.7	8	19.1	9	18.6
Unintentional Motor Vehicle	10	n/a	9	16.7	10	16.7

Injuries						
Suicide	11	n/a	10	16.7	12	12.1
Nephritis, Nephrotic Syndrome & Nephrosis	9	n/a	11	16.2	8	18.9
Septicemia	12	n/a	12	13.4	11	13.7
Chronic Liver Disease & Cirrhosis	13	n/a	13	13.2	13	9.1
Homicide	14	n/a	14	n/a	14	6.6
Acquired Immune Deficiency Syndrome	15	n/a	15	n/a	15	5.4

It should be noted that the rank order of leading causes of death varies somewhat among the 16 counties in WNC. Further, in 2005-2009 and 2006-2010 the NC SCHS did not release mortality rates for some causes of death in several counties (including Polk) because the number of deaths fell below the Center's threshold of 20 per five-year aggregate period. The mean WNC ranking displayed in Table 28 includes only stable rates presented in the Data Workbook.

Each age group tends to have its own leading causes of death. Table 29 lists the three leading causes of death by age group for the five-year aggregate period from 2006-2010. (Note that for this purpose it is important to use non-age adjusted death rates.) The WNC rankings were developed by a qualitative examination of the individual ranking lists for each of the counties in the region.

In Polk County, deaths in the youngest two age groups were too highly varied by cause to yield stable rates for any cause of death; that instability is indicated by italics. Causes of death in the three older age groups are similar to those noted for WNC.

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

Table 29. Leading Causes of Death by Age Group  
Unadjusted Death Rates per 100,000 Population  
(Five-Year Aggregate, 2006-2010)

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

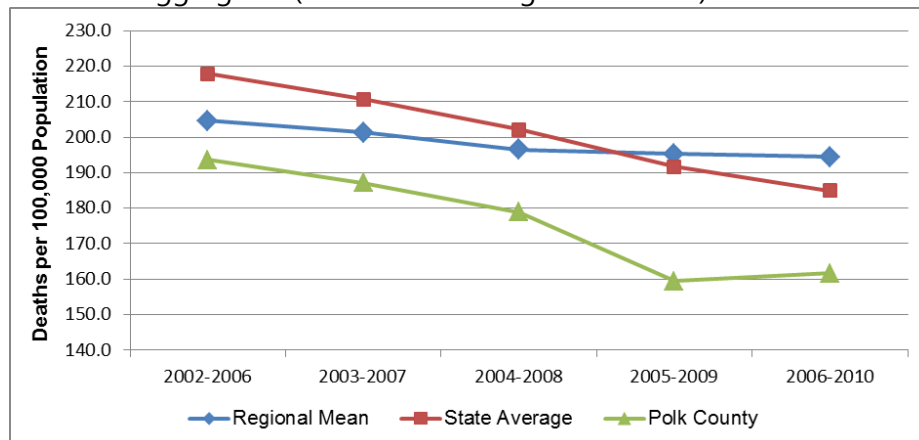
The following section examines in greater detail each of the causes of death listed in Table 28, in the order of highest mean WNC rank to lowest, beginning with heart disease.

### ***Heart Disease Mortality***

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

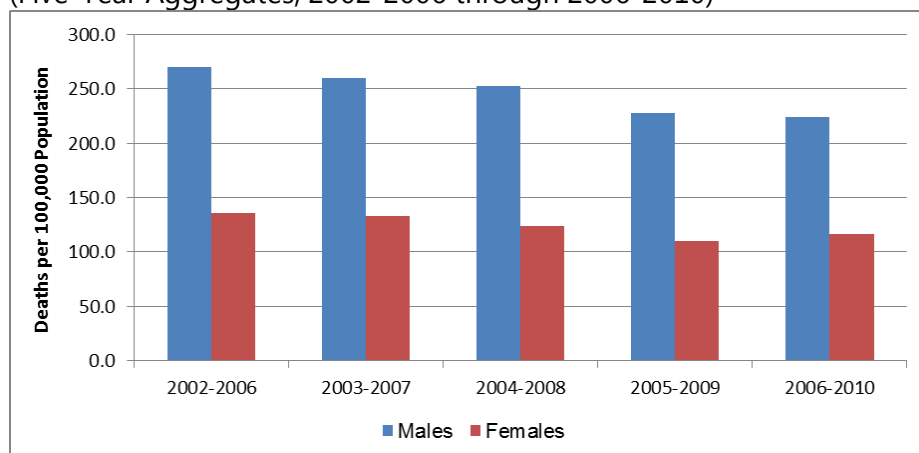
Heart disease was the leading cause of death in WNC and NC, but the second leading cause of death in Polk County in the 2006-2010 aggregate period (Table 28,cited previously). Figure 6 presents heart disease mortality trend data. This graph illustrates that the heart disease mortality rate in Polk County was below the comparable rates for WNC and NC throughout the period cited. The graph also illustrates that the heart disease mortality rate in Polk County fell from 193.6 in the 2002-2006 aggregate period to 161.7 in the 2006-2010 aggregate period, a decrease of 16.5%. Over the same interval heart disease mortality rates also decreased in the other two jurisdictions. The NC heart disease mortality rate fell from 217.9 for the 2002-2006 aggregate period to 184.9 for the 2006-2010 aggregate period, a decrease of 15.1%. The mean WNC rate, which for the first three periods cited was below the state rate, surpassed the state rate and leveled during the two most recent periods. For the 2002-2006 period the mean WNC heart disease mortality rate was 204.6; by the 2006-2010 period it had fallen to 194.4, a decrease of 4.9%.

Figure 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 Polk County, stratified by gender. From these data it is clear that Polk County males have had a higher heart disease mortality rate than females for the past decade, with the difference as high as 103%. This trend data also shows, however, an apparent 16.9% decrease in the heart disease mortality rate among county males (from 269.9 to 224.3) and a corresponding 14.1% decrease in the rate among county females (from 135.7 to 116.6) from the beginning of the entire period cited to the end. Despite the rate decreases, in the 2006-2010 aggregate period the heart disease mortality rate difference between males and females in the county was 92%.

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



Only four of the 16 counties in WNC (Buncombe, Jackson, Rutherford and Swain) had large enough minority populations to yield stable heart disease mortality rates for minority populations, so it is not possible to calculate stable mean region-wide rates for minorities. At the state level, heart disease mortality demonstrates significant racial disparity, with the minority rate higher than the non-minority rate. For example, statewide in 2006-2010 the heart disease



mortality rate among non-Hispanic African American males (285.8) was almost 23% higher than the comparable rate among non-Hispanic white males (233.0), and the rate among non-Hispanic African American females (175.7) was 25% higher than the rate among non-Hispanic white females (140.9). The comparable rates among Other non-Hispanics were 148.7 for males and 102.7 for females. Hispanics had the lowest heart disease mortality rates, 55.7 for males and 36.9 for females (Data Workbook).

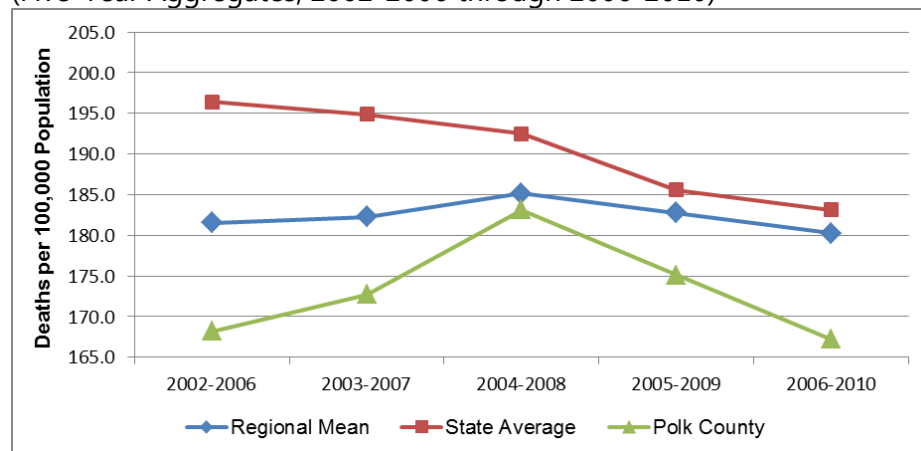
### *Total Cancer Mortality*

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

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

Figure 8 presents mortality trend data for total cancer. This graph illustrates how over the period cited the total cancer death rate in Polk County both spiked and fell. The total cancer mortality rate in the county rose 8.9% from 2002-2006 through 2004-2008, before falling 8.7% from 2004-2008 through 2006-2010. The net change from 2002-2006 to 2006-2010 was a decrease of just 0.6%. The total cancer mortality rate in the county was below the state and regional rates for the entire period cited.

Figure 8. Total Cancer Mortality Rate, Deaths per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)



Like heart disease mortality, total cancer mortality demonstrates a gender disparity. Figure 9 plots mean total cancer mortality rates for Polk County, stratified by gender. From these data it is clear that males had and continue to have a higher total cancer mortality rate than females for the past decade. Noteworthy, however, is that the total cancer mortality rate among Polk County males appears to be rising lately, as the comparable rate for females has fallen. In the

most recent aggregate period (2006-2010) the total cancer mortality rate for Polk County males (234.7) is slightly more than twice the comparable rate for females (115.1).

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



Regionally, only four of the 16 counties in WNC (Buncombe, Jackson, Rutherford and Swain) had large enough minority populations to yield stable total cancer mortality rates, so it is not possible to calculate stable mean region-wide rates for minority populations. At the state level, total cancer mortality demonstrates significant racial disparity, with the minority rates higher than non-minority rates. For example, statewide in 2006-2010 the total cancer mortality rate among non-Hispanic African American males (302.9) was 35% higher than the comparable rate among non-Hispanic white males (224.6), and the rate among non-Hispanic African American females (166.6) was 12% higher than the rate among non-Hispanic white females (149.3). The comparable total cancer mortality rates for Other non-Hispanics were 145.7 for males and 103.2 for females. Hispanics had the lowest total cancer mortality rates, 66.0 for males and 61.2 for females (Data Workbook).

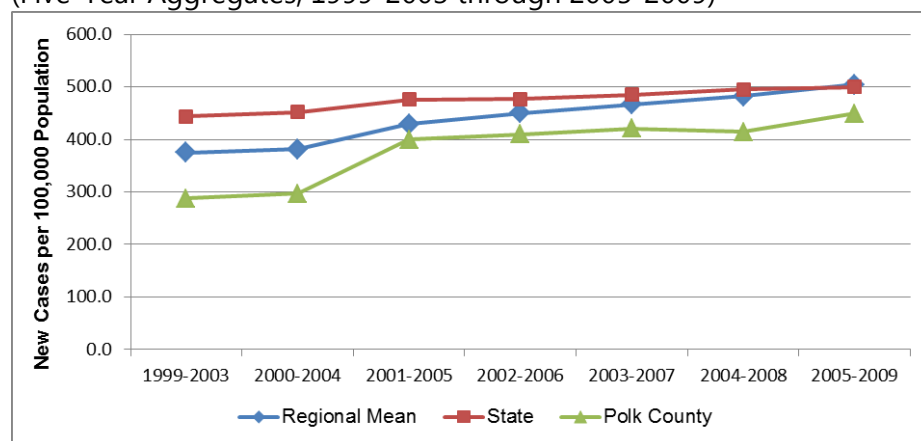
Since total cancer is a very significant cause of death, it is useful to examine patterns in the development of new cases of cancer in the county. The statistic important to understanding the growth of a health problem is incidence. Incidence is the population-based rate at which new cases of a disease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

Figure 10 graphs the incidence rates for total cancer for seven five-year aggregate periods. From this data it appears that the incidence rate for total cancer increased in Polk County, WNC

and NC between 1999-2003 and 2005-2009. In Polk County, the total cancer incidence rate rose from 287.7 at the beginning of the period cited to 449.2 at the end, an increase of 56.1%.

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 34.5%. Further, the regional incidence rate for total cancer, which for years had been below the comparable NC rate, surpassed the state rate for the first time in the 2005-2009 period.

Figure 10. Total Cancer Incidence Rate, New Cases per 100,000 Population (Five-Year Aggregates, 1999-2003 through 2005-2009)



To this point the discussion of cancer mortality and incidence has focused on figures for total cancer. In Polk County, as throughout both WNC and the state of NC, there are four site-specific cancers that cause most cancer deaths: breast cancer, colon cancer, lung cancer, and prostate cancer. Table 30 summarizes the age-adjusted mortality rates for the four site-specific cancers for the 2006-2010 aggregate period. In Polk County the number of deaths attributable to breast cancer and prostate cancer are below the threshold for calculating stable rates. The stable Polk County mortality rate for lung cancer (44.7) was below comparable WNC and NC rates, but the county mortality rate for colon cancer (22.2) was above comparable WNC and NC rates. In WNC, lung cancer is the site-specific cancer with the highest mortality, followed by breast cancer, prostate cancer, and colon cancer.

Table 30. Age-Adjusted Mortality Rates for Major Site-Specific Cancers (2006-2010)

Geography	Deaths per 100,000 Population			
	Lung Cancer	Breast Cancer	Prostate Cancer	Colon Cancer
<b>Polk County</b>	44.7	n/a	n/a	22.2
<b>Regional Mean</b>	54.7	24.3	22.9	16.6
<b>State</b>	55.9	23.4	25.5	16.0

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

Table 31 summarizes the age-adjusted incidence rates for these four site-specific cancers for the 2005-2009 aggregate period. From this data it appears that in Polk County, as in WNC, breast cancer was the site-specific cancer with the highest incidence, followed by prostate cancer, lung cancer, and colon cancer. Polk County incidence rates for all four cancers are below the comparable incidence rates for WNC and NC. Multi-year incidence rate trends for these four site-specific cancers will be presented subsequently, as each cancer type is discussed separately.

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

Geography	New Cases per 100,000 Population			
	Breast Cancer	Prostate Cancer	Lung Cancer	Colon Cancer
<b>Polk County</b>	147.6	130.1	63.7	41.3
<b>Regional Mean</b>	154.0	139.2	75.4	46.0
<b>State</b>	154.5	158.3	75.9	45.5

## Lung Cancer Mortality

Lung cancer is the leading cause of cancer mortality in Polk County in 2006-2010 (Table 30, cited above). Figure 11 plots lung cancer mortality rates for several aggregate periods. This data reveals that the lung cancer mortality rate in Polk was below the comparable rates for WNC and NC for the period cited in the graph. The lung cancer mortality rate in Polk County both rose and fell over the period cited, but increased only 1.4% overall, from 44.1 in 2002-2006 to 44.7 in 2006-2010. 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 approximately the same at the end of the period (54.7) as at the beginning (54.2).

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

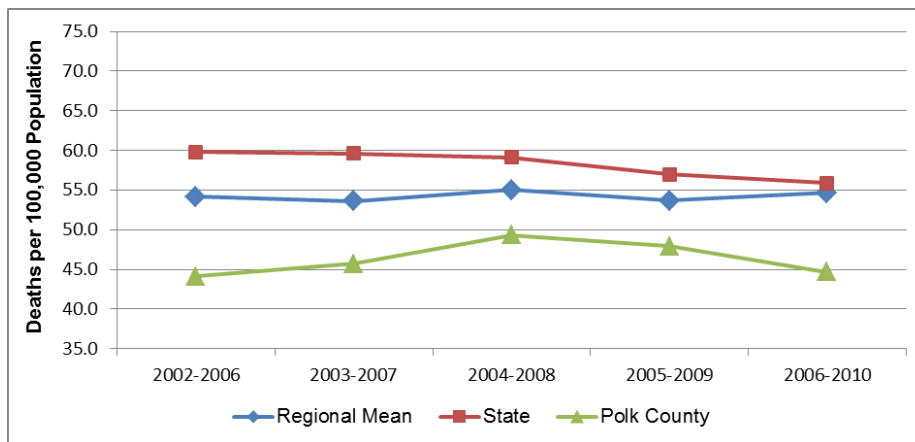
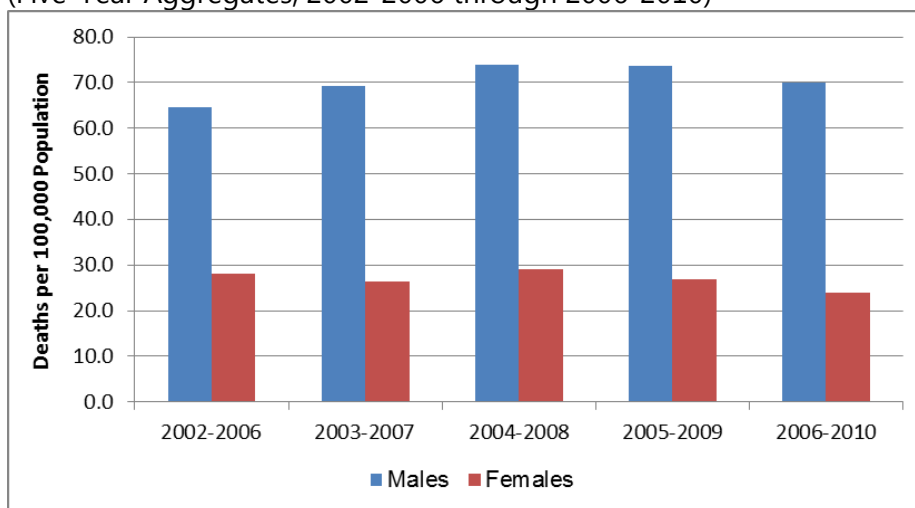


Figure 12 presents gender-stratified Polk County lung cancer mortality rates for several aggregate periods. From this data it is clear that males experience disproportionately higher lung cancer mortality than females, with the lung cancer mortality rate among men from 2.3 to 2.9 times the rate among women over the period cited.

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

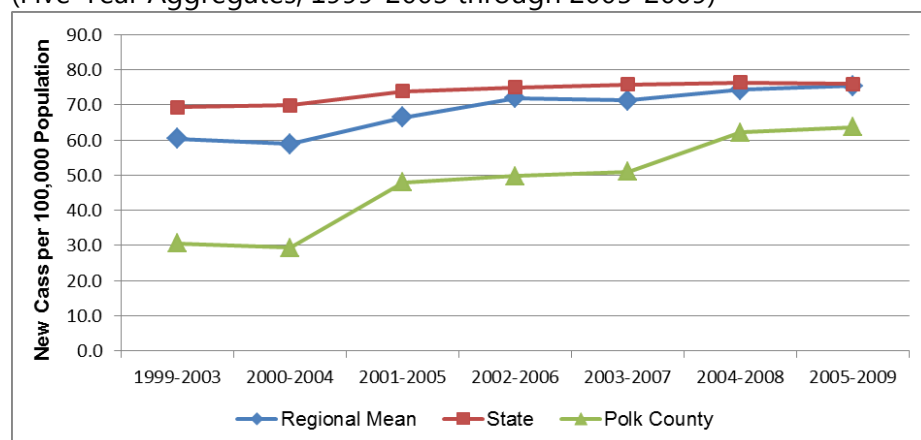


Regionally, only one of the 16 counties in WNC (Buncombe) had large enough minority populations to yield stable minority lung cancer mortality rates, so it is not possible to calculate stable mean region-wide rates for minorities. Statewide, lung cancer mortality rates demonstrate racial disparity. For example, statewide in 2006-2010 the lung cancer mortality rate among non-Hispanic African American males (90.9) was 19% higher than the comparable rate among non-Hispanic white males (76.1); however, the rate among non-Hispanic African American females (32.7) was 25% lower than the rate among non-Hispanic white 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 Polk County, it is instructive to examine the trend of development of new lung cancer cases over time. Figure 13 depicts the seven-year trend of lung cancer incidence.

From this data it appears that lung cancer incidence in Polk County increased a dramatic 108.2% (from 30.6 to 63.7) between 1999-2003 and 2005-2009. Region-wide, the mean lung cancer incidence rate has been creeping upward over the past several years, from a point well below the comparable state rate to a point barely below it. The lung cancer incidence rate in WNC increased 25.0% from the 1999-2003 aggregate period (60.3) to the 2005-2009 aggregate period (75.4), while the statewide lung cancer incidence rate increased by 9.5% (from 69.3 to 75.9) over the same time frame. Since lung cancer mortality is already on the rise in the region, the increase in the incidence rate may portend additional lung cancer mortality in the future.

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

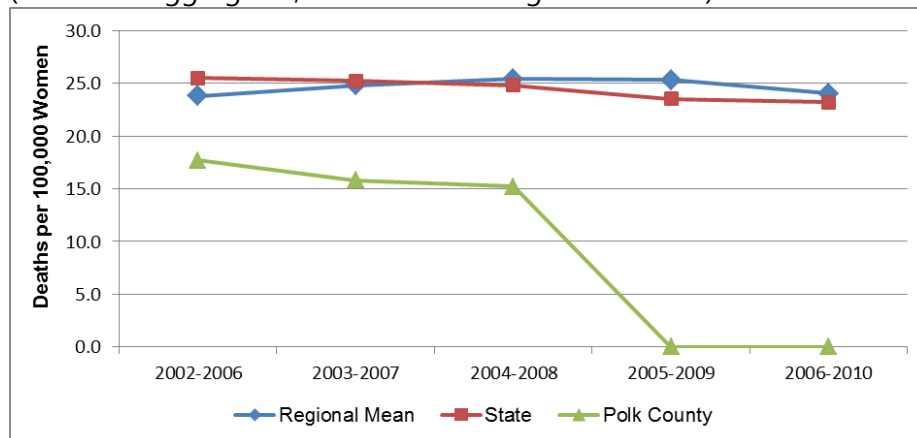


## Breast Cancer Mortality

In 2006-2010 breast cancer was not ranked as a cause of cancer death in Polk County due to a small number of deaths ( $n=18$ ) and unstable rate. However, breast cancer was the second leading cause of cancer death in WNC (Table 30, cited previously). Data in Figure 14 plots breast cancer mortality rates for WNC and NC, as well as three unstable rates for Polk County. Note that a "zero" rate for the county indicates that the NC SCHS did not release a county rate in that period due to a small number of events. The three Polk County breast cancer mortality rates plotted in Figure 14 were below the comparable rates for WNC and NC. At the state level, the breast cancer mortality rate fell throughout the period cited, from a high of 25.5 deaths per 100,000 women in 2002-2006 to a low of 23.2 in 2006-2010, a decrease of 9.0%. In WNC, the mean breast cancer mortality rate was more volatile, actually increasing 6.7% from 23.8 in 2002-2006 to 25.4 in 2004-2008. Since then, the regional rate reversed to a current breast cancer death rate of 24.0. The WNC mean breast cancer mortality rate exceeded the comparable state rate for the past three aggregate periods.



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



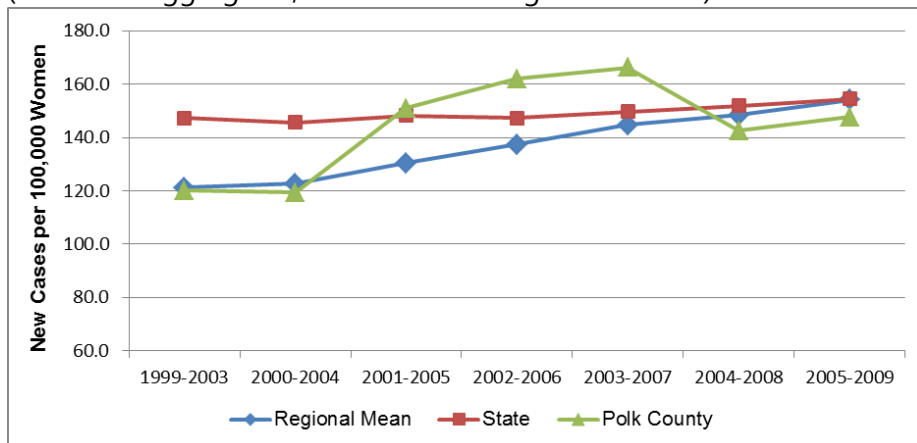
Note: There is some instability in the regional mean rates because each includes one or more unstable county rate.

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

Figure 15 demonstrates that the breast cancer incidence rate has been increasing in all three jurisdictions over the past several years. In Polk County, the breast cancer incidence rate varied considerably, but rose overall from 120.1 new cases per 100,000 women in the 1999-2003 aggregate period to 147.6 in the 2005-2009 aggregate period, an increase of 22.9%. 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%.



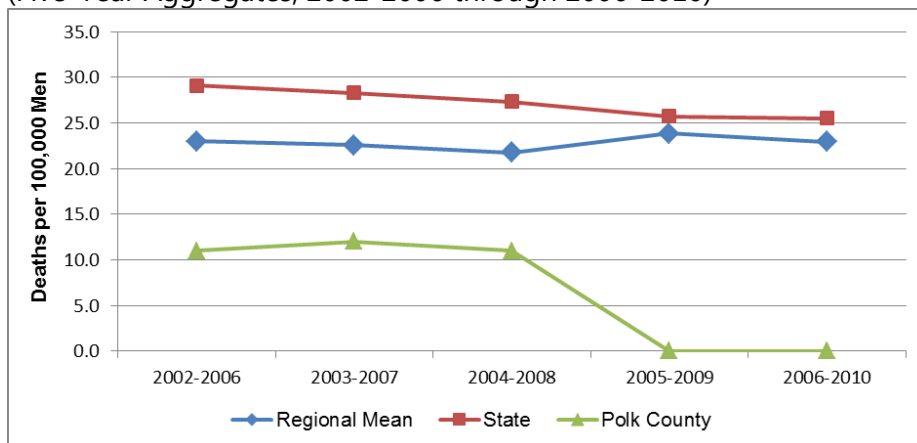
Figure 15. Breast Cancer Incidence, New Cases per 100,000 Women (Five-Year Aggregates, 1999-2003 through 2005-2009)



## Prostate Cancer Mortality

Deaths in Polk County attributable to prostate cancer (n=9-10 per five-year aggregate period) were too few to calculate stable mortality rates or rank this cause of cancer death in 2006-2010. Region-wide during this period, prostate cancer was the third largest cause of cancer deaths (Table 30, cited previously). Figure 16 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). The Polk County rates displayed, all unstable or “zero” due to small numbers of events, were below both the WNC and NC rates.

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

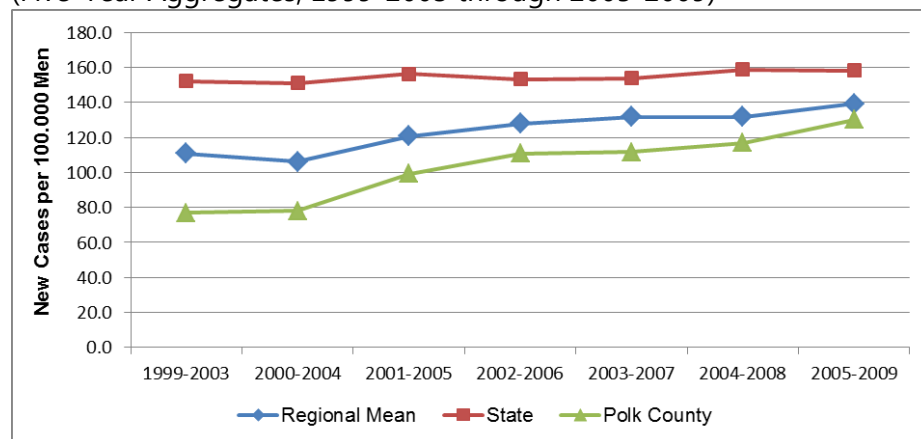


Note: There is some instability in the regional mean rates because each includes one or more unstable county rate.

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

Prostate cancer incidence statewide 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 17). Over the same span of time, the mean prostate cancer incidence rate in WNC rose from 110.7 new cases per 100,000 men in the 1999-2003 period to 139.2 in 2005-2009 period, a total increase of 25.7%, or over six times the percentage increase statewide. In Polk County, where the prostate cancer incidence rate remained below both WNC and NC rates, the rate rose from 76.9 to 116.9 over the same period, an overall increase of 52.0% that was twelve times the percentage increase in NC.

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

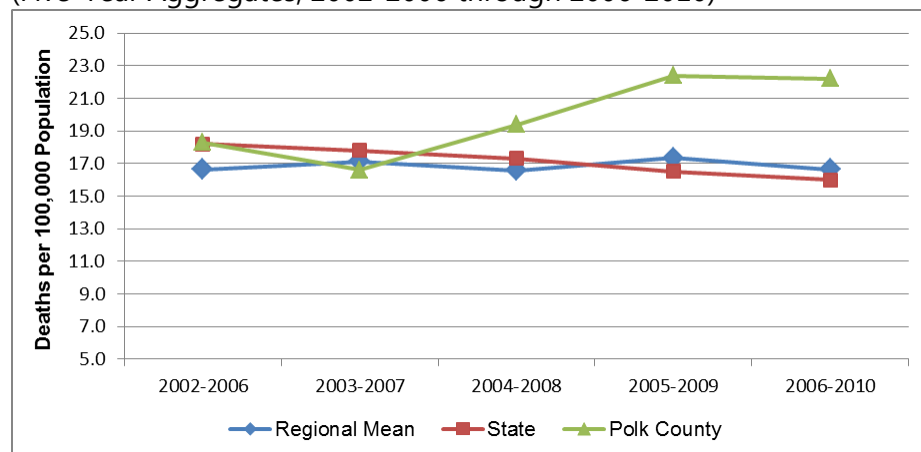


## Colorectal Cancer Mortality

Cancer of the colon, rectum and anus (collectively “colorectal” cancer) caused the fourth largest mortality rate among the major site-specific cancers in WNC and NC, but the second largest mortality rate in Polk County in 2006-2010 (Table 30, cited previously). Figure 18 plots the colorectal cancer mortality rate trend for several aggregate periods. The colorectal cancer mortality rate in Polk County rose 21.3% overall, from 18.3 in the 2002-2006 aggregate period to 22.2 in the 2006-2010 aggregate period. 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 18. Colorectal Cancer Mortality Rate, Deaths per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)



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

In Polk County there are too few colorectal cancer deaths stratified by gender to yield a complete set of stable gender-based mortality rates. As shown in Figure 19, the colorectal cancer mortality rate in the county differs between males and females, with the rate for males higher than the rate for females. It must be noted, however, that all three rates plotted for women are unstable. It is probably significant that the colorectal cancer mortality rate among men appears to be increasing. The rate among males was 22.4 in the 2002-2006 period and 35.0 in the 2006-2010 period, an increase of 56.3%. Although the first three rates plotted for county males are unstable, the last two are technically stable.

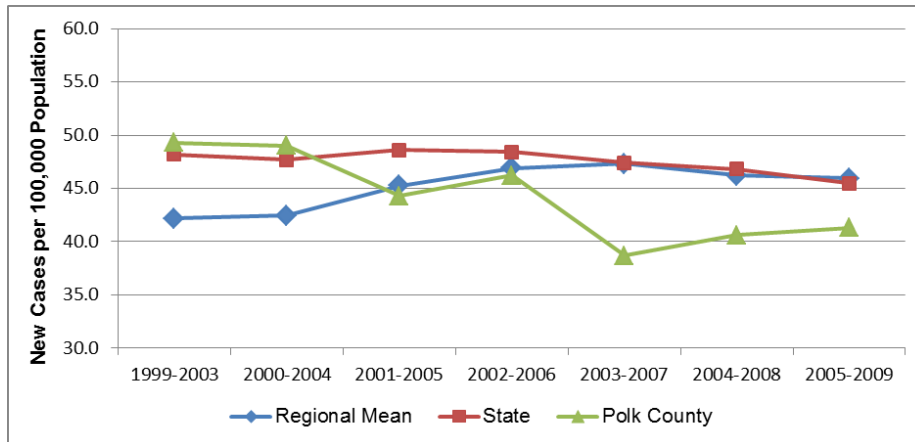
Figure 19. Gender Disparities in Colorectal Cancer Mortality, Polk County (Five-Year Aggregates, 2002-2006 through 2006-2010)



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 20 it is apparent that the incidence rate for colorectal cancer in Polk County fell over the full period cited, from 49.3 in 1999-2003 to 41.3 in 2005-2009, a decrease of 16.2%. Once above both the WNC and NC rates, the colorectal cancer mortality rate in the county was below both the regional and state rate for the last three periods cited in the figure. The mean WNC colorectal cancer incidence rate has been, until recently, following a different trend than the comparable state rate. In the 1999-2003 aggregate period, the mean colorectal cancer incidence rate in WNC (42.2) was 12% lower than the comparable state rate (48.2). By the 2005-2009 aggregate period, the state colorectal cancer rate had fallen to 45.5 (a decrease of over 5%), but the mean WNC rate had risen to 46.0 (an increase of 9%).

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



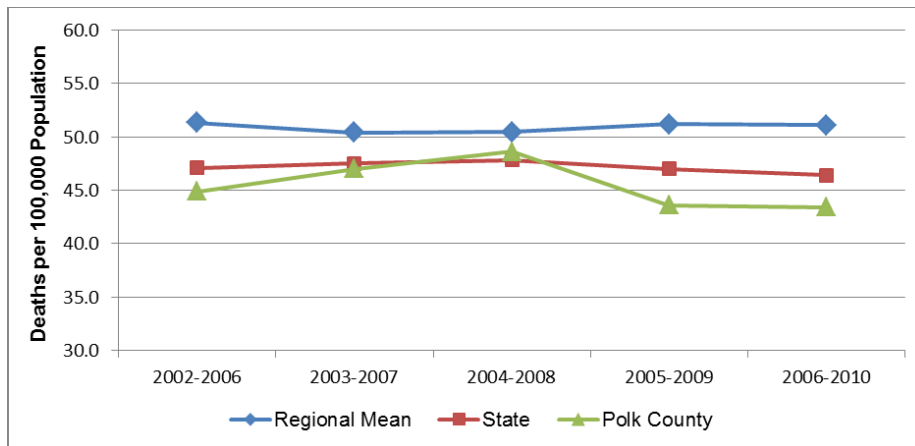
## Chronic Lower Respiratory Disease (CLRD) Mortality

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

CLRD/COPD was the third leading cause of death in WNC and in Polk County for the 2006-2010 aggregate period (Table 28, cited previously).

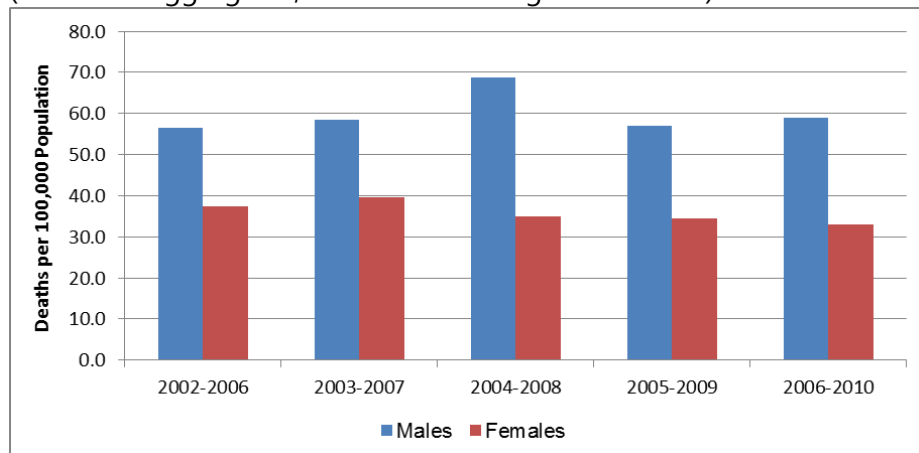
Figure 21 plots CLRD mortality rates for five aggregate periods. The CLRD mortality rate in Polk County varied somewhat over the period cited, but was slightly lower at the end (43.3) than at the beginning (44.9). The comparable rates in WNC and NC were relatively stable for the period from 2002-2006 through 2006-2010. The mean WNC CLRD mortality rate ranged from 5% to 10% higher than NC rate throughout the period cited in Figure 21. Neither the NC nor the mean WNC CLRD mortality rates improved significantly over the period. In 2006-2010, CLRD mortality rates were 43.4 in Polk County, 46.4 in NC, and 51.1 in WNC.

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



In WNC, the mean CLRD mortality rate among males exceeded the comparable rate among females by from 33% to 49% over the past decade (Data Workbook). Gender-stratified CLRD mortality rates in Polk County show a similar pattern (Figure 22). Over the period cited, the CLRD mortality rate for males exceeded the comparable rate for females by from 48% to 97%. County CLRD mortality rates for both genders fluctuated considerably between 2002-2006 and 2006-2010.

Figure 22. Gender Disparities in CLRD Mortality, Polk County  
(Five-Year Aggregates, 2002-2006 through 2006-2010)



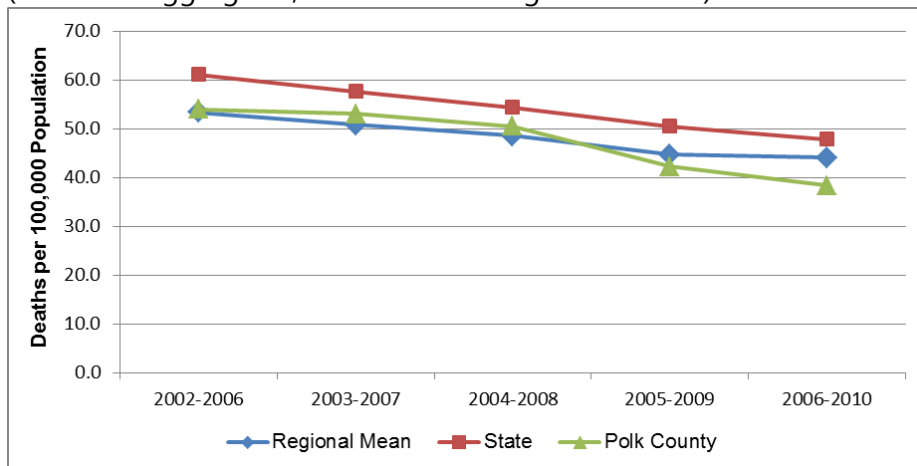
In WNC, only one of the 16 counties (Buncombe) had large enough minority populations to yield stable CLRD mortality rates for any minority group, so it is not possible to calculate a stable mean region-wide CLRD mortality rates for minorities. At the state level for the 2006-2010 aggregate period, the CLRD mortality rate was highest among non-Hispanic white males (58.7), followed by non-Hispanic white females (46.4), non-Hispanic African American males (45.1), Other non-Hispanic males (27.4), non-Hispanic females (21.1), and Other non-Hispanic females (15.6). CLRD mortality rates among Hispanic males and females are much lower (6.8 and 7.5, respectively) (Data Workbook).

### ***Cerebrovascular Disease (Stroke) Mortality***

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

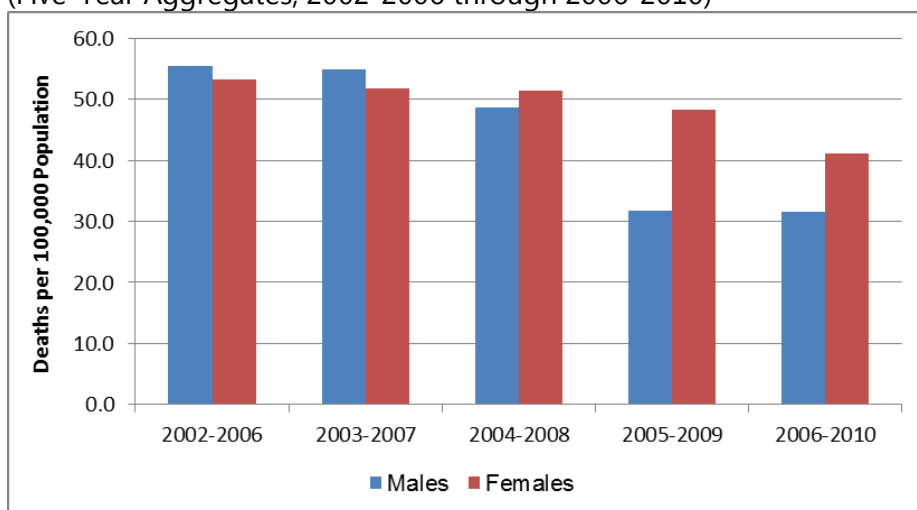
In the 2006-2010 aggregate period, cerebrovascular disease (stroke) was the fourth leading cause of death in WNC, but the fifth leading cause of death in Polk County (Table 28, cited previously). Figure 23 plots stroke mortality rates for several aggregate periods. The stroke mortality rates for Polk County, WNC and NC all decreased over the period cited in the graph. The rate fell 29.1% in Polk County (from 54.0 to 38.3), 17.4% in WNC (from 53.3 to 44.9) and 21.8% in NC (from 61.1 to 47.8).

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



Stroke is one cause of death for which there is little gender disparity in the WNC region (Data Workbook). The data in Figure 24 demonstrated a similar pattern for gender-stratified stroke mortality rates in Polk County, but in the last two aggregate periods a different pattern emerged. In the 2005-2009 aggregate period the stroke mortality rate for females exceeded the comparable rate for males by 51.6%; in the last aggregate period the comparable difference was 30.5%. The stroke mortality rates for both men and women decreased overall from the beginning to the end of the period cited.

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



No county in WNC has large enough minority populations to yield stable cerebrovascular disease mortality rates for any minority group, so it is not possible to calculate stable mean region-wide cerebrovascular disease mortality rates for minorities. At the state level stroke mortality demonstrates a significant racial disparity. Statewide in the 2006-2010 aggregate



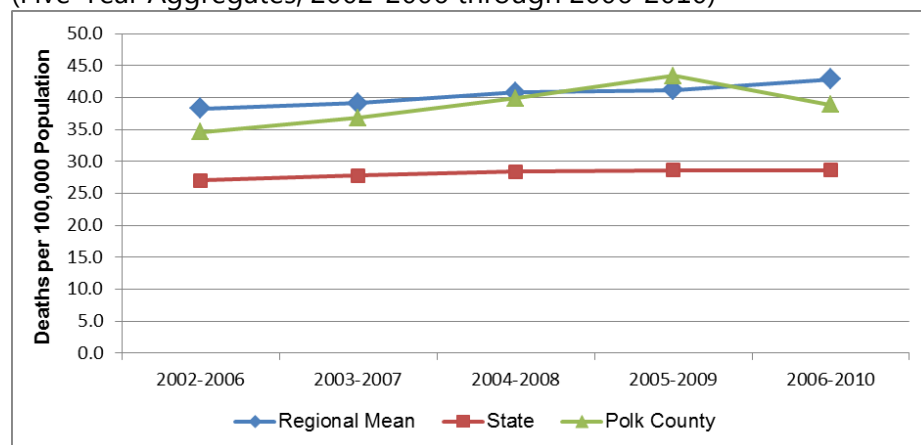
period African American non-Hispanic males and females had the highest stroke mortality rates, 71.4 and 60.1, respectively. The comparable rate for non-Hispanic white males was 44.9, and the rate for non-Hispanic white females was 43.6, and the rate for Other non-Hispanic males was 39.6 and the rate for Other non-Hispanic females was 30.0. The Hispanic population had the lowest stroke mortality rates statewide over the same period, 13.1 among males and 15.2 among females (Data Workbook).

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

Mortality due to injuries not involving motor vehicles was the fifth leading cause of death in WNC, but the fourth leading cause of death in Polk County, in the 2006-2010 aggregate period (Table 28, cited previously). This "all other injuries" category includes death without purposeful intent due to poisoning, falls, burns, choking, animal bites, drowning, and occupational or recreational injuries. (Death due to injury involving motor vehicles is a separate cause of death and will be covered subsequently.)

Figure 25 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 Polk County approximated the comparable mean WNC rate. The mean rate for WNC exceeded the comparable state rate by from 41% to 50%. While the state rate increased 5.9% (from 27.0 to 28.6) over the entire span cited, the 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 Polk County fluctuated, but was higher at the end of the period cited (38.9) than at the beginning (34.6) an increase of 12.4%.

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



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

As in other leading causes of death, non-motor vehicle injury mortality in Polk County demonstrated a strong gender disparity (Figure 26). In each of the periods cited, the mortality rate for all other unintentional injuries among males was from 1.6 to 2.6 times the comparable

rate among females. While the non-motor vehicle injury mortality rate among women in Polk County appeared to be relatively static around 24.0, the rate among men increased 47.0% between 2002-2006 (43.4) and 2005-2009 (63.8) before decreasing 11.8% to 56.3 in the 2006-2010 aggregate period.

Figure 26. Gender Disparities in All Other Unintentional Injury Mortality, Polk 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).

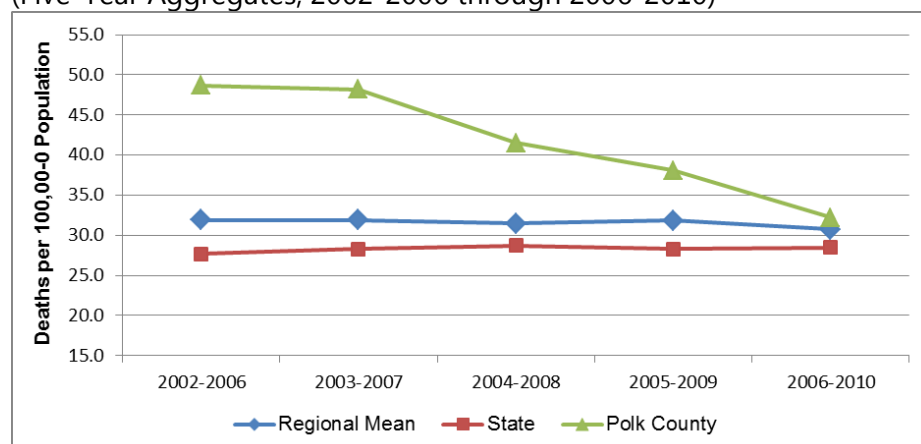
### ***Alzheimer's Disease Mortality***

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

Figure 27 plots Alzheimer's disease mortality rates over several aggregate periods. The Alzheimer's disease mortality rate in Polk County was above both the state and regional mortality rates for the entire period cited in the figure. While the mean WNC and NC Alzheimer's disease mortality rates appeared to remain static, the comparable county rate fell dramatically over the period cited, decreasing 33.9% from 48.7 to 32.2. The mean Alzheimer's disease mortality rate in WNC was higher than the comparable state rate throughout the span of time cited in Figure 27, 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 32.2 in Polk County, 30.7 in WNC, and 28.5 in NC.

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



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

Alzheimer's disease mortality has a strong gender component, with mortality rates traditionally much higher among women than among men. In WNC, for example, the mean Alzheimer's disease mortality rate among women was from 51% to 62% higher than the rate among men over the past decade. Figure 28 plots gender-stratified data for Alzheimer's disease in Polk County. This data demonstrates that the Alzheimer's disease mortality rate for females was from 40% to 100% higher than the rate among males. The Alzheimer's disease mortality rate decreased among both males (22.4%) and females (35.2%) over the period cited, and in the last aggregate period (2006-2010) the rate for females was 40.7% higher than the rate among males. In the 2006-2010 aggregate period the Alzheimer's disease mortality rate for Polk County women was 37.0 and the comparable rate for men was 26.3.

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



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

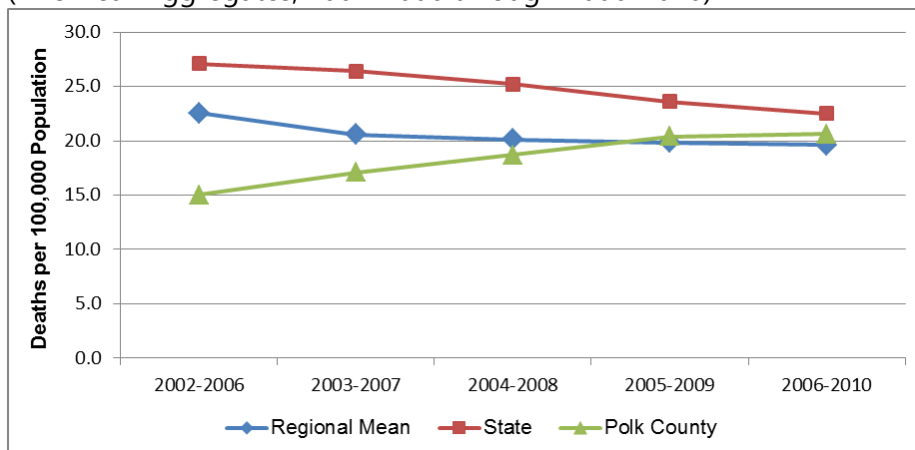
## Diabetes Mellitus Mortality

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

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

Figure 29 plots trend data for diabetes mortality for several aggregate periods. According to data in the figure, the diabetes mortality rate in Polk County was below both the WNC rate and the NC rate for most of the period cited, but surpassed the mean WNC rate in the last two aggregate periods. The mean diabetes mortality rate in WNC was lower than the state rate throughout the period cited. Statewide, the diabetes mortality rate fell from 27.1 to 22.5 (17.0%) over the period cited in the figure. Region-wide, the mean diabetes mortality rate fell from 22.6 to 19.6 (13.3%) over the same period. The Polk County diabetes mortality rate rose 33.3% overall from the beginning of the period cited (15.0) to the end (20.6).

Figure 29. Diabetes Mellitus Mortality Rate, Deaths per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)



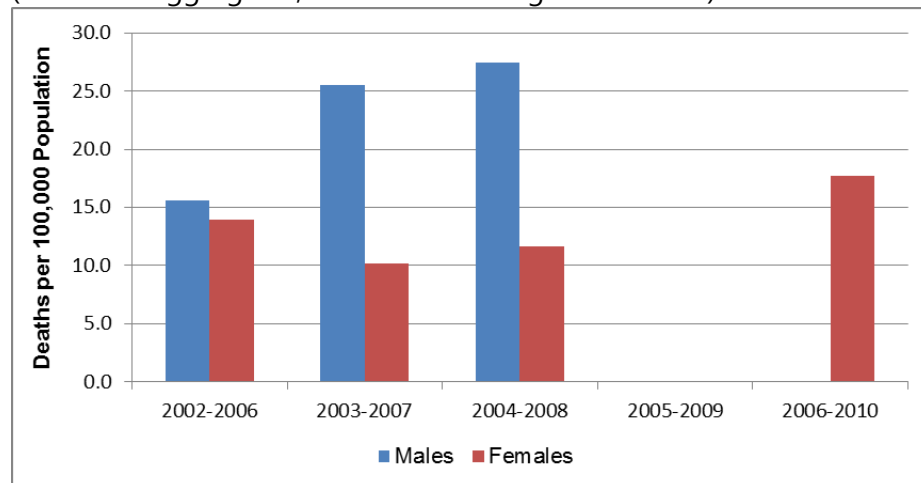
Note: There is some instability in the regional mean rates because each includes one or more unstable county rate.

Diabetes mortality rates stratified by gender in Polk County are mostly unstable due to small numbers of events (n=11-21 deaths per aggregate period). According to the rates plotted in Figure 30, the diabetes mortality rate among Polk County males was higher than the rate among females, and appeared to be increasing; the comparable rate among females also appeared to

be increasing. Note that all the data points plotted in the figure are unstable except for the 2006-2010 point for females.

It should be noted that in WNC diabetes mortality demonstrates a significant and changing gender disparity. In WNC the difference in diabetes mortality between men and women is widening, as the mean rate for males is increasing and the mean rate for females is decreasing. The diabetes mortality rate among WNC males rose from 23.8 to 29.6, an increase of 24.4% (Data Workbook).

Figure 30. Gender Disparities in Mean Diabetes Mellitus Mortality, Polk 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***

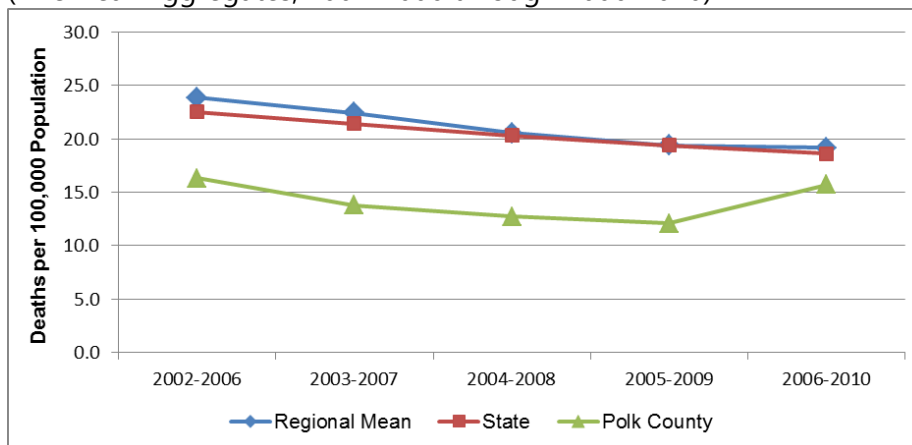
Pneumonia and influenza are diseases of the lungs. Pneumonia is an inflammation of the lungs caused by either bacteria or viruses. Bacterial pneumonia is the most common and serious form of pneumonia, and among individuals with suppressed immune systems, it may follow influenza or the common cold. Influenza (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 and in Polk County for the period 2006-2010 (Table 28, cited previously).

Figure 31 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%). In Polk County, the pneumonia/influenza mortality rate was below both the mean WNC and NC rates throughout the period cited, but the county rate demonstrated little improvement overall, as it rose once more after several periods of decline. The county rate was only 3.8% lower at the end of the entire period cited (15.7) than at the beginning (16.3).

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



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

Figure 32 plots gender-stratified pneumonia/influenza mortality rates for Polk County. Note that due to small numbers of gender-stratified pneumonia/influenza deaths in the county ( $n=10-18$  per aggregate period) all rates are unstable or were not released by NC SCHS. According to data displayed in the figure, the pneumonia/influenza mortality rate among Polk County males fluctuated over the period cited, as the comparable rate for county females appeared to fall. In the 2004-2008 aggregate period the pneumonia/influenza mortality rate among Polk County females stood at 8.1, while the comparable rate among males was 20.0, two and one-half times the rate among females.



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



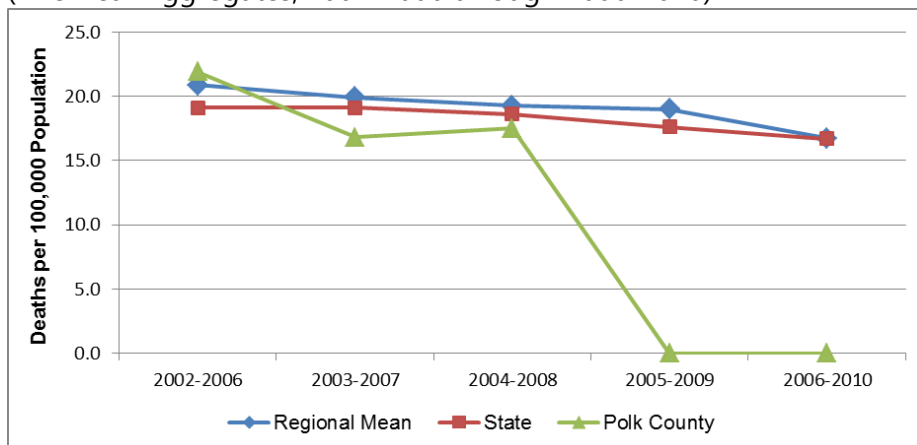
In WNC, none of the 16 counties had large enough minority populations to yield stable pneumonia/influenza mortality rates for any minority group, so it is not possible to calculate stable mean region-wide rates for minorities. At the state level pneumonia and influenza mortality rates demonstrate moderate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

### ***Unintentional Motor Vehicle Injury (UMVI) Mortality***

Death due to injuries incurred in unintentional motor vehicle crashes was the ninth leading cause of death in WNC and the tenth leading cause of death in Polk County in the 2006-2010 aggregate period (Table 28, cited previously).

Figure 33 plots UMVI mortality rates over several aggregate periods. It should be noted, first, that all rates plotted for Polk County except the first are unstable or were not released by NC SCHS. From this data it appears that the mortality rate attributable to UMVI in Polk County ranged from higher to lower than the comparable mean WNC and NC rates. The mean WNC rate was slightly higher than the comparable state rate for most of the time span cited in the table. In WNC, the UMVI mortality rate fell from 20.9 to 16.7 (20.1%) and in NC the rate fell from 19.1 to 16.7 (12.5%). The UMVI mortality rate in Polk County fell over the three points plotted in the figure, from 21.9 to 17.5, a difference of 25.1%.

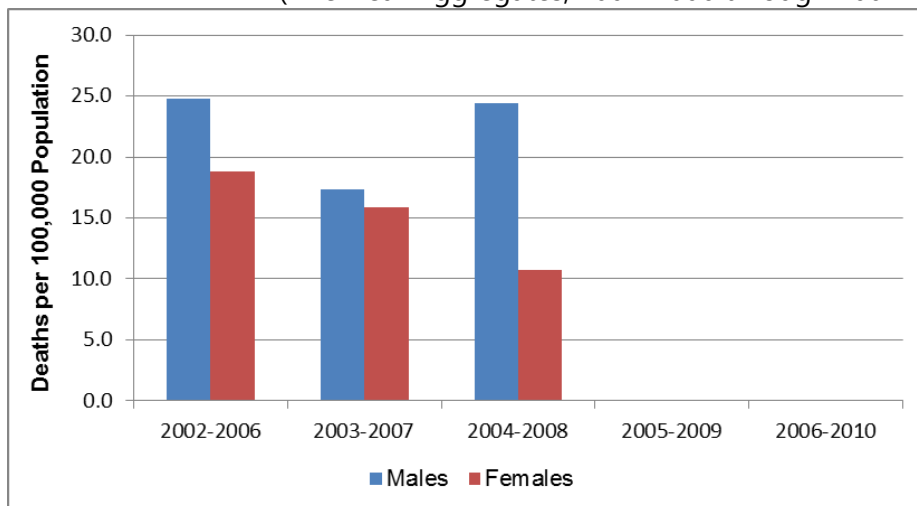
Figure 33. Unintentional Motor Vehicle Injury Mortality Rate  
Deaths per 100,000 Population  
(Five-Year Aggregates, 2002-2006 through 2006-2010)



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

In Polk County deaths among males and females attributable to UMVI were too few (n=8-13 per aggregate period) to calculate stable gender-stratified mortality rates. The limited county data presented in Figure 34 fails to demonstrate a clear gender difference in UMVI mortality in the county. Regional data, on the other hand demonstrates clearly that UMVI mortality among males is several times greater than the comparable rate among females (Data Workbook).

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



In WNC, none of the 16 counties had large enough minority populations to yield stable UMVI mortality rates for any minority group, so it is not possible to calculate stable mean region-wide rates for minorities. Statewide, disparities in UMVI mortality appear more gender-based than racially-based. At the state level in 2006-2010, the highest UMVI mortality rates all occurred

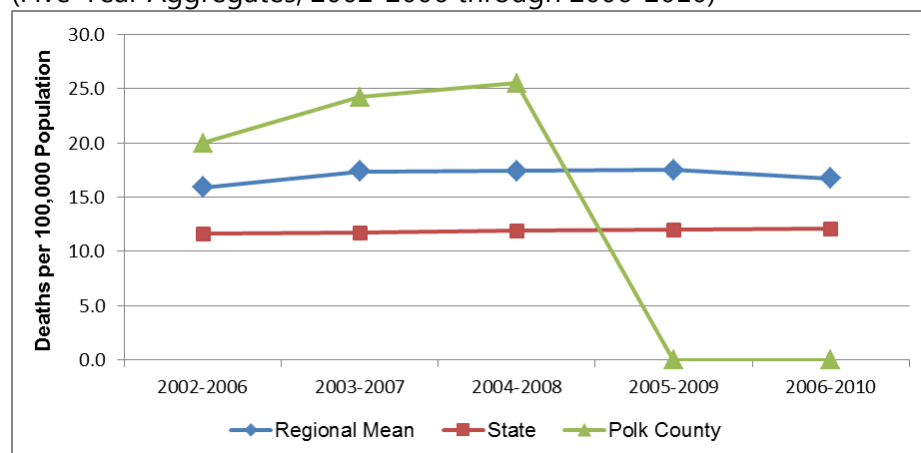
among males with the following rates, in decreasing order: 27.1 for African American non-Hispanic males, 24.2 for non-Hispanic males of other races, and 23.6 for both white non-Hispanic males and Hispanic males. Among women statewide the highest rates were noted among non-Hispanic females of other races (10.4), followed by white non-Hispanic females (9.9), African American non-Hispanic females (7.9) and Hispanic females (7.3) (Data Workbook).

### ***Suicide Mortality***

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

Figure 35 plots suicide mortality rates for several aggregate periods. From these data it is clear that mortality due to suicide was significantly higher in Polk County than in WNC, and higher in WNC than in NC as a whole. The mean suicide mortality rate in WNC ranged from 37% to 48% higher than the state rate over the period cited in Figure 35. While the suicide mortality rates in WNC and NC changed little over the period cited, the comparable rate in Polk County rose from 20.0 in 2002-2006 to 25.5 in 2004-2008, an increase of 27.5%. After this point the NC SCHS did not release suicide mortality rates for Polk County due to small numbers of events.

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



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

Suicide mortality in Polk County demonstrates a very pronounced gender disparity. From data in Figure 36 it is apparent that the suicide mortality rate for men was several times higher than the rate for women over the span of years cited. Although there is instability in all three data points for both males females (and NC SCHS did not release gender-stratified mortality rates for the remainder of the periods cited in the figure), the gender difference remained very large over time. In 2004-2008 the suicide mortality rate for Polk County females was 12.6 and the comparable rate for males was 39.4, over three times the rate for females.

Figure 36. Gender Disparities in Suicide Mortality, Polk County  
(Five-Year Aggregates, 2002-2006 through 2004-2008)



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

#### Nephritis, Nephrotic Syndrome and Nephrosis (Kidney Disease) Mortality

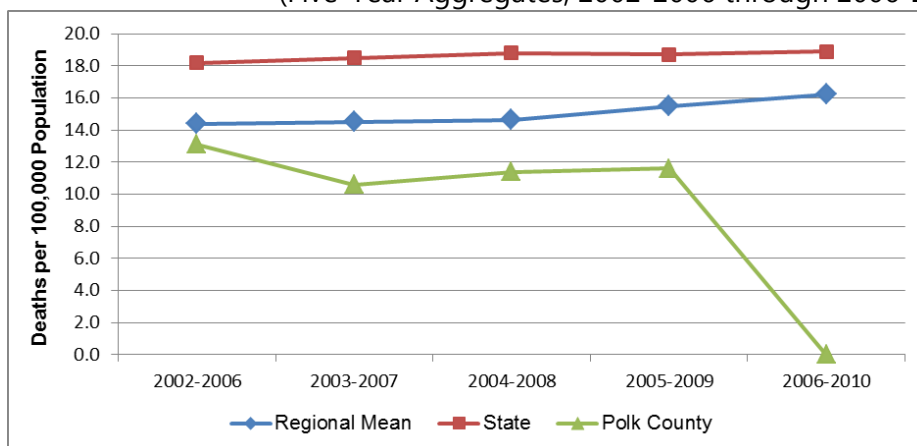
Nephritis refers to inflammation of the kidney, which causes impaired kidney function. Nephritis can be due to a variety of causes, including kidney disease, autoimmune disease, and infection. Nephrotic syndrome refers to a group of symptoms that include protein in the urine, low blood protein levels,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

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

Figure 37 plots kidney disease mortality over several aggregate periods. This data reveals that the mean kidney disease mortality rate in WNC was below the comparable figure for NC as a

whole, and that the mortality rate in Polk County was below the WNC rate for period cited in the figure. Note that the final data point for the county is “zero” to signify that the NC SCHS did not release a Polk County rate for that period due to a small number of events. Between the 2002-2006 aggregate period and the 2006-2010 aggregate period the mean regional rate climbed from 14.4 to 16.2 (12.5%). During the period from 2002-2006 and 2005-2009 the Polk County kidney disease mortality rate fell from 13.1 to 11.6 (11.5%). Over the same time span the NC rate increased slightly, from 18.2 to 18.9 (3.8%).

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



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

Gender-stratified kidney disease mortality rates for Polk County are unstable due to small numbers of events ( $n=7-15$  stratified deaths per aggregate period). The limited data plotted for the county in Figure 38 does not reveal a particular pattern of gender difference in kidney disease mortality rates.

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



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

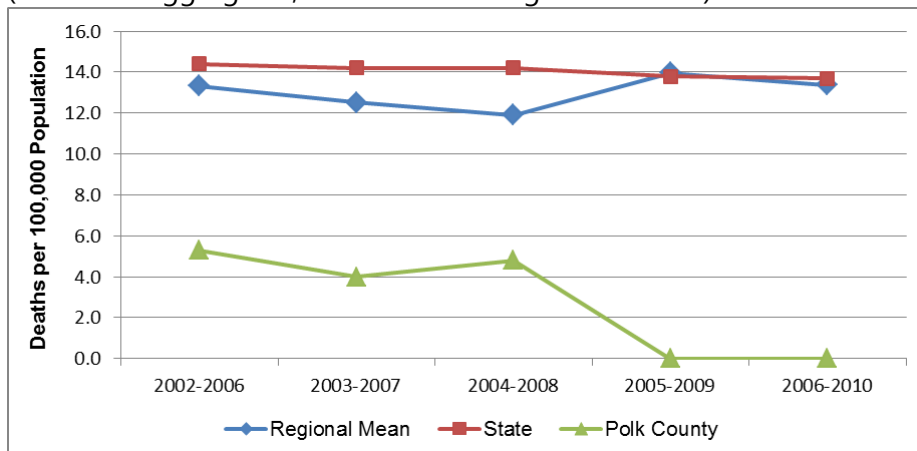
### ***Septicemia Mortality***

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

Septicemia was the twelfth leading cause of death in WNC and Polk County for the aggregate period 2006-2010 (Table 28, cited previously).

Figure 39 plots septicemia mortality data for several aggregate periods. This data shows that the mean WNC septicemia mortality rate fluctuated over the period cited in approaching the state rate, while the state rate decreased 4.9%, from 14.1 to 13.7. Fluctuation at the WNC-level may be attributed partly to unstable regional mean rates. In Polk County, the septicemia mortality rate was lower than both the comparable mean WNC and NC rates, likely because it was based on small numbers of deaths (n=7-13 per aggregate period). Note that for this reason, the NC SCHS did not release county rates for the last two aggregate periods, as signified by "zero" in the graph.

Figure 39. Septicemia Mortality Rate, Deaths per 100,000 Population  
(Five-Year Aggregates, 2002-2006 through 2006-2010)



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

Gender-stratified septicemia mortality rates for Polk County were unstable due to small numbers of deaths ( $n=3-8$  per gender per aggregate period). Limited data presented in Figure 40 would seem to indicate that males in the county had a higher septicemia mortality rate than females over the period for which there was data.

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



In WNC, none of the 16 counties has large enough minority populations to yield stable septicemia mortality rates for any minority group, so it is not possible to calculate stable mean region-wide rates for minorities. At the state level, where the calculation of stable septicemia mortality rates is possible, mortality is highest among African American non-Hispanics, both male and female. Statewide the septicemia mortality rate for African American non-Hispanic males in the 2002-2010 aggregate period was 23.7; for females of the same population group

the rate was 18.8. For white non-Hispanic males the comparable rate was 13.7; for white non-Hispanic females the rate was 11.5. Among other non-Hispanic males the septicemia mortality rate was 10.6; among other non-Hispanic females the rate was 7.6. The lowest septicemia mortality rates occurred among Hispanics; for males the rate was 5.3, and for females, 4.9 (Data Workbook).

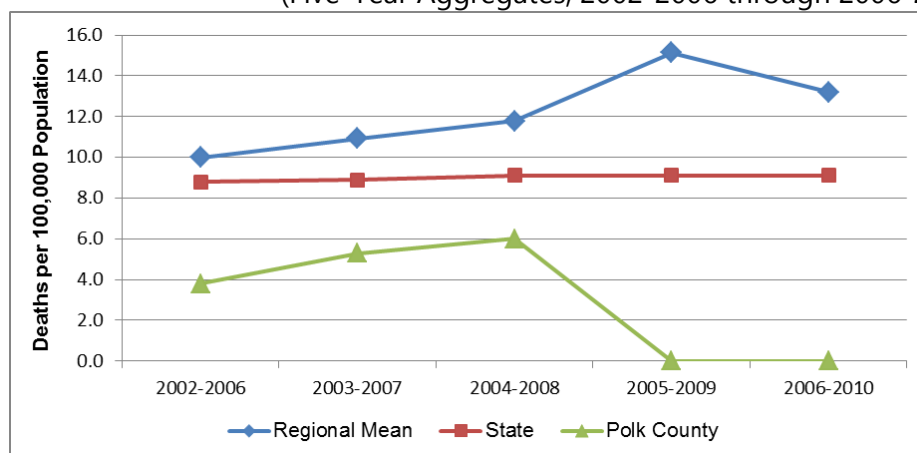
### ***Chronic Liver Disease and Cirrhosis Mortality***

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

Chronic liver disease and cirrhosis was the thirteenth leading cause of death in WNC and Polk County in the 2006-2010 aggregate period (Table 28, cited previously).

Figure 41 plots mortality data for liver disease over several aggregate periods. This data shows that the mean WNC liver disease mortality 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%. Throughout this period the state rate was stable at or near 9.1. In Polk County, all the rates plotted in the graph are unstable or “zero” because the NC SCHS did not release rates. From this limited data it would appear that the liver disease mortality in the county was likely below both the comparable mean WNC and NC rates for the period cited in the figure.

Figure 41. Chronic Liver Disease and Cirrhosis Mortality Rate  
Deaths per 100,000 Population  
(Five-Year Aggregates, 2002-2006 through 2006-2010)





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

Gender-stratified chronic liver disease and cirrhosis mortality rates for Polk County are unstable due to small numbers of stratified deaths (n=2-6 per aggregate period). The limited data presented for the county in Figure 42 fails to reveal a clear gender-based disparity in liver disease mortality rates. At the regional level, however, mean liver disease mortality among WNC men ranged from 2.6 to 3.3 times higher than comparable rates among WNC women (Data Workbook).

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



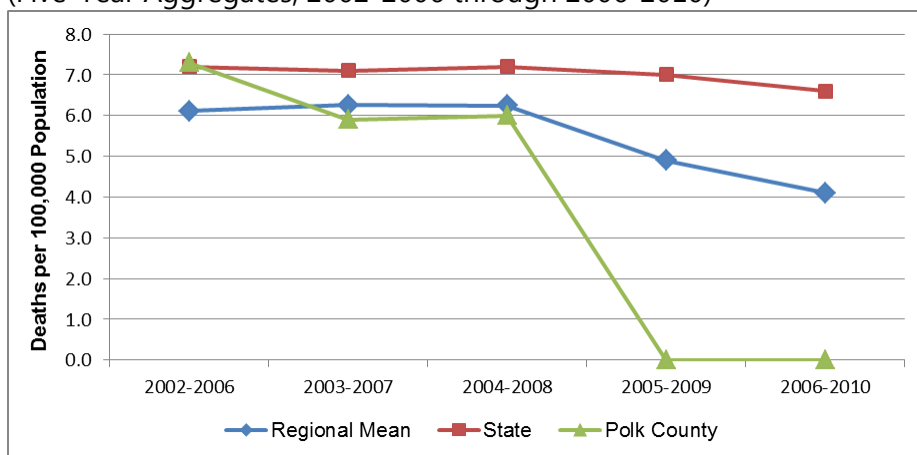
In WNC, none of the 16 counties had large enough minority populations to yield stable chronic liver disease/cirrhosis mortality rates for any minority group, so it is not possible to calculate stable mean region-wide rates for minorities. At the state level, liver disease mortality rates demonstrate 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 Polk County for the 2006-2010 aggregate period (Table 28, cited previously). In Polk County there were too few deaths attributable to homicide (2-6 per aggregate period) to calculate any stable rates, and NC SCHS did not release county mortality rates for homicide in the last two aggregate periods.

Figure 43 plots homicide mortality rate trends. From this data it is apparent that mean homicide mortality rates in WNC are lower than comparable rates for NC as a whole. This observation would appear to be in concert with earlier data reporting lower rates of violent crime in WNC than in NC. The mean homicide mortality rate in WNC for the 2006-2010 aggregate period was 4.1; the comparable rate for NC was 6.6. The homicide mortality rate in Polk County was variable over the period cited due to unstable rates.

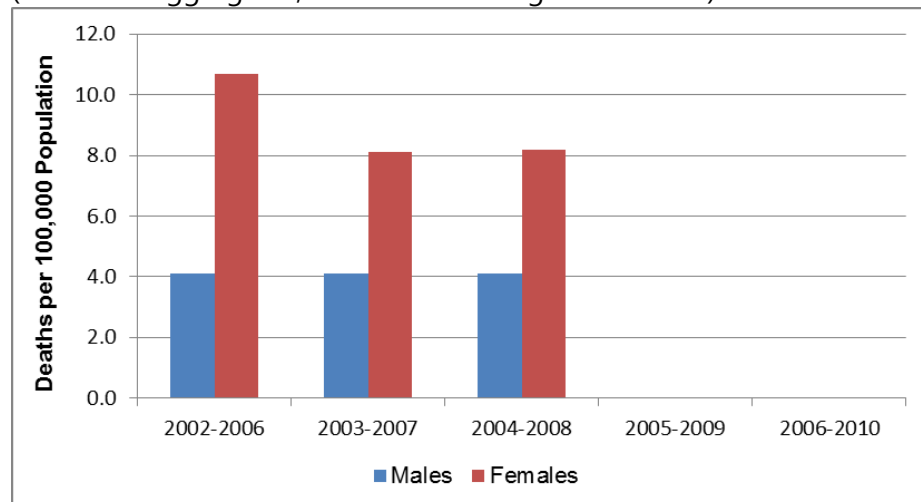
Figure 43. Homicide Mortality Rate, Deaths per 100,000 Population (Five-Year Aggregates, 2002-2006 through 2006-2010)



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

There are no stable gender-stratified homicide mortality rates in Polk County. According to the unstable data presented in Figure 44, the homicide rate among Polk County women was higher than the comparable rate among men. This was the opposite of the difference region-wide, where the mean homicide mortality rate among WNC males was approximately twice the mean rate among WNC females (Data Workbook).

Figure 44. Gender Disparities in Homicide Mortality, Polk County  
(Five-Year Aggregates, 2002-2006 through 2004-2008)



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

### ***Acquired Immune Deficiency Syndrome (AIDS) Mortality***

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

AIDS was the fifteenth leading cause of death in WNC for the aggregate period 2006-2010 (Table 28, cited previously). In Polk County there were too few deaths attributable to AIDS to calculate even a stable overall rate. Note that neither are there county-level gender-stratified or racially-stratified rates for this cause of death.

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

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

### ***Life Expectancy***

Life expectancy is the average number of additional years that someone at a given age would be expected to live if current mortality conditions remained constant throughout their lifetime. As the above data has demonstrated, there are many factors, from the prenatal period through the senior years, which can affect life expectancy. Table 32 presents a fairly recent summary of life expectancy for Polk County, WNC, and NC as a whole. From this data it appears that females born in Polk County in the period cited could expect to live 8.3 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 Polk County at the same time could expect to live a 4.3 years shorter lifespan than their white counterparts. African Americans born in WNC at the same time could expect to live a 3.3 years shorter lifespan than their white counterparts. Life expectancy overall in Polk County (77.5) is 0.5 years longer than life expectancy in WNC (77.0 years), and 0.2 years longer than life expectancy in the state as a whole (77.3 years).

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

<b>Geography</b>	<b>Overall</b>	<b>Gender</b>		<b>Race</b>	
		<b>Male</b>	<b>Female</b>	<b>White</b>	<b>African American</b>
Polk County	77.5	73.4	81.7	77.9	73.7
Regional Arithmetic Mean	77.0	74.3	79.8	77.3	74.0
State Total	77.3	74.5	80.0	78.1	73.8

## Morbidity Data

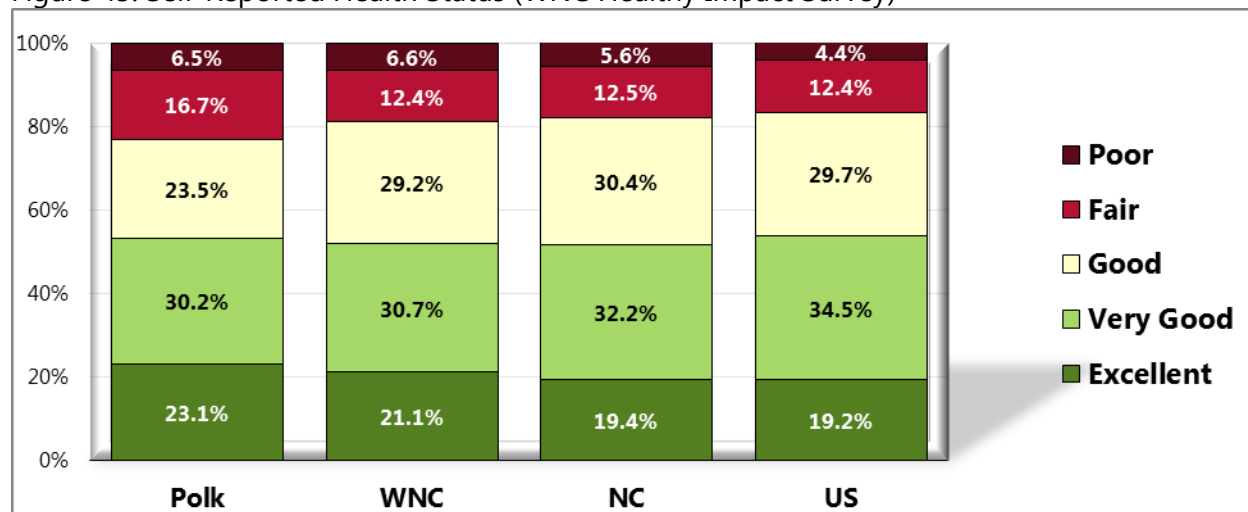
Morbidity as used in this report refers generally to the current presence of injury, sickness or disease (and sometimes the symptoms and/or disability resulting from those conditions) in the living population. In this report disability, diabetes, obesity, injury, communicable disease (including sexually-transmitted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

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

## Self-Reported Health Status

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

Figure 45. Self-Reported Health Status (WNC Healthy Impact Survey)



Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 12]

• Behavioral Risk Factor Surveillance System Survey Data. Atlanta, Georgia. United States Department of Health and Human Services, Centers for Disease Control and Prevention (CDC): 2010 North Carolina data.

• 2011 PRC National Health Survey, Professional Research Consultants, Inc.

Notes: • Asked of all respondents.

## Disability and Limitations in Physical Activity

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

Experience difficulties or delays in getting the health care they need.

Not have had an annual dental visit.

Not have had a mammogram in past 2 years.

Not have had a Pap test within the past 3 years.

Not engage in fitness activities.

Use tobacco.

Be overweight or obese.

Have high blood pressure.

Experience symptoms of psychological distress.

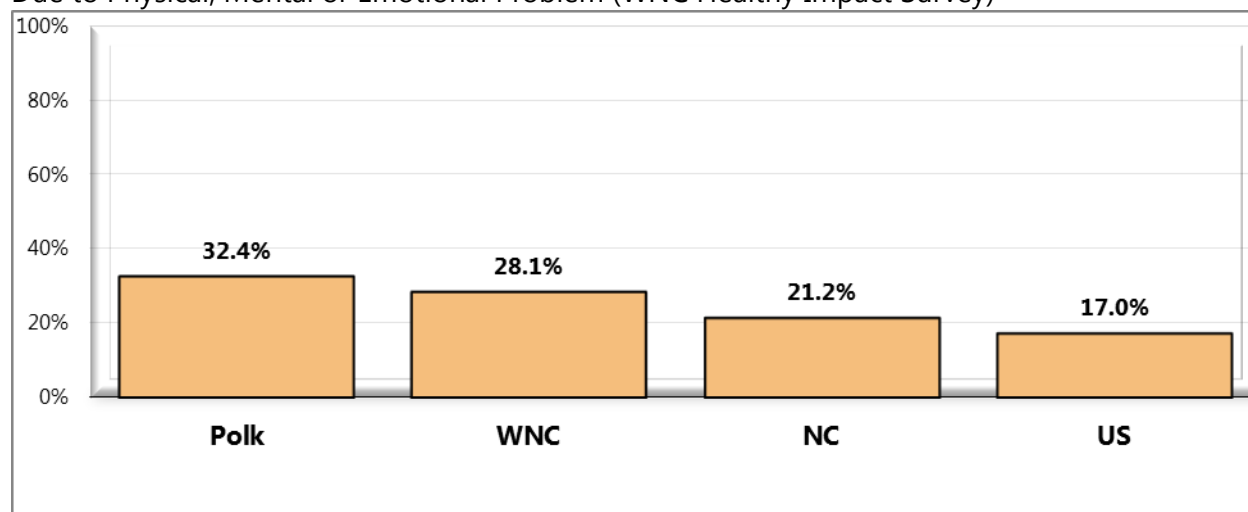
Receive less social-emotional support.

Have lower employment rates.

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

Figure 46. Limited in Activities in Some Way

Due to Physical, Mental or Emotional Problem (WNC Healthy Impact Survey)



Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 67]

• Behavioral Risk Factor Surveillance System Survey Data. Atlanta, Georgia. United States

Department of Health and Human Services, Centers for Disease Control and Prevention (CDC): 2010 North Carolina data.

• 2011 PRC National Health Survey, Professional Research Consultants, Inc.

Notes: • Asked of all respondents

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

	<b>Arthritis/ Rheumatism</b>	<b>Back/Neck Problem</b>	<b>Difficulty Walking</b>	<b>Fracture/Bone/ Joint Injury</b>	<b>Heart Problem</b>	<b>Lung/Breathing Problem</b>	<b>Mental/ Depression</b>	<b>Other (<math>&lt;3\%</math>)</b>
Polk	17.5%	19.3%	6.0%	5.6%	11.7%	3.5%	2.1%	34.3%

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

Notes: • Asked of those respondents reporting activity limitations.

## ***Diabetes***

Table 34 presents trend data from the US Centers for Disease Control and Prevention (CDC) on the estimated prevalence of diagnosed diabetes in Polk 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 Polk County fell from 8.3% in 2005 to 7.0% in 2009, a decrease of 15.7%. 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 34. Estimate of Diagnosed Diabetes Among Adults Age 20 and Older (2005-2009)

<b>Geography</b>	<b>2005</b>		<b>2006</b>		<b>2007</b>		<b>2008</b>		<b>2009</b>	
	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>
Polk County	1,567	8.3	1,534	8.1	1,504	7.9	1,461	7.5	1,467	7.0
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 Polk County residents totaled 23 cases, or 1.4% of all inpatient hospitalizations listed for the county (1,593). In the same year, there were 1,240 inpatient hospital cases associated with treatment of diabetes in WNC. This number of

cases represented 1.6% of all hospitalizations in the region. Statewide, diabetes hospitalizations composed 1.9% of all hospitalizations in NC (Data Workbook).



## Obesity

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

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

In this report, underweight is defined as a BMI of  $<18.5 \text{ kg}/m^2$ , normal is defined as a BMI of 18.5 to  $24.9 \text{ kg}/m^2$ , overweight is defined as a BMI of 25.0 to  $29.9 \text{ kg}/m^2$  and obesity as a BMI  $\geq 30 \text{ kg}/m^2$ . The rationale behind these definitions is based on epidemiological data that show increases in mortality with BMIs above  $25 \text{ kg}/m^2$ . The increase in mortality, however, tends to be modest until a BMI of  $30 \text{ kg}/m^2$  is reached. For persons with a BMI  $\geq 30 \text{ kg}/m^2$ , 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  $25 \text{ kg}/m^2$  (NIH, 1998)

## Adult Obesity

Table 35 presents trend data from the CDC on the estimated prevalence of diagnosed adult obesity in Polk 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 Polk County fell every year between 2005 and 2009; the decrease from 2005 to 2009 was 11.6%. The estimated mean prevalence of adult obesity in WNC increased annually throughout the period cited. Between 2005 and 2009 the estimated mean percent of the WNC population diagnosed as obese rose from 25.2% to 28.0%, a total increase of 11.1%.

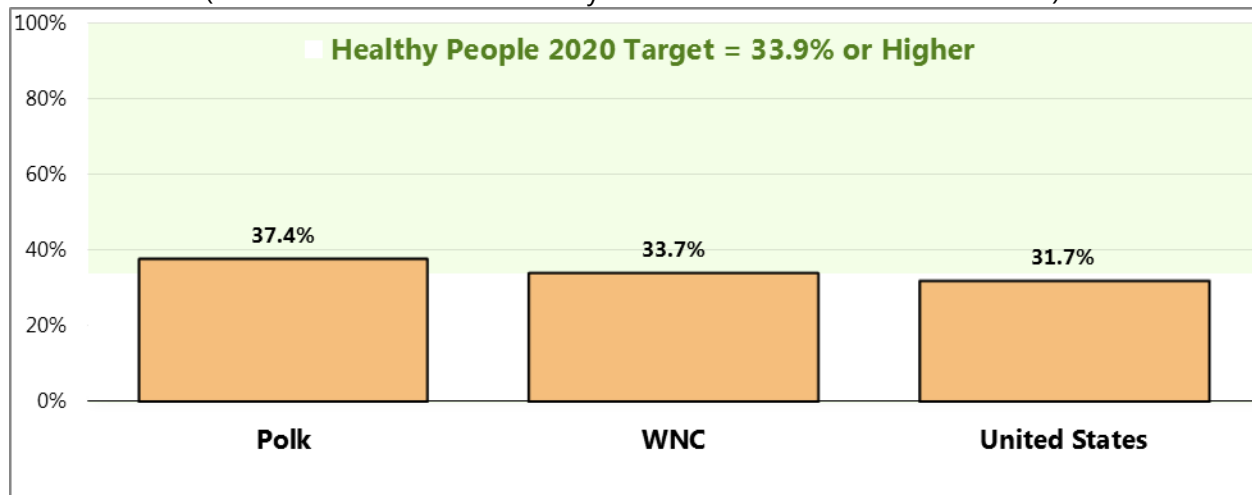
Table 35. Estimate of Diagnosed Obesity Among Adults Age 20 and Older (2005-2009)

Geography	2005	2006	2007	2008	2009
-----------	------	------	------	------	------

	#	%	#	%	#	%	#	%	#	%
Polk County	3,790	25.8	3,643	24.4	3,573	24.3	3,510	23.9	3,393	22.8
Regional Total	128,908	-	136,661	-	139,114	-	143,681	-	148,403	-
Regional Arithmetic Mean	8,057	25.2	8,541	26.4	8,695	26.7	8,980	27.4	9,275	28.0

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

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



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

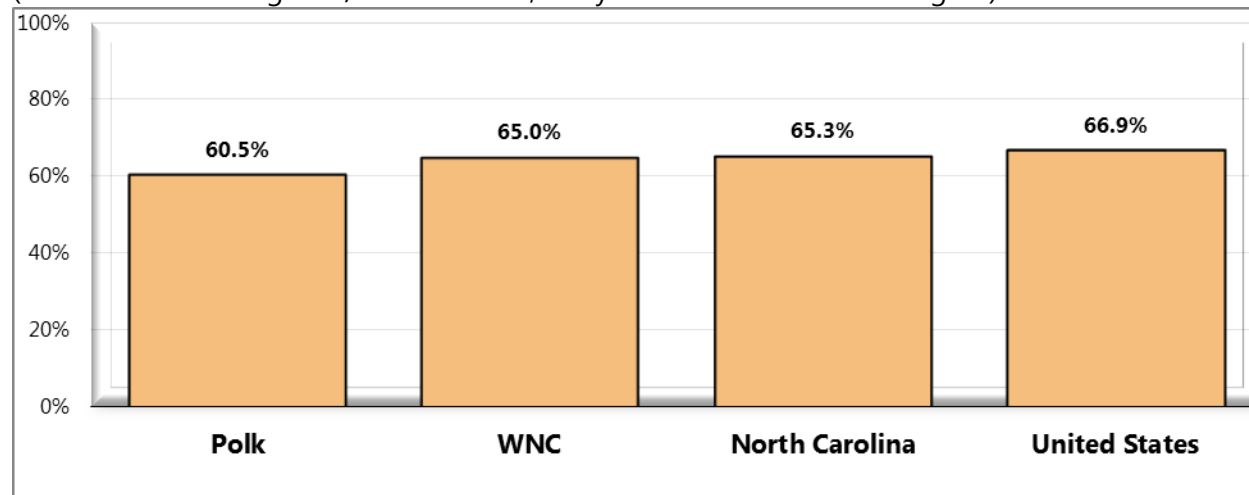
- 2011 PRC National Health Survey, Professional Research Consultants, Inc.

Notes: • Based on reported heights and weights, asked of all respondents.

- US Department of Health and Human Services. Healthy People 2020. December 2010. <http://www.healthypeople.gov> Objective NWS-8]

• The definition of healthy weight is having a body mass index (BMI), a ratio of weight to height (kilograms divided by meters squared), between 18.5 and 24.9.

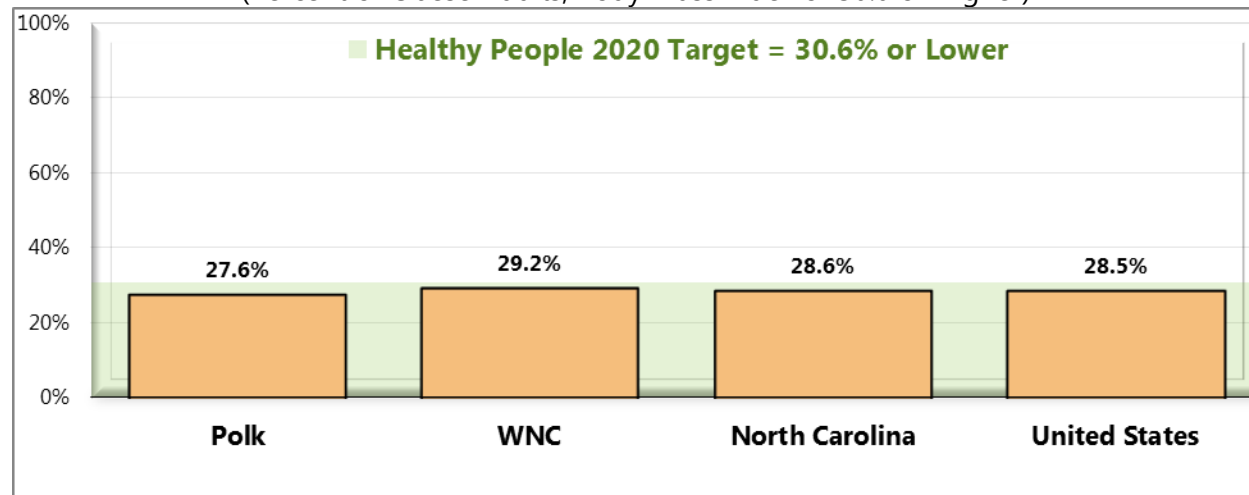
Figure 48. Prevalence of Total Overweight (WNC Healthy Impact Survey)  
(Percent of Overweight or/Obese Adults; Body Mass Index of 25.0 or Higher)



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

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

Figure 49. Prevalence of Obesity (WNC Healthy Impact Survey)  
(Percent of Obese Adults; Body Mass Index of 30.0 or Higher)



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

- 2011 PRC National Health Survey, Professional Research Consultants, Inc.
- US Department of Health and Human Services. Healthy People 2020. December 2010.

<http://www.healthypeople.gov> [Objective NWS-9]

• Behavioral Risk Factor Surveillance System Survey Data. Atlanta, Georgia. United States Department of Health and Human Services, Centers for Disease Control and Prevention (CDC): 2010 North Carolina data.

Notes: • Based on reported heights and weights, asked of all respondents.

- The definition of obesity is having a body mass index (BMI), a ratio of weight to height (kilograms divided by meters squared), greater than or equal to 30.0, regardless of gender.

## Childhood Obesity

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

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

$$\text{BMI} = (\text{weight in kilograms}) / (\text{height in meters})$$

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

Tables 36, 37 and 38 present NC NPASS data for 2010 on children in three age groups: ages 2-4, ages 5-11, and ages 12-18.

From data presented in Table 36 it appears that the prevalence of healthy weight among 2-4 year-olds in Polk County (66.5%) is higher than the comparable figures for either WNC (64.5%) or NC (63.5%). The prevalence of overweight among children ages 2-4 is lower in Polk County (15.1%) than the mean for WNC (17.2%) or the figure for NC as a whole (16.1%). The prevalence of obesity in Polk County 2-4 year-olds (15.6%) is higher than the mean prevalence in WNC (13.6%) and the same prevalence in NC as a whole (15.6%). It must be noted that the regional means denoted in italics contain one or more county percentages that are unstable due to small numbers of children participating in the program.

Table 36. Prevalence of Obesity, Overweight, Healthy Weight and Underweight Children 2 through 4 years

Geography	Total	Underweight		Healthy Weight		Overweight		Obese	
		<5th Percentile		≥5th to <85th Percentile		≥85th to <95th Percentile		≥95th Percentile	
	#	#	%	#	%	#	%	#	%
Polk County	179	5	2.8	119	66.5	27	15.1	28	15.6

Regional Total	6,814	316	-	4,410	-	1,139	-	949	-
Regional Arithmetic Mean	426	20	4.8	276	64.5	71	17.2	59	13.6
State Total	105,410	4,935	4.7	66,975	63.5	17,022	16.1	16,478	15.6

(2010)

From data presented in Table 37 it appears that all the percentages noted for Polk County should be considered unstable, due to very small numbers of children in the 5-11 age group (n=10) participating in the program. In WNC, the prevalence of children ages 5-11 with healthy weight (63.4%) was higher than the comparable prevalence for NC (54.3%). The mean prevalence of overweight children ages 5-11 in WNC (14.3%) and the prevalence of obese children in this age group in WNC (19.4%) are both lower than the comparable prevalence figures for NC (17.1 and 25.8, respectively). It must be noted that the regional means denoted in italics contain one or more county percentages that are unstable due to small numbers of children participating in the program.

Table 37. Prevalence of Obesity, Overweight, Healthy Weight and Underweight Children 5 through 11 years  
(2010)

Geography	Total	Underweight		Healthy Weight		Overweight		Obese	
		<5th Percentile		≥5th to <85th Percentile		≥85th to <95th Percentile		≥95th Percentile	
	#	#	%	#	%	#	%	#	%
Polk County	10	0	<b>0.0</b>	8	<b>80.0</b>	1	<b>10.0</b>	1	<b>10.0</b>
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

In 2010 there were no children in the 12-18 year age group participating in the program in Polk County. Examining instead regional data it appears that the prevalence of healthy weight children ages 12-18 is higher in WNC (56.3%) than statewide (51.9%), that the prevalence of overweight children ages 12-18 is higher in WNC (19.0%) than in NC as a whole (18.1%), but that the prevalence of obesity in this age group is smaller in WNC (23.8%) than statewide (28.0%). It

must be noted that the regional means denoted in italics contain one or more county percentages that are unstable due to small numbers of children participating in the program.

Table 38. Prevalence of Obesity, Overweight, Healthy Weight and Underweight  
Children 12 through 18 years  
(2010)

Geography	Total	Underweight		Healthy Weight		Overweight		Obese	
		<5th Percentile		≥5th to <85th Percentile		≥85th to <95th Percentile		≥95th Percentile	
	#	#	%	#	%	#	%	#	%
Polk County	0	0	<b>n/a</b>	0	<b>n/a</b>	0	<b>n/a</b>	0	<b>n/a</b>
Regional Total	1,348	13	-	729	-	245	-	361	-
Regional Arithmetic Mean	84	1	1.0	46	56.3	15	19.0	23	23.8
State Total	6,854	133	1.9	3,560	51.9	1,241	18.1	1,920	28.0

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

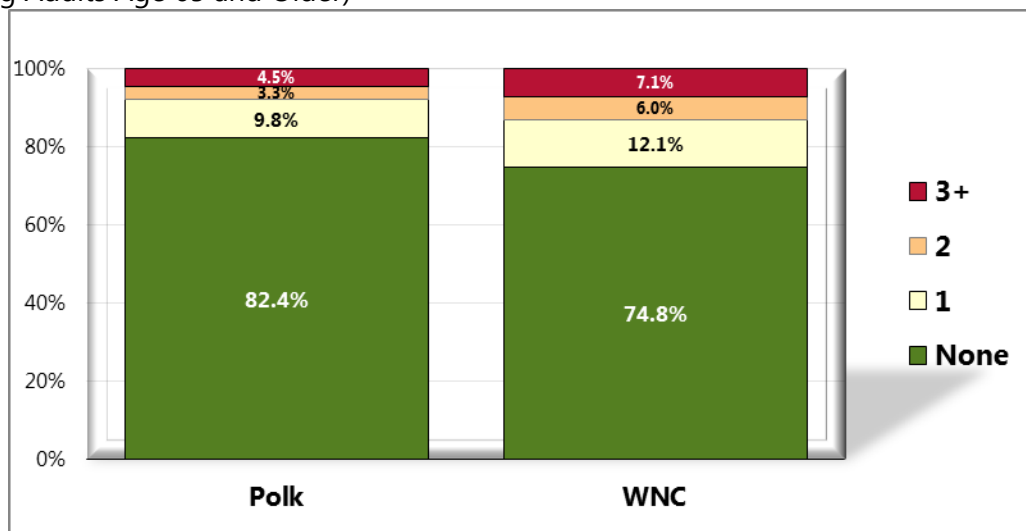
## ***Injuries***

### **Falls**

There were 16 deaths due to falls in Polk County in the period 2006-2010. In 2009 alone there were four, three of them in the over-65 age group (one in the 65-74 age group, and one in the 85-and-over age group) (Data Workbook).

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

Figure 50. Number of Falls in the Past Year (WNC Healthy Impact Survey)  
(Among Adults Age 65 and Older)

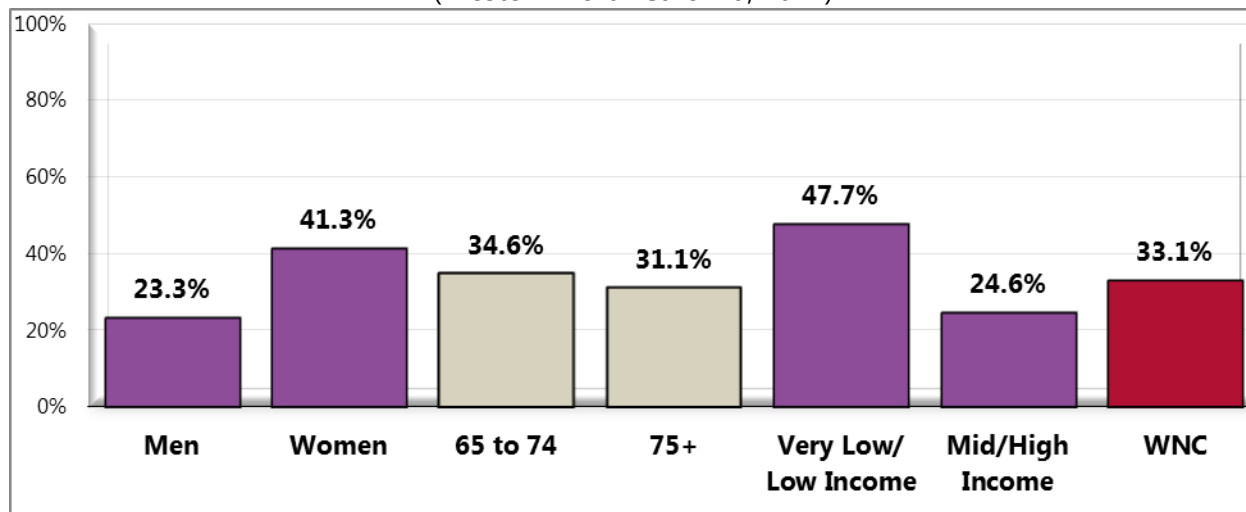


Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc.  
[Item 40]

Notes: • Asked of respondents age 65 and older.

\* These counties have sample sizes deemed unreliable ( $n < 50$ ).

Figure 51. Sustained a Fall-Related Injury in the Past Year (WNC Healthy Impact Survey)  
(Among Adults 65+ Who Have Fallen in the Past Year)  
(Western North Carolina, 2012)



Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 41]

Notes: • Asked of respondents age 65 and older who have fallen in the past year.

- Includes falls that caused respondent to limit his/her regular activities for at least a day or caused him/her to go see a doctor.
- Hispanics can be of any race. Other race categories are non-Hispanic categorizations (e.g., "White" reflects non-Hispanic White respondents).
- Income categories reflect respondent's household income as a ratio to the federal poverty level (FPL) for their household size. "Low Income" includes households with incomes up to 200% of the federal poverty level; "Mid/High Income" includes households with incomes at 200% or more of the federal poverty level.

## Vehicle Crashes

The Highway Safety Research Center at the University of North Carolina at Chapel Hill tracks information about vehicle crashes across the state on an annual basis, including detail on the fraction of crashes that are alcohol-related. Table 39 presents trend data on vehicle crashes for the period from 2006 through 2010. The data presented for Polk County demonstrate high variability relative to the WNC means for the percent of crashes that were alcohol-related. However the percentage of alcohol-related traffic crashes in the county were above the comparable state rate in every year cited in the table except 2008. The data in the table also shows that the percentage of alcohol-related vehicle crashes in WNC were higher than the comparable percentages for the state as a whole throughout the period cited, with the difference varying from 16% to 27% depending on the year.



Table 39. Alcohol-Related Traffic Crashes (2006-2010)

Geography	2006		2007		2008		2009		2010	
	# Crashes	% Alcohol-Related	# Crashes	% Alcohol-Related	# Crashes	% Alcohol-Related	# Crashes	% Alcohol-Related	# Crashes	% Alcohol-Related
Polk County	335	7.2	390	6.7	381	4.7	351	5.7	405	6.4
Regional Total	15,004	6.2	15,216	6.5	13,997	7.1	14,075	6.6	14,763	5.8
State Total	220,307	5.1	224,307	5.3	214,358	5.6	209,695	5.4	213,573	5.0

Table 40 presents additional detail on the nature of vehicular crashes for a single year, 2010. In Polk County 6.4% of all crashes were alcohol-related; although the following number may be unstable since it is based on only one event, 100.0% of the fatal crashes (1 of 1) in the county was alcohol-related. In both WNC and NC as a whole, the proportion of all crashes that were alcohol-related was less than 6%, but the proportion of fatal crashes that were alcohol-related was over 30%. It is noteworthy that the percentages of crashes that were alcohol-related were higher in WNC than in NC for every outcome category displayed in Table 40.

Table 40. Outcomes of Traffic Crashes (2010)

Geography	Total Crashes		Property Damage Only Crashes		Non-Fatal Crashes		Fatal Crashes	
	# Reportable Crashes	% Alcohol-Related Crashes	# Reportable Crashes	% Alcohol-Related Crashes	# Reportable Crashes	% Alcohol-Related Crashes	# Reportable Crashes	% Alcohol-Related Crashes
Polk County	405	6.4	270	4.1	134	10.5	1	<b>100.0</b>
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 Polk County, WNC or NC, but in the US as a whole in 2010, 3,092 people died and 416,000 were injured as a result of distracted driving (Data Workbook).

### ***Workplace Injury***

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

### ***Poisonings***

For the five-year aggregate period 2006-2010 there were 30 unintentional poisoning deaths in Polk County, with a corresponding age-adjusted mortality rate of 29.8 per 100,000 population. The comparable mean unintentional poisoning mortality rate for WNC was 23.1 over the same period.

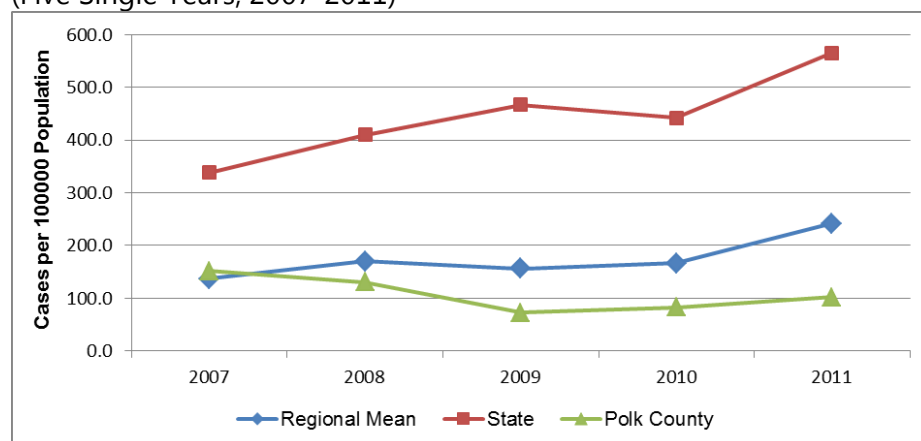
## Communicable Disease

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

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

Figure 52 plots chlamydia rates for several years. From this data it appears that in WNC the mean chlamydia infection rate was 57% to 66% lower than the comparable rate for NC as a whole for the time span cited. Chlamydia rates in both NC and WNC increased overall between 2007 and 2011, as the NC rate rose 67.2% (from 337.7 to 564.8) and the mean WNC rate rose 76.4% (from 136.9 to 241.5). In Polk County, where the chlamydia infection rate was mostly below both the WNC and NC rates, the local rate decreased 32.4%, from 151.5 to 102.4, over the same period.

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

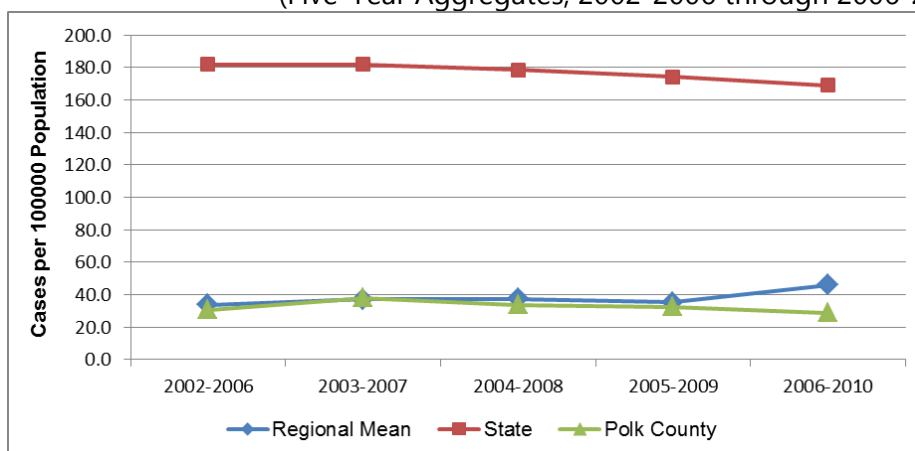


Note: There is some instability in the regional mean rates because each includes one or more unstable county rate.

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

Figure 53 plots gonorrhea rates for several aggregate periods. From this data it appears that gonorrhea is far less prevalent in Polk County than in either WNC or NC. The county gonorrhea infection rate decreased from 30.6 to 28.8 (5.9%) over the period cited. The mean gonorrhea rate in WNC was 72% to 82% lower than the state rate for the span of aggregate periods shown in Figure 53. It is noteworthy that as the state gonorrhea rate decreased 7.2% (from 182.0 to 168.9) over the period cited, the mean WNC gonorrhea rate increased 36.2% (from 33.7 to 45.9) in the same time span.

Figure 53. Gonorrhea Rate, Cases per 100,000 Population  
(Five-Year Aggregates, 2002-2006 through 2006-2010)



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

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

## Chapter 4 – Health Behaviors

### *Physical Activity*

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

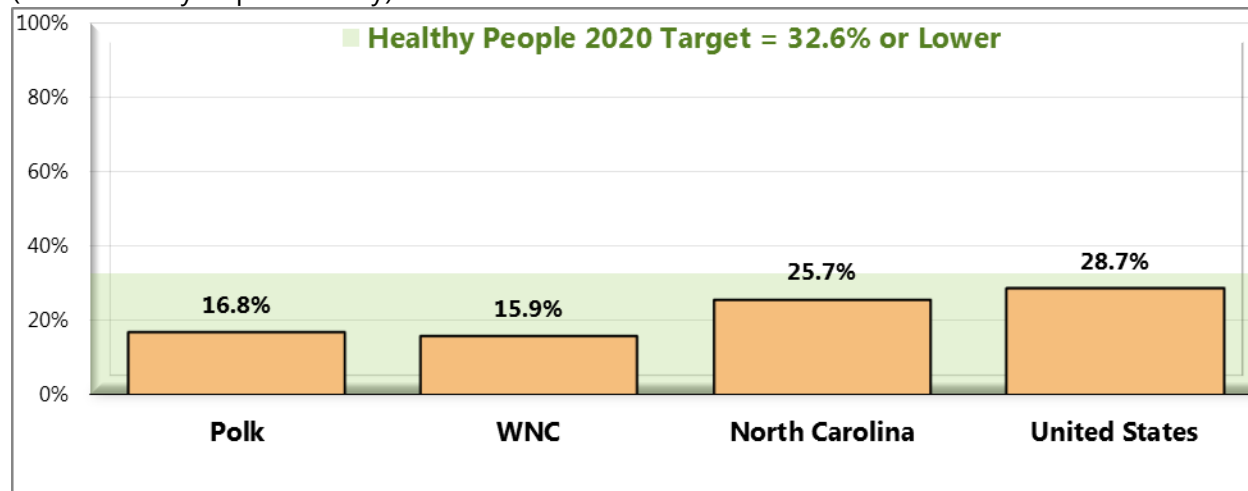
Personal, social, economic, and environmental factors all play a role in physical activity levels among youth, adults, and older adults. Factors **positively** associated with adult physical activity include: postsecondary education; higher income; enjoyment of exercise; expectation of benefits; belief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

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

Older adults (age 65 and older) should follow the adult guidelines. If this is not possible due to limiting chronic conditions, older adults should be as physically active as their abilities allow. They should avoid inactivity. Older adults should do exercises that maintain or improve balance if they are at risk of falling.

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

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

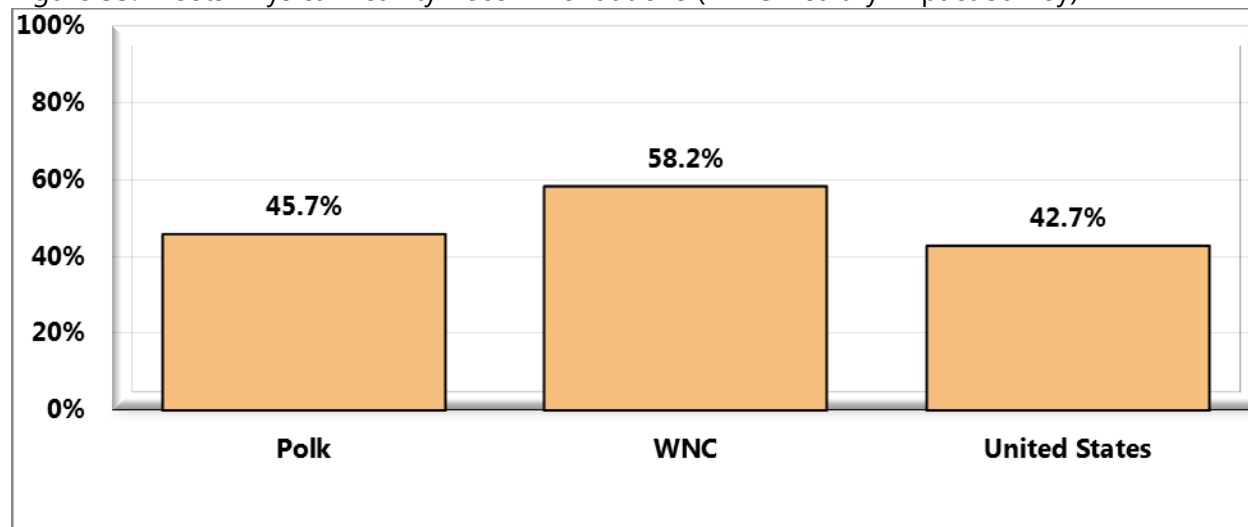


Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 56]  
 • Behavioral Risk Factor Surveillance System Survey Data. Atlanta, Georgia. United States Department of Health and Human Services, Centers for Disease Control and Prevention (CDC); 2010 North Carolina data.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

<http://www.healthypeople.gov> [Objective PA-1]

Notes: • Asked of all respondents.

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



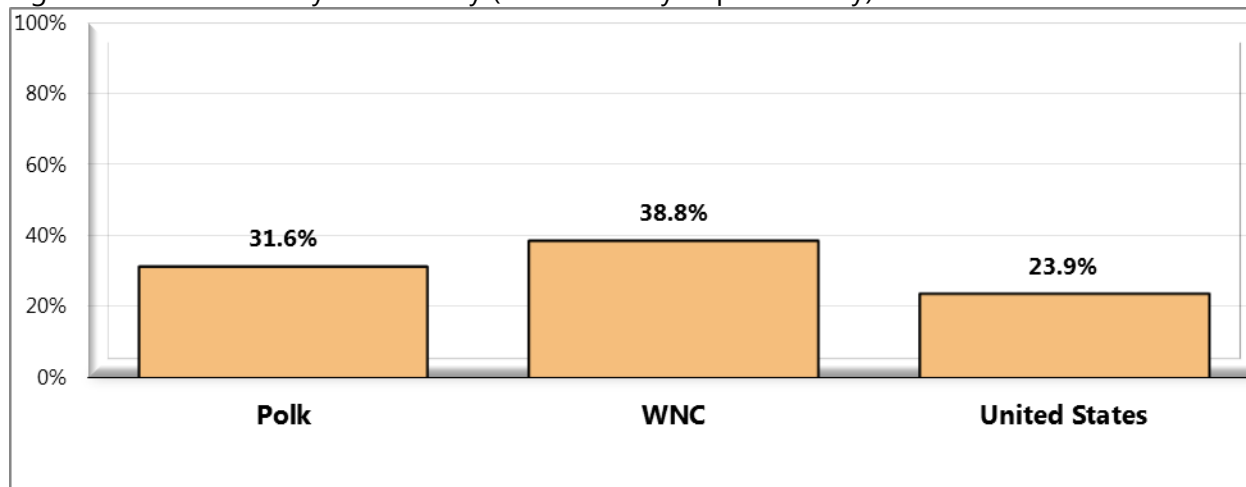
Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 80]

• 2011 PRC National Health Survey, Professional Research Consultants, Inc.

Notes: • Asked of all respondents.

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

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



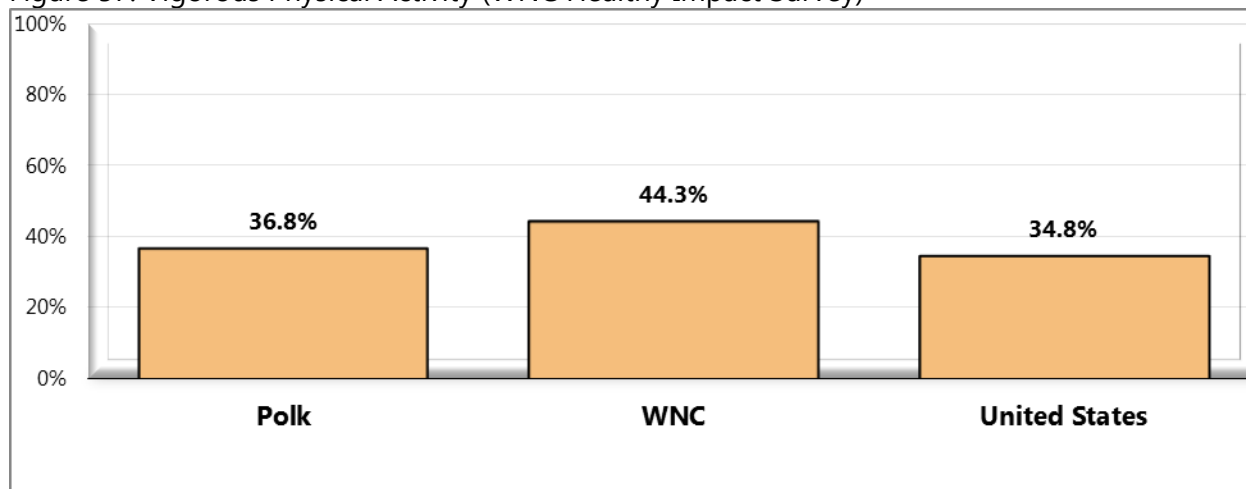
Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 81]

- 2011 PRC National Health Survey, Professional Research Consultants, Inc.

Notes: • Asked of all respondents.

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

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



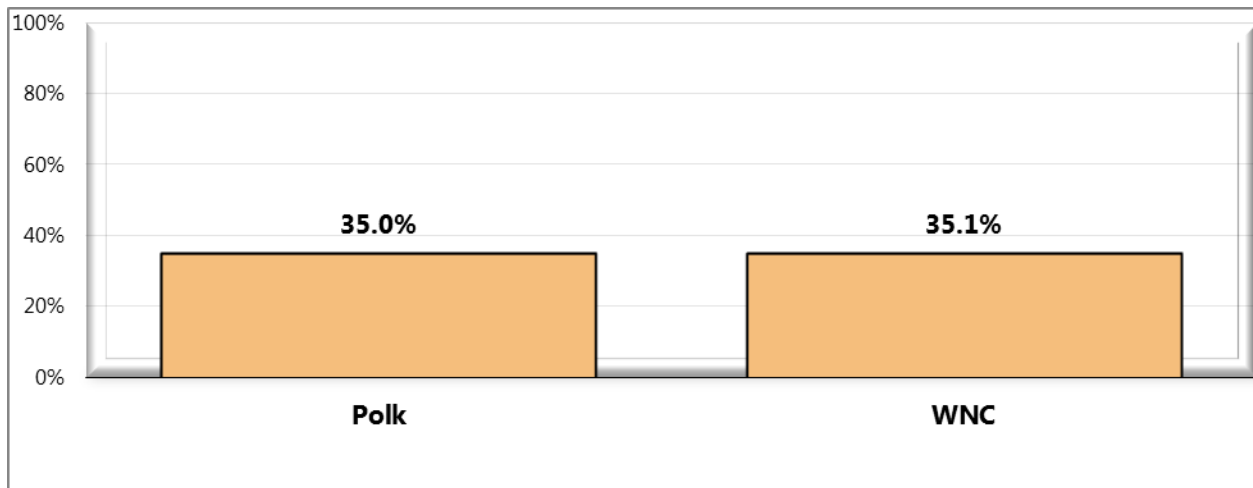
Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 82]

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

Notes: • Asked of all respondents.

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

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



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

Notes: • Asked of all respondents.

• Strengthening Physical Activity: Takes part in physical activities or exercises that strengthen muscles at least 2 times per week.

## Diet and Nutrition

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

### **Social Determinants of Diet**

Social factors thought to influence diet include:

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

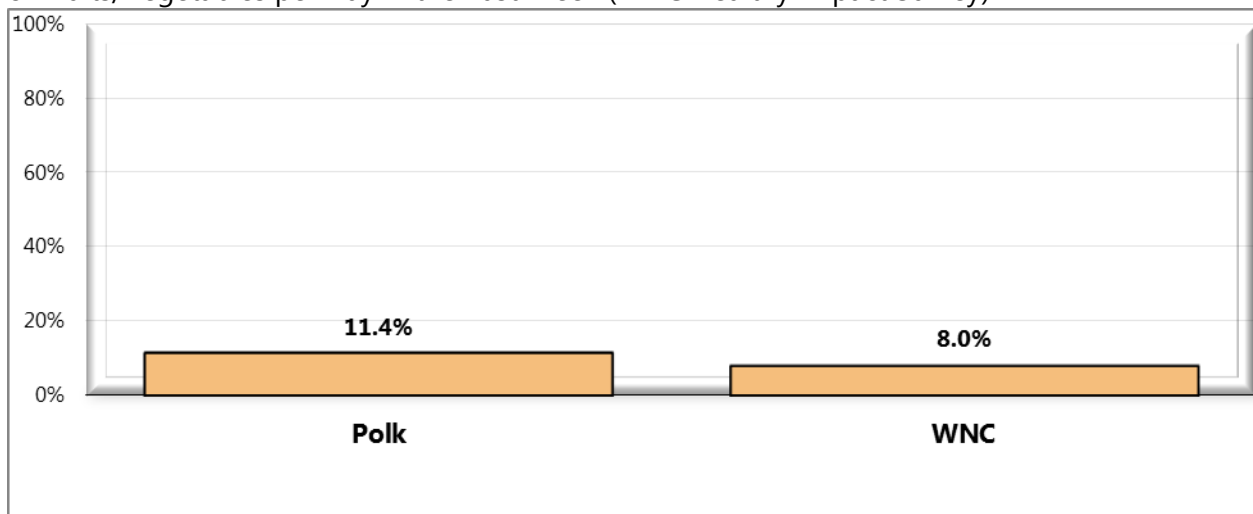
### **Physical Determinants of Diet**

The places where people eat appear to influence their diet. For example, foods eaten away from home often have more calories and are of lower nutritional quality than foods prepared at home. Marketing also influences people's—particularly children's—food choices (DHHS, 2010).

More information is available elsewhere in this report about some of these determinants.

To measure fruit and vegetable consumption, survey respondents were asked how many one-cup servings of fruit and one-cup servings of vegetables (not counting lettuce salad or potatoes) they ate over the past week. Survey respondents from Polk County were also asked about their frequency of having to choose between buying food and paying bills.

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



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

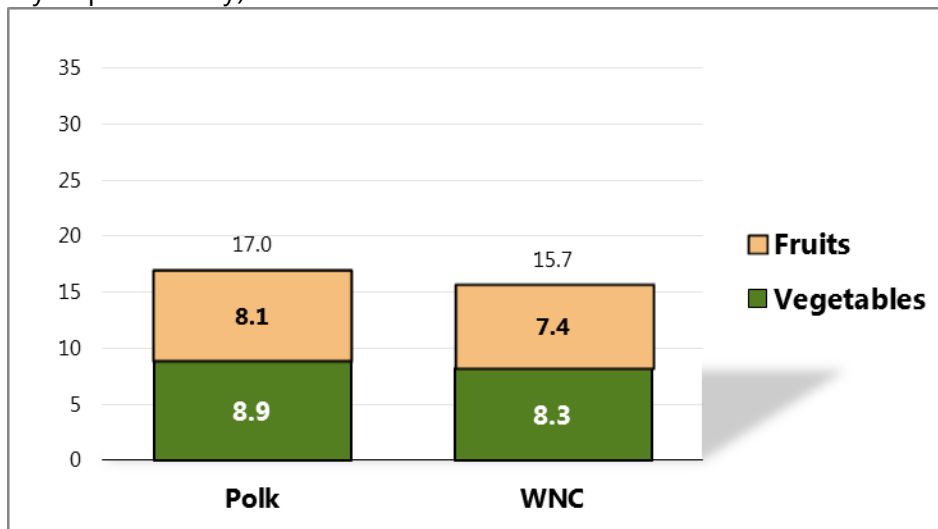
Notes: • Asked of all respondents.

- For this issue, respondents were asked to recall their food intake during the previous week.

Reflects 35 or more 1-cup servings of fruits and/or vegetables in the past week, excluding lettuce salad and potatoes.



Figure 60. Average Servings of Fruits/Vegetables in the Past Week  
(WNC Healthy Impact Survey)

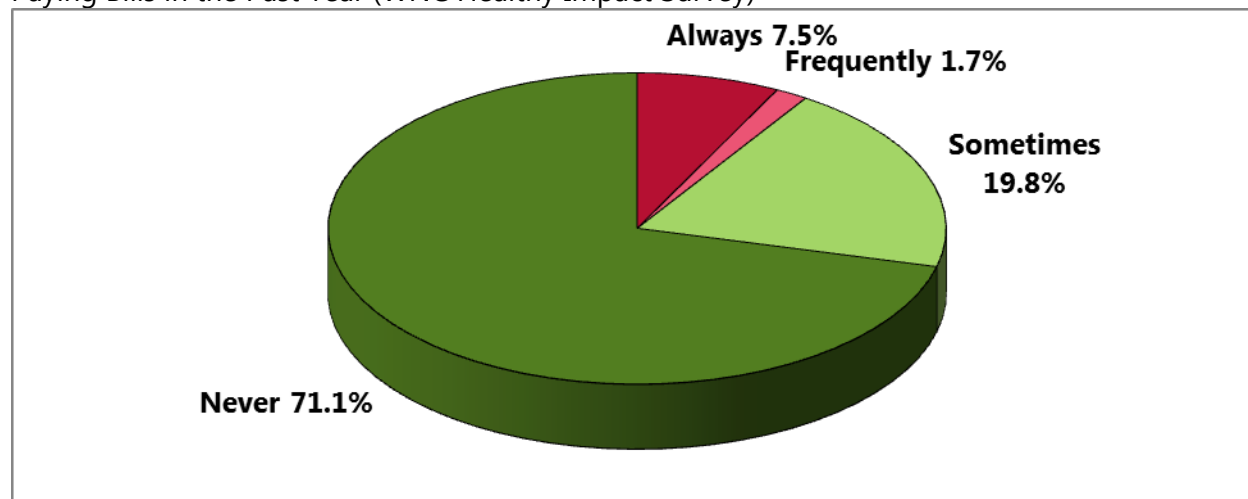


Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Items 53-54]

Notes: • Asked of all respondents.  
• For this issue, respondents were asked to recall their food intake during the previous week.

Reflects 35 or more 1-cup servings of fruits and/or vegetables in the past week, excluding lettuce salad and potatoes.

Figure 61. Frequency of Having to Choose Between Buying Food and Paying Bills in the Past Year (WNC Healthy Impact Survey)



Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 115]

Notes: • Asked of all respondents.

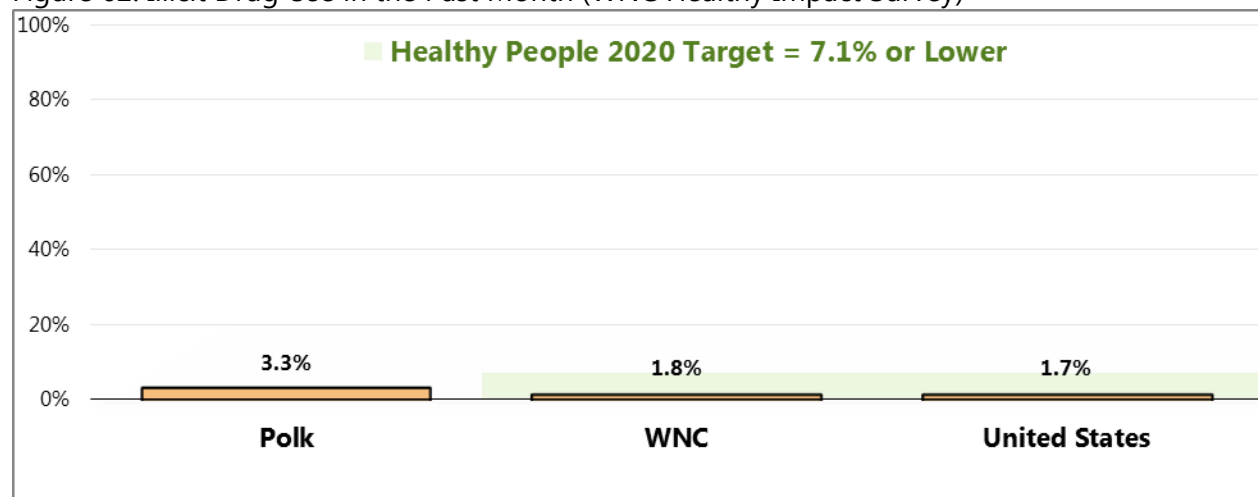
## Substance Use/Abuse

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

## Illicit Drugs

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

Figure 62. Illicit Drug Use in the Past Month (WNC Healthy Impact Survey)



Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 52]

- 2011 PRC National Health Survey, Professional Research Consultants, Inc.
- US Department of Health and Human Services. Healthy People 2020. December 2010.

<http://www.healthypeople.gov> [Objective SA-13.3]

Notes: • Asked of all respondents.

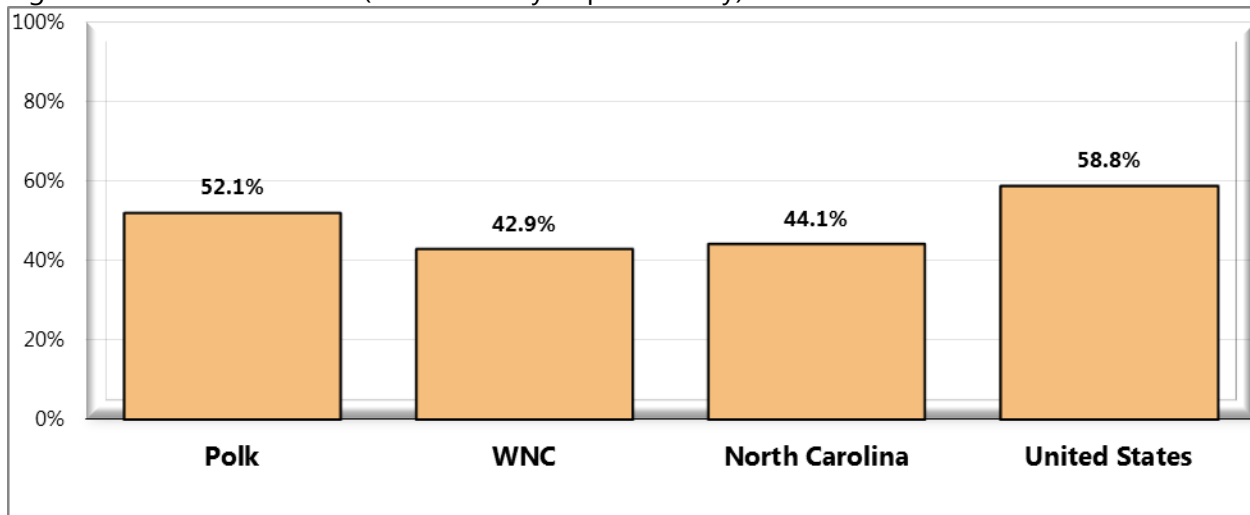
- Includes reported use of an illegal drug or of a prescription drug not prescribed to the respondent.

## Alcohol

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

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

Figure 63. Current Drinkers (WNC Healthy Impact Survey)



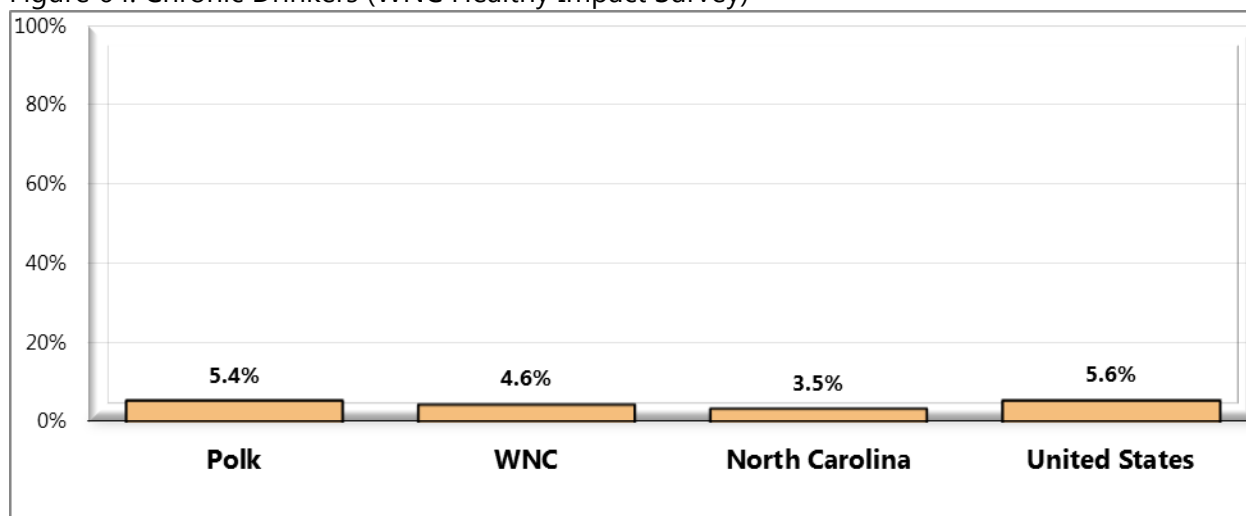
Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 88]  
• Behavioral Risk Factor Surveillance System Survey Data. Atlanta, Georgia. United States Department of Health and Human Services, Centers for Disease Control and Prevention (CDC): 2010 North Carolina data.

• 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.

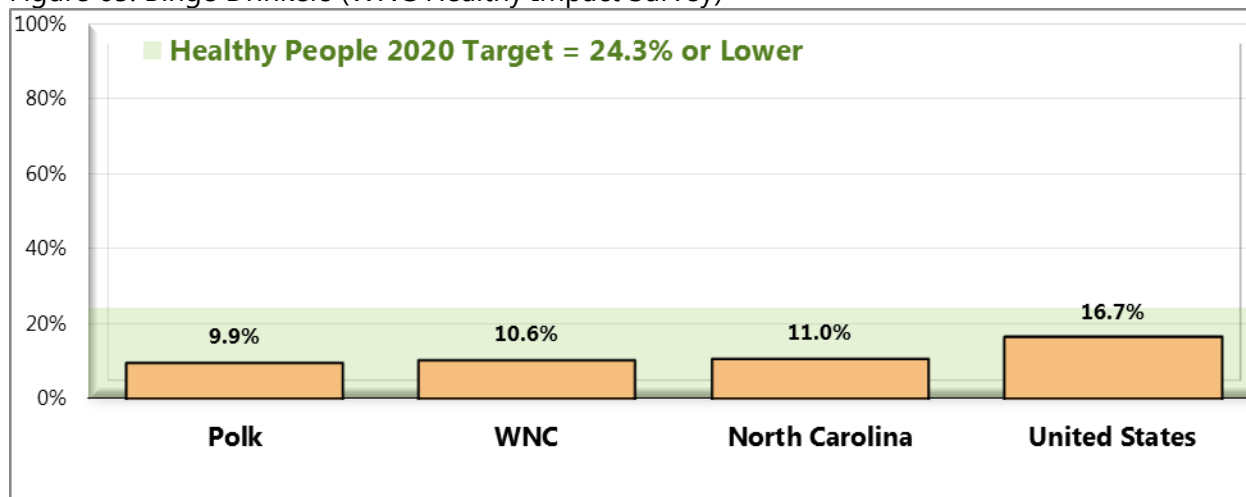
Figure 64. Chronic Drinkers (WNC Healthy Impact Survey)



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

Notes: • Asked of all respondents.  
 • Chronic drinkers are defined as having 60+ alcoholic drinks in the past month.  
 • \*The state definition for chronic drinkers is males consuming 2+ drinks per day and females consuming 1+ drink per day in the past 30 days.

Figure 65. Binge Drinkers (WNC Healthy Impact Survey)



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

<http://www.healthypeople.gov> [Objective SA-14.3]

Notes: • Asked of all respondents.

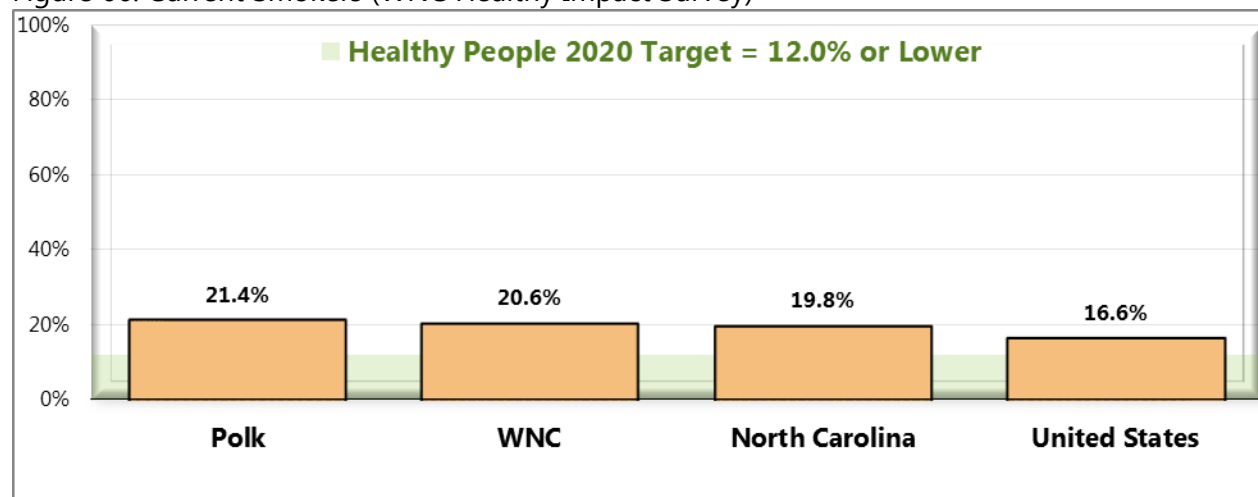
- Binge drinkers are defined as those consuming 5+ alcoholic drinks on any one occasion in the past 30 days;
- \* note that state and national data reflect different thresholds for men (5+ drinks) and women (4+ drinks).

## Tobacco

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

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

Figure 66. Current Smokers (WNC Healthy Impact Survey)

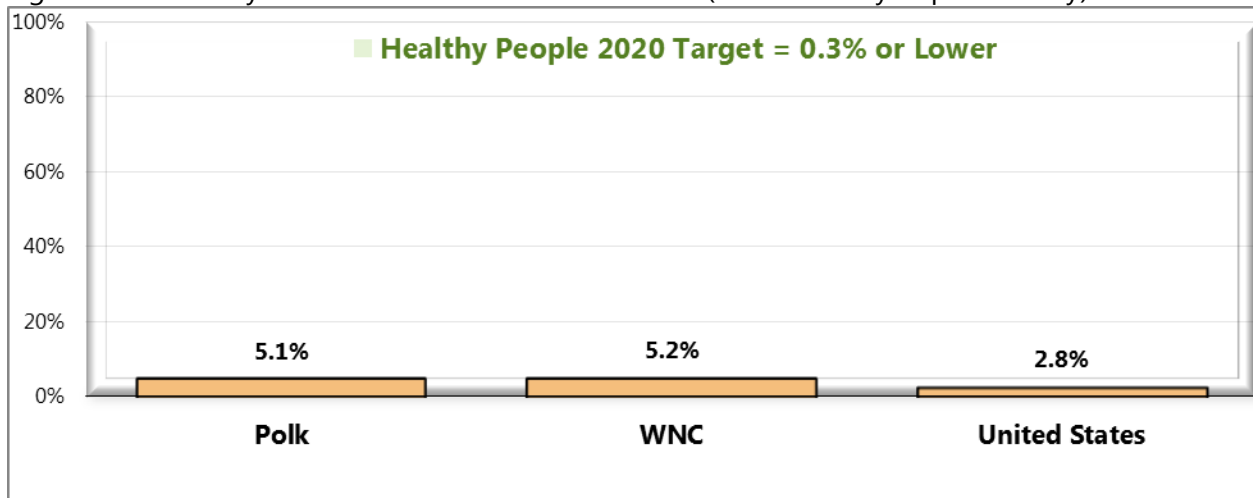


Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 86]  
 • 2011 PRC National Health Survey, Professional Research Consultants, Inc.  
 • Behavioral Risk Factor Surveillance System Survey Data. Atlanta, Georgia. United States Department of Health and Human Services, 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 67. Currently Use Smokeless Tobacco Products (WNC Healthy Impact Survey)



Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 43]

• 2011 PRC National Health Survey, Professional Research Consultants, Inc.

• US Department of Health and Human Services. Healthy People 2020. December 2010.

<http://www.healthypeople.gov> [Objective TU-1.2]

Notes: • Asked of all respondents.

• Includes regular and occasional users (every day and some days).

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

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

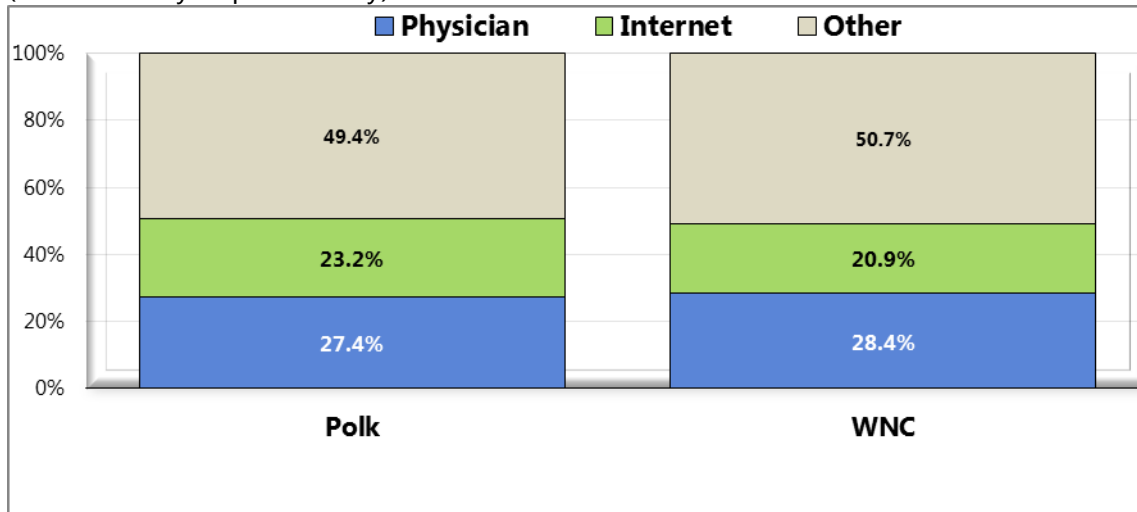
Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 48]

Notes: • Asked of all respondents.

## Health Information

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

Figure 68. Primary Source of Healthcare Information  
(WNC Healthy Impact Survey)



Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 11]

Notes: • Asked of all respondents.

## Chapter 5 – Clinical Care Parameters

### *Medical Care Access*

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

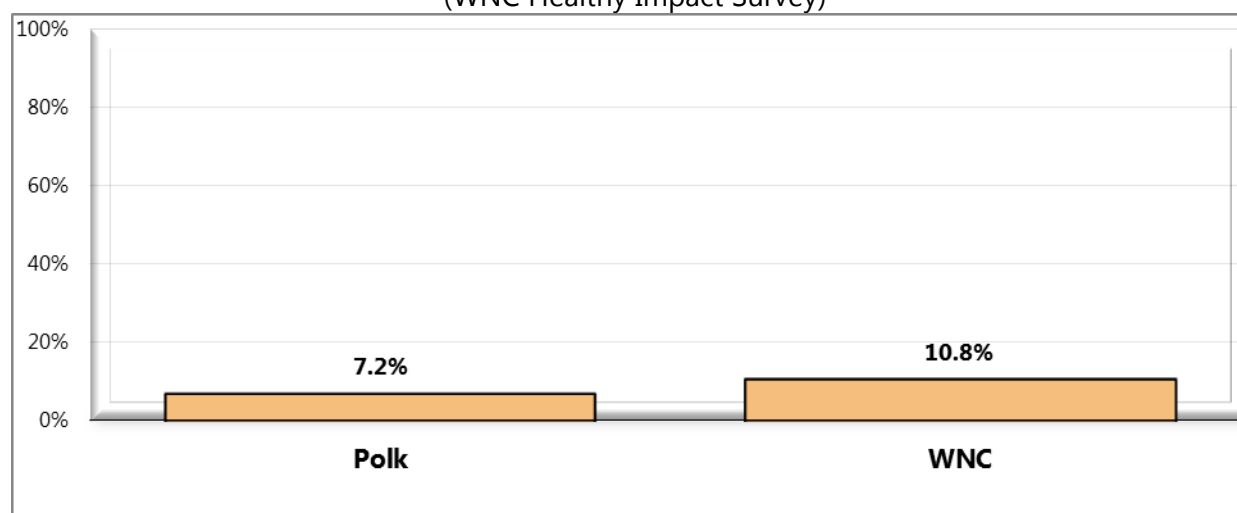
Access to health services means the timely use of personal health services to achieve the best health outcomes. It requires three distinct steps: 1) gaining entry into the health care system; 2) accessing a health care location where needed services are provided; and 3) finding a health care provider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

### *Self-Reported Access*

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

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

Figure 69. Was Unable to Get Needed Medical Care at Some Point in the Past Year  
(WNC Healthy Impact Survey)

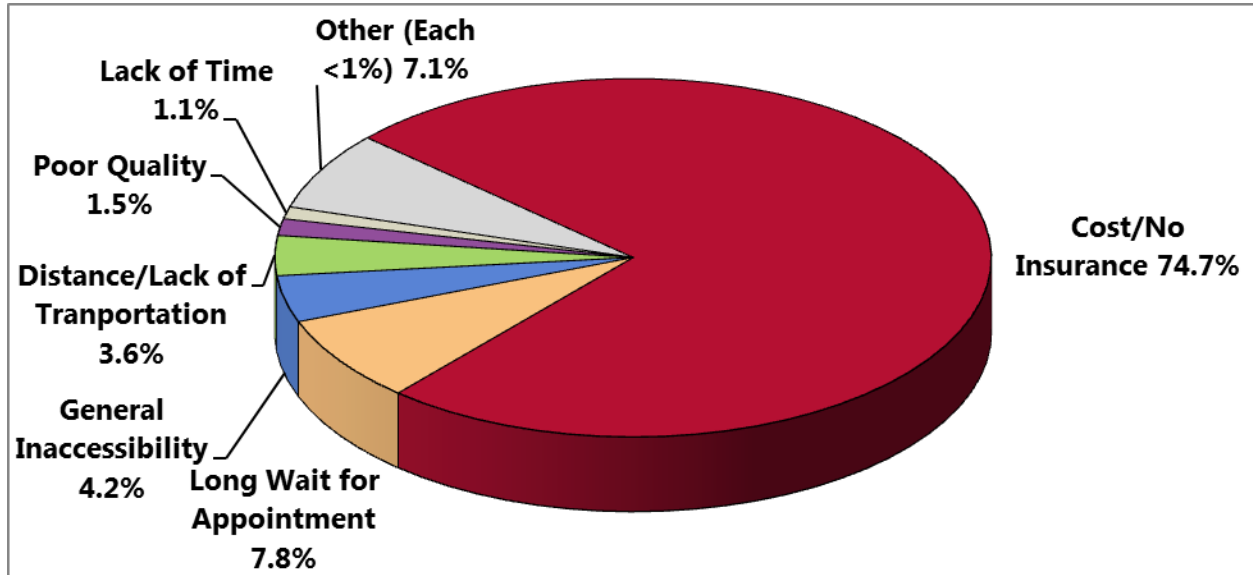


Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 13]

Notes: • Asked of all respondents.



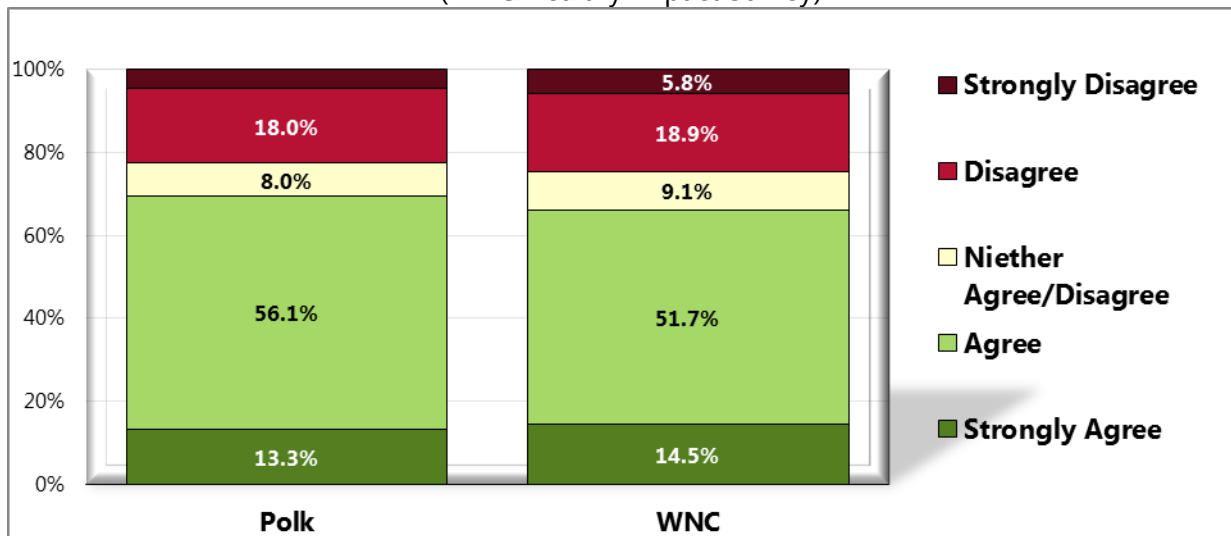
Figure 70. Primary Reason for Inability to Get Needed Medical Care (WNC Healthy Impact)  
(Adults Unable to Get Needed Medical Care at Some Point in the Past Year)  
(Western North Carolina, 2012)



Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 14]

Notes: • Asked of all respondents.

Figure 71. "Considering cost, quality, number of options  
And availability, there is good health care in my county  
(WNC Healthy Impact Survey)



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

## Health Care Providers

## Provider/Population Ratios

One way to judge the supply of health care providers in a jurisdiction is to calculate the ratio of the number of health professionals to the number of persons in the population of that jurisdiction. In NC, there is data on the ratio of active health professionals per 10,000 population calculated at the county level. Table 42 presents those data (which for simplicity's sake will be referred to simply as the "ratio") for Polk County, WNC, the state as a whole, and the US for five key categories of health care professionals: physicians, primary care physicians, dentists, registered nurses, and pharmacists. The years covered are 2008 and 2010.

According to this data, the ratio of professionals to population is lower in every category for Polk County than for WNC, NC or the US in both years except that the county ratio for primary care physicians was higher than the US ratio in 2010. It should be noted that the average ratios for WNC also are lower than the comparable state averages in every professional category listed in the table, and lower than the comparable national average in every professional category except primary care.

Table 42. Active Health Professionals per 10,000 Population (2008 and 2010)

Geography	2008					2010				
	Phys s	Primar y Care Phys	Dent s	RNs	Pharm s	Phys s	Primar y Care Phys	Dent s	RNs	Pharm s
Polk County	12.6	6.3	3.2	70.1	5.3	15.1	8.3	3.4	65.6	6.3
Regional Average	15.0	8.9	3.4	75.3	7.0	14.8	8.9	3.4	74.9	6.9
State Average	21.2	9.0	4.3	95.1	9.3	21.7	9.4	4.4	97.4	9.2
National Average	23.2 *	8.5*	4.9	91.4	8.0	22.7* *	8.2**	5.7	92.0	8.3

\* Data are for 2006

\*\* Data are for 2008

## *Providers by Specialty*

Table 43 lists the number of active health care professionals in Polk County and WNC, by specialty, for 2010. From these data it is apparent that there are several categories of professionals absent from Polk County, among them general practitioners, pediatricians, certified nurse midwives, and podiatrists. There also are three or fewer providers in the county in the specialties of obstetrics/gynecology, pediatrics, physician assistants, and psychological assistants.

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

<b>Category of Professionals</b>	<b>Polk County</b>	<b>WNC Total</b>
<b>Physicians</b>		
Primary Care Physicians	17	813
Family Practice	12	368
General Practice	0	10
Internal Medicine	4	240
Obstetrics/Gynecology	1	85
Pediatrics	0	110
Other Specialties	14	853
<b>Dentists and Dental Hygienists</b>		
Dentists	7	342
Dental Hygienists	7	479
<b>Nurses</b>		
Registered Nurses	135	7,981
Nurse Practitioners	8	316
Certified Nurse Midwives	0	28
Licensed Practical Nurses	51	1,854
<b>Other Health Professionals</b>		
Chiropractors	12	192
Occupational Therapists	5	242
Occupational Therapy Assistants	5	99
Optometrists	4	84
Pharmacists	13	669
Physical Therapists	9	511

Physical Therapy Assistants	12	309
Physician Assistants	3	290
Podiatrists	0	24
Practicing Psychologists	6	201
Psychological Assistants	1	87
Respiratory Therapists	8	370

### ***Uninsured Population***

Table 44 presents periodic two-year data on the proportion of the non-elderly population (ages 19-64) without health insurance of any kind. While there was a 21.0% increase in the percent of the uninsured at the state level from 2006-2007 to 2009-2010, the percent of uninsured adults in Polk County as well as WNC decreased from one two-year period to the next throughout the span of years shown in the table. In Polk County the decrease was 1.9%, and in WNC it was 5.9%.

Table 44. Estimated Percent Uninsured Adults, Ages 19-64  
Biennial Periods (2006-2007, 2008-2009, and 2009-2010)

<b>Geography</b>	<b>Percent Uninsured</b>		
	<b>2006-2007</b>	<b>2008-2009</b>	<b>2009-2010</b>
Polk County	21.2	21.0	20.8
Regional Arithmetic Mean	23.4	22.3	22.0
State Total	19.5	23.2	23.6

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

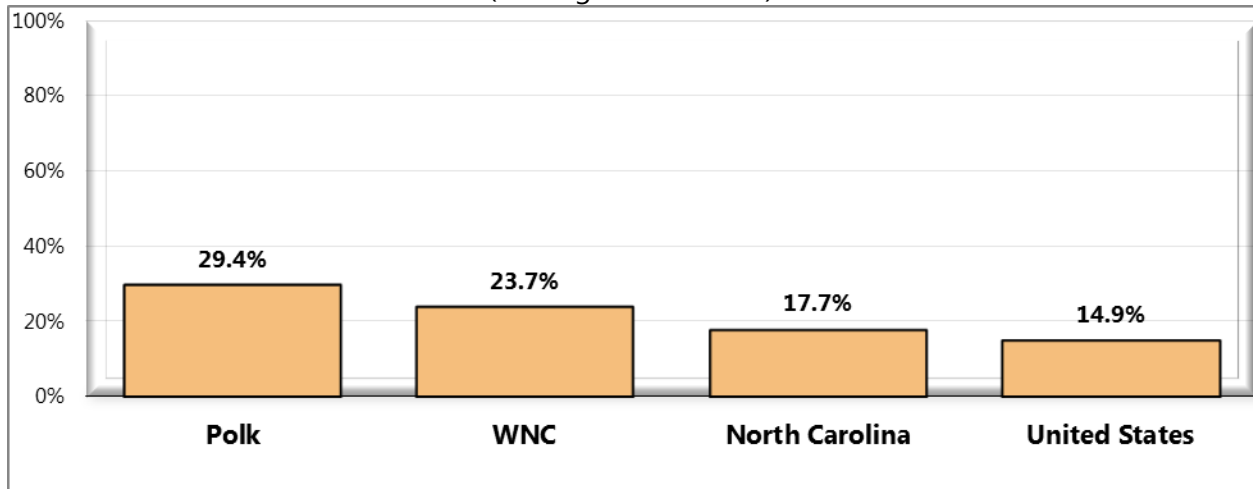
Table 45. Estimated Percent Uninsured, All Ages  
(2009-2010)

<b>Geography</b>	<b>2009-2010</b>		
	<b>Children (0-18)</b>	<b>Adults (19-64)</b>	<b>Total (0-64)</b>
Polk County	9.8	20.8	17.8

Regional Arithmetic Mean	9.6	22.0	18.6
State Total	10.3	23.6	19.6

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

Figure 72. Lack of Healthcare Insurance Coverage (WNC Healthy Impact Survey)  
(Among Adults 18-64)



Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 125]  
 • Behavioral Risk Factor Surveillance System Survey Data. Atlanta, Georgia. United States Department of Health and Human Services, Centers for Disease Control and Prevention (CDC): 2010 North Carolina data.  
 • 2011 PRC National Health Survey, Professional Research Consultants, Inc.  
 • US Department of Health and Human Services. Healthy People 2020. December 2010. <http://www.healthypeople.gov> [Objective AHS-1]  
 Notes: • Reflects adults under the age of 65.  
 • Includes any type of insurance, such as traditional health insurance, prepaid plans such as HMOs, or government-sponsored coverage (e.g., Medicare, Medicaid, Indian Health Services, etc.).

### *Medicaid Eligibility*

Table 46 presents trend data on the number and percent of persons eligible for Medicaid for several state fiscal years. This data demonstrates that in Polk County the number and percent of Medicaid-eligible persons have mostly risen since SFY2004. Nevertheless, the percent of Medicaid-eligible Polk 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 46. Number and Percent of Population Medicaid-Eligible  
(SFY2004 through SFY2008)

Geography	SFY 2004		SFY 2005		SFY 2006		SFY 2007		SFY 2008	
	#	%	#	%	#	%	#	%	#	%
Polk County	2,551	13.50	2,723	14.36	2,854	15.02	2,802	14.69	2,918	15.33
Regional Total	128,727	-	132,895	-	138,616	-	139,891	-	142,606	-
Regional Arithmetic Mean	16,091	19.90	16,612	20.21	17,327	20.75	17,486	20.52	17,826	20.82
State Total	1,512,360	17.97	1,563,751	18.31	1,602,645	18.46	1,682,028	18.98	1,726,412	19.04

## Screening and Prevention

## Diabetes

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

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

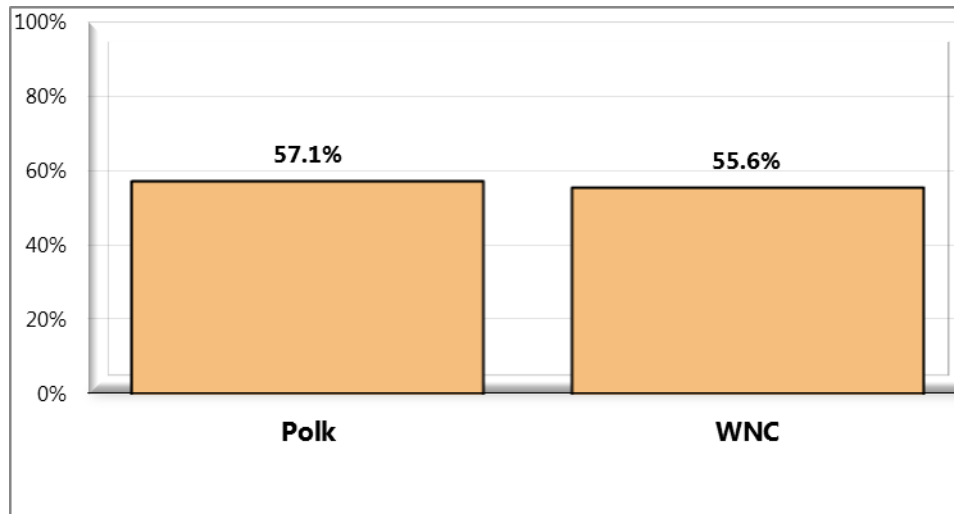
Lowers life expectancy by up to 15 years.

Increases the risk of heart disease by 2 to 4 times.

Is the leading cause of kidney failure, lower limb amputations, and adult-onset blindness.

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

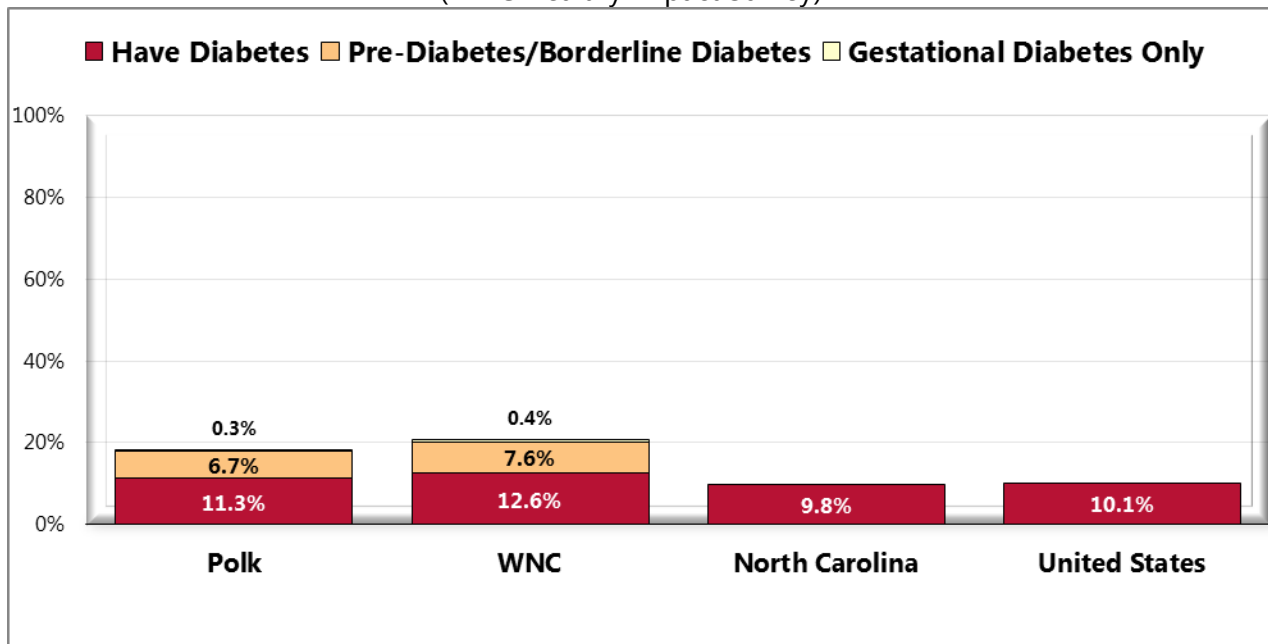
Figure 73. Tested for Diabetes in the Past Three Years (WNC Healthy Impact Survey)  
(Among Adults Who Have Not Been Diagnosed With Diabetes)



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



Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 78]

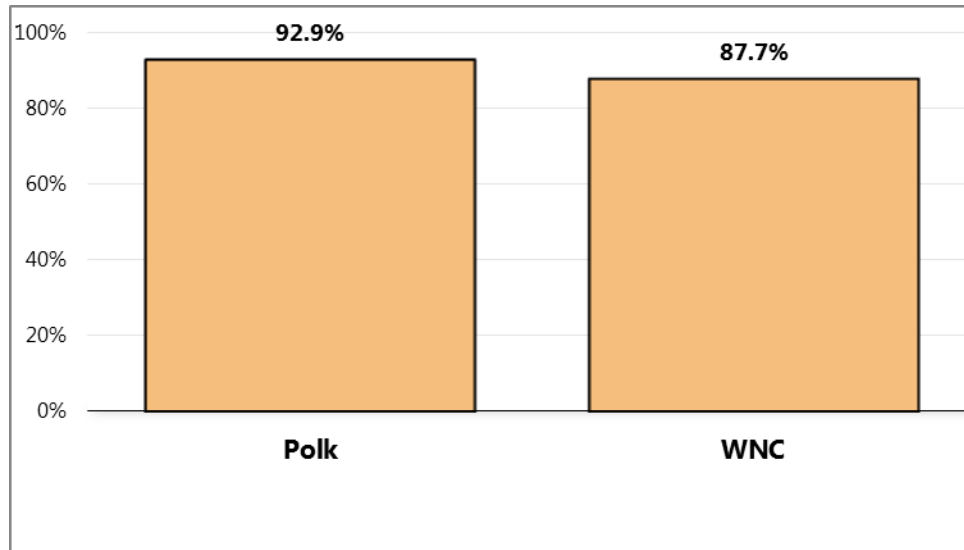
• 2011 PRC National Health Survey, Professional Research Consultants, Inc.  
• Behavioral Risk Factor Surveillance System Survey Data. Atlanta, Georgia. United States Department of Health and Human Services, Centers for Disease Control and Prevention (CDC); 2010 North Carolina data.

Notes: • Asked of all respondents.

• Local and national data exclude gestation diabetes (occurring only during pregnancy).



Figure 75. Taking Action to Control Diabetes or Prediabetes (WNC Healthy Impact Survey)  
(Among Adults Diagnosed with Diabetes or Prediabetes/Borderline Diabetes)



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

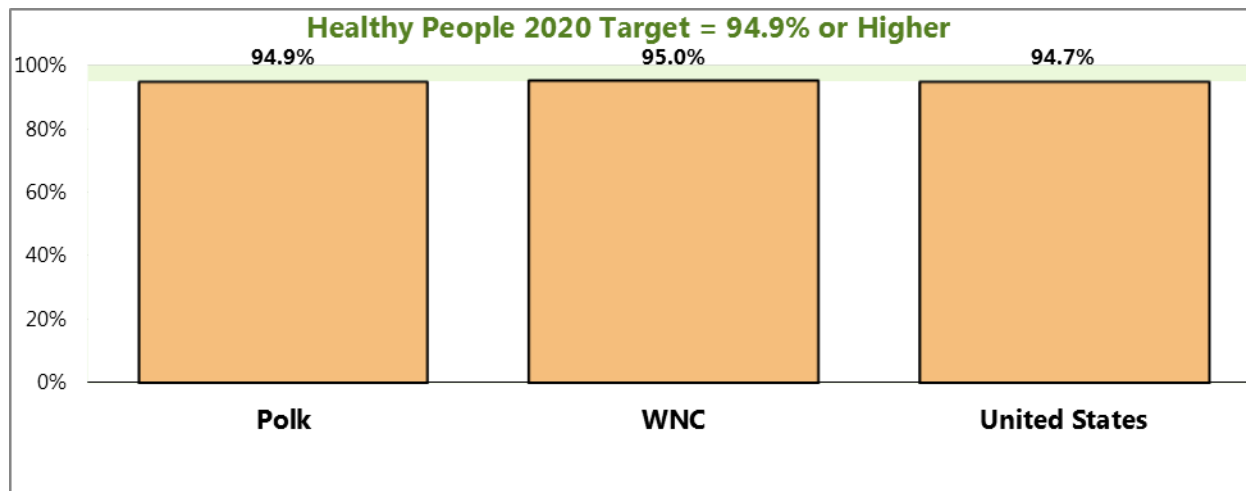
Notes: • Asked of respondents who have been diagnosed with diabetes or prediabetes/borderline diabetes.

- In this case, the term “action” refers to taking natural or conventional medicines or supplements, diet modification, or exercising.

## *Hypertension*

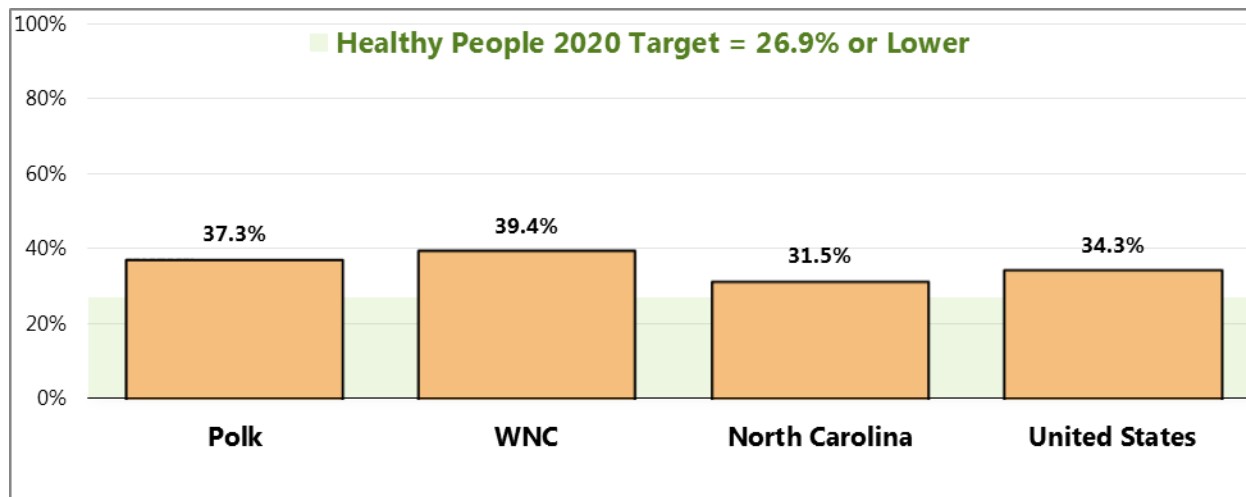
Controlling risk factors for heart disease and stroke remains a challenge. High blood pressure is still a major contributor to the national epidemic of cardiovascular disease. High blood pressure affects approximately 1 in 3 adults in the United States, and more than half of Americans with high blood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

Figure 76. Have Had Blood Pressure Checked in the Past Two Years  
(WNC Healthy Impact Survey)



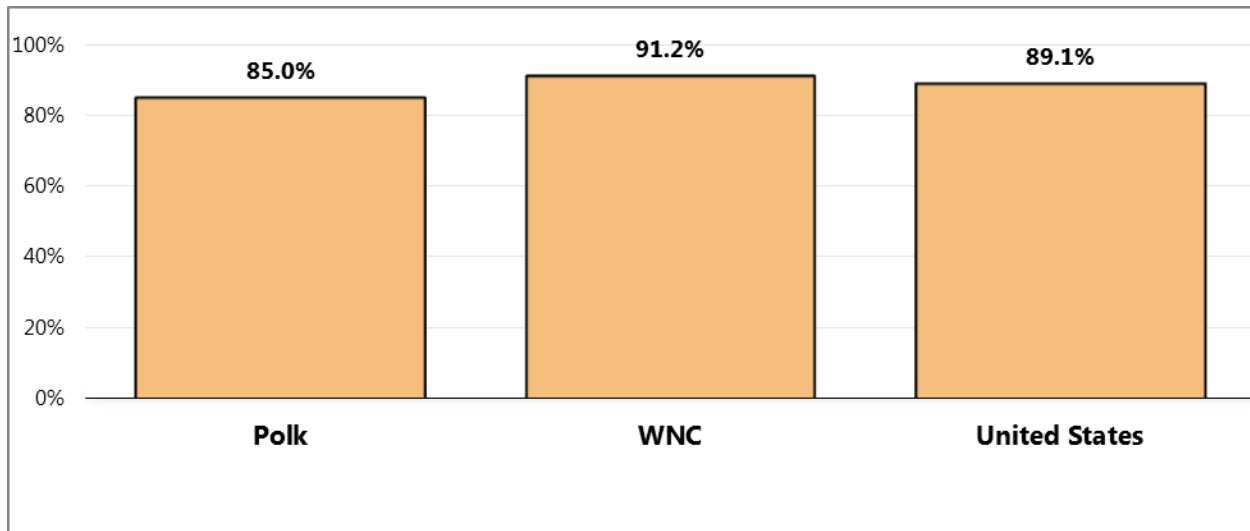
Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 24]  
 • 2011 PRC National Health Survey, Professional Research Consultants, Inc.  
 • US Department of Health and Human Services. Healthy People 2020. December 2010.  
<http://www.healthypeople.gov> [Objective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

Figure 77. 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 78. 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.

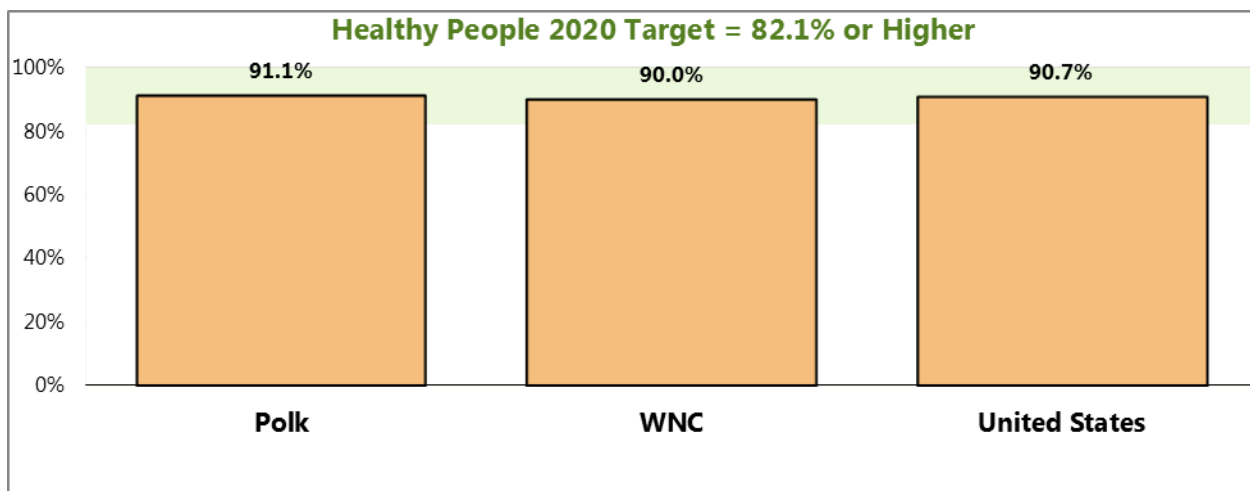
Notes: • Asked of respondents who have been diagnosed with high blood pressure.

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

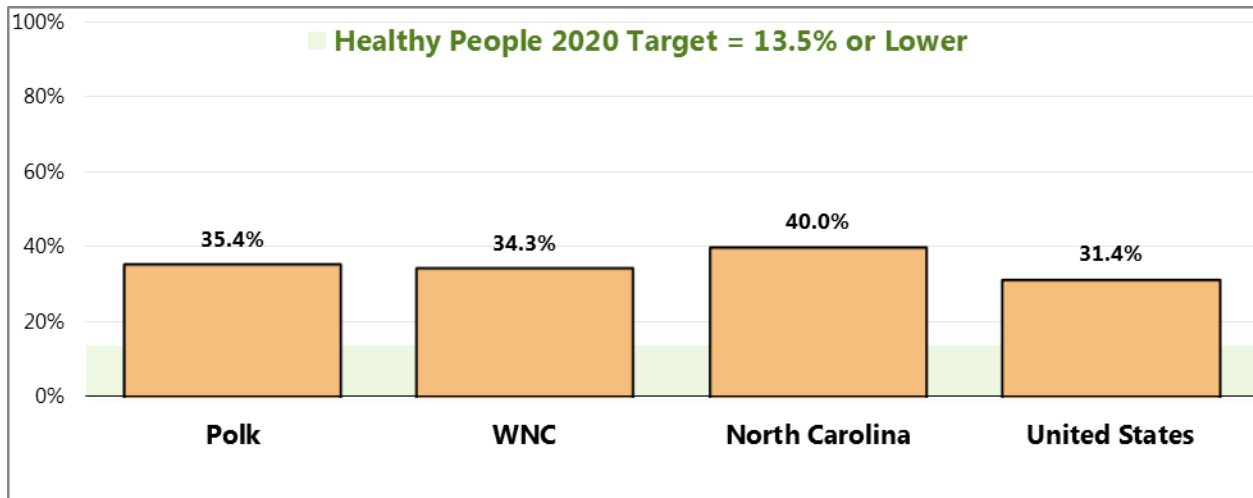


Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 27]

- 2011 PRC National Health Survey, Professional Research Consultants, Inc.

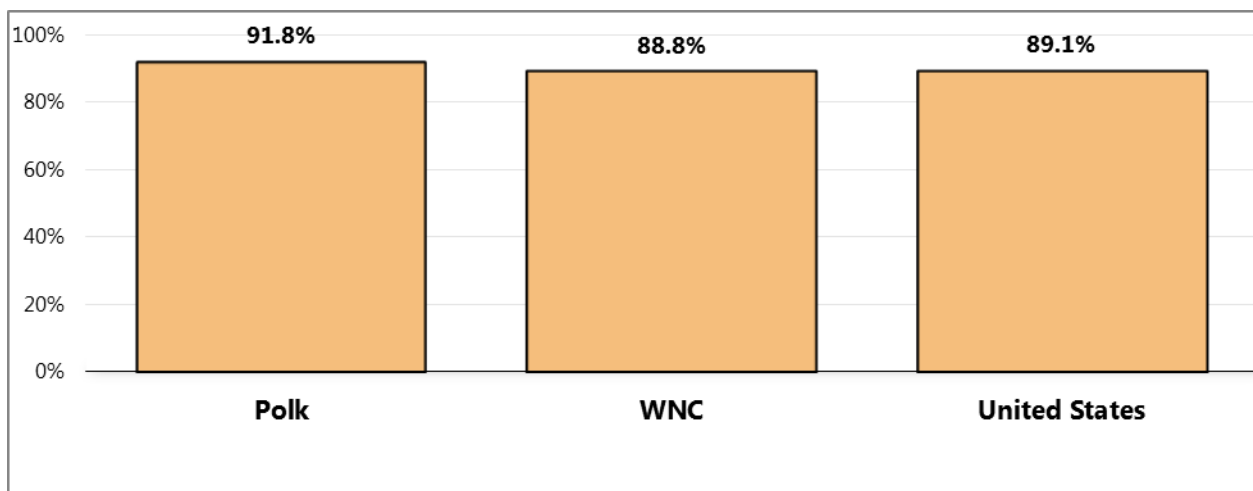
- US Department of Health and Human Services. Healthy People 2020. December 2010.  
<http://www.healthypeople.gov> [Objective HDS-6]
- Notes: • Asked of all respondents.

Figure 80. 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 81. Taking Action to Control High Blood Cholesterol (WNC Healthy Impact Survey)  
(Among Adults With High Blood Pressure)



- Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 26]
- 2011 PRC National Health Survey, Professional Research Consultants, Inc.
- Notes: • Asked of respondents who have been diagnosed with high blood cholesterol.

- In this case, the term “action” refers to medication, change in diet, and/or exercise.

## Healthcare Utilization

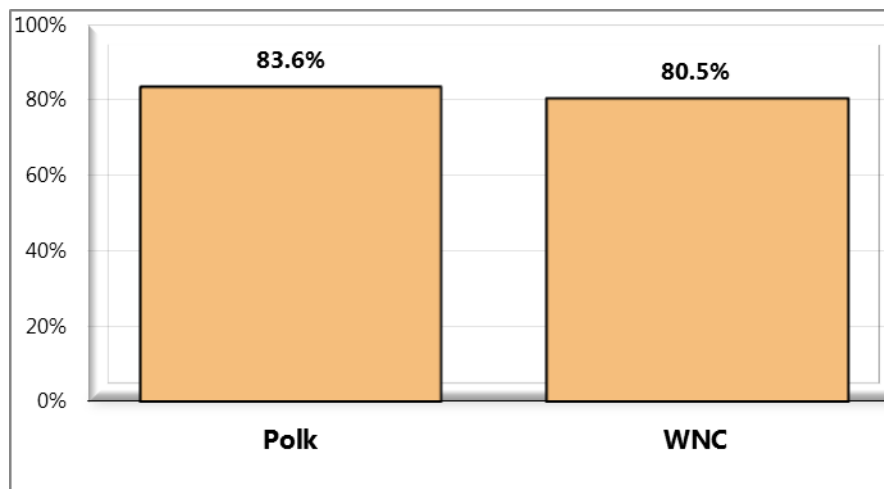
### Routine Medical Care

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

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

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

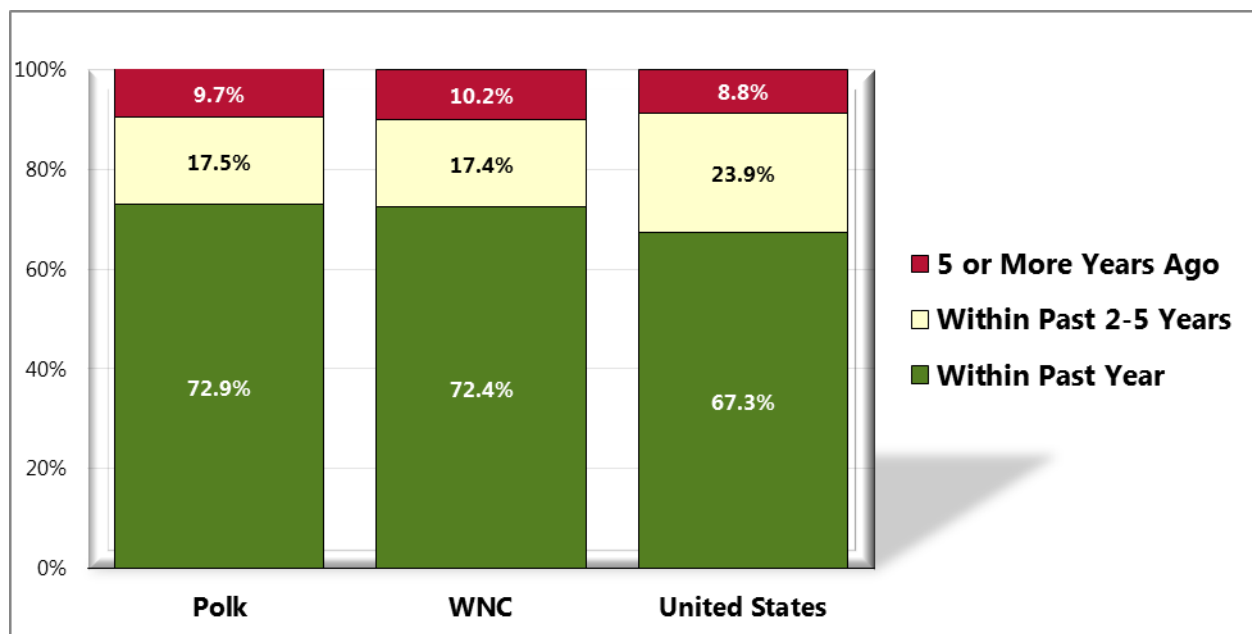
Figure 82. Have One Person Thought of as Respondent’s Personal Doctor or Health Care Provider (WNC Healthy Impact Survey)



Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 16]

Notes: • Asked of all respondents.

Figure 83. Length of Time Since Last Routine Check-Up (WNC Healthy Impact Survey)



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

- 2011 PRC National Health Survey, Professional Research Consultants, Inc.

Notes: • Asked of all respondents.

### *Emergency Department Utilization*

According to data in Table 47, the diagnoses associated with the highest frequency of emergency department visits in Polk County in 2010 were chest pain/ischemic heart disease (9.68% of all ED visits), followed by psychiatric disorders (8.59%) and lower respiratory disorders (7.21%). On the regional level, the diagnoses associated with the highest frequency of ED visits were chest pain/ischemic heart disease (11.83% of all ED visits), followed by psychiatric disorders (10.98%) and lower respiratory disorders (9.48%)

Table 47. North Carolina Emergency Department Visits, NC DETECT Data (2010)

Diagnosis	Polk County		WNC Mean
	#	%	%
Chest pain/ischemic heart disease	462	9.68	11.83
Heart failure	86	1.80	2.58
Cardiac arrest	S	S	0.14
Lower respiratory disorders	344	7.21	9.48
Diabetes	255	5.34	8.80
Neoplasms	63	1.32	1.57
Dental problems	97	2.03	1.85
Stroke/TIA	17	0.36	0.62
Traumatic brain injury	18	0.38	0.30
Psychiatric disorders	410	8.59	10.98
Substance abuse	128	2.68	2.99
Total ED Visits	4,771	n/a	n/a

\* % represents percent of total ED visits

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

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

Table 48 presents a summary of the major first-listed emergency department diagnoses for the WNC region according to DRG code. According to this data, the most common first-listed diagnosis codes in emergency departments across the region are abdominal pain (2.37% of all ED visits) and back pain, sprains of the lumbar 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 48. Most Common First-Listed Diagnosis Codes in Emergency Departments, WNC  
NC DETECT Data  
2010

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

### *Inpatient Hospitalizations*

Table 49 lists the diagnostic categories accounting for the most cases of inpatient hospitalization for 2010. The source data is based on a patient's county of residence, so the regional totals presented in the table represent the sum of hospitalizations from each of the 16 WNC counties.



According to data in Table 49, the diagnosis resulting in the highest number of cases of hospitalization in 2010 among Polk County residents was cardiovascular and circulatory diseases (including heart disease and cerebrovascular disease), which accounted for 248 hospitalizations. The next highest number of hospitalizations was for respiratory diseases, including pneumonia/influenza and chronic obstructive pulmonary disease (191 cases), followed by digestive system diseases, including chronic liver disease and cirrhosis (182 cases).

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

Diagnostic Category	Total # Cases		
	Polk County	Region	North Carolina
INFECTIOUS & PARASITIC DISEASES	46	2,741	41,705
-- Septicemia	34	1,604	27,412
-- AIDS	n/a	41	1,456
MALIGNANT NEOPLASMS	47	2,599	31,225
-- Colon, Rectum, Anus	10	324	3,770
-- Trachea, Bronchus, Lung	7	346	4,541
-- Female Breast	3	157	1,498
-- Prostate	1	192	2,505
BENIGN, UNCERTAIN & OTHER NEOPLASMS	12	650	8,948
ENDOCRINE, METABOLIC & NUTRITIONAL DISEASES	62	2,905	40,208
-- Diabetes	23	1,240	18,101
BLOOD & HEMOPOETIC TISSUE DISEASES	25	770	14,011
NERVOUS SYSTEM & SENSE ORGAN DISEASES	23	1,597	19,315
CARDIOVASCULAR & CIRCULATORY DISEASES	248	12,961	162,327
-- Heart Disease	180	9,006	108,060
-- Cerebrovascular Disease	38	2,259	29,429
RESPIRATORY DISEASES	191	8,683	93,891
-- Pneumonia/Influenza	88	3,089	29,852
-- Chronic Obstructive Pulmonary Disease	49	2,557	30,832
DIGESTIVE SYSTEM DISEASES	182	8,527	95,068
-- Chronic Liver Disease/Cirrhosis	2	178	2,361
GENITOURINARY DISEASES	109	4,123	45,978
-- Nephritis, Nephrosis, Nephrotic Synd.	11	1,036	14,368
PREGNANCY & CHILDBIRTH	123	7,921	125,271
SKIN & SUBCUTANEOUS TISSUE DISEASES	49	1,287	17,734
MUSCULOSKELETAL SYSTEM DISEASES	157	5,950	58,753
-- Arthropathies and Related Disorders	95	3,155	30,683
CONGENITAL MALFORMATIONS	3	294	3,318
PERINATAL COMPLICATIONS	5	198	4,035
SYMPTOMS, SIGNS & ILL-DEFINED CONDITIONS	79	3,916	48,299
INJURIES & POISONING	125	7,474	78,637
OTHER DIAGNOSES (INCL. MENTAL DISORDERS)	107	7,329	84,657
ALL CONDITIONS	1,593	79,925	973,380

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

## Dental Services

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

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

- Tobacco use
- Excessive alcohol use
- Poor dietary choices

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

### Utilization of Dental Services by the Medicaid Population

Table 50 presents data on the percent of the Medicaid population eligible for dental care that utilizes it. This data represents the Medicaid population of all ages, but split into under-age-21 and age-21-and over-categories. In all three jurisdictions the Medicaid population under age 21 appears to be more likely to utilize dental services than the population age 21 and older.

Table 50. Medicaid Recipients Receiving Dental Services, All Ages (2010)

Geography	Medicaid Recipients Utilizing Dental Services (by Ages Group)					
	<21 Years Old			21+ Years Old		
	# Eligible for Services	# Receiving Services	% Eligibles Receiving Services	# Eligible for Services	# Receiving Services	% Eligibles Receiving

						<b>Services</b>
Polk County	1,869	1,069	57.2	1,299	397	30.6
Regional Total	85,652	42,135	49.2	62,817	18,536	29.5
State Total	1,113,692	541,210	48.6	679,139	214,786	31.6

Table 51, focusing only on children ages 1-5, helps in understanding why utilization in the under 21 age group is so high. In this youngest age group, half or more of the eligible population received dental services in all three jurisdictions.

Table 51. Medicaid-Recipients Receiving Dental Services, Ages 1-5 (2010)

<b>Geography</b>	<b>Children (aged 1-5) Enrolled in Medicaid Who Received Any Dental Service In the Previous 12 Months)</b>		
	<b># Eligible for Services*</b>	<b># Receiving Services**</b>	<b>% Eligibles Receiving Services</b>
Polk County	560	369	65.9
Regional Total	26,820	14,407	53.7
State Total	n/a	n/a	51.7

### *Dental Screening Results among Children*

Table 52 presents 2009 dental screening results for kindergarteners. While the screening process captures other data, this data covers only the average number of decayed, missing or filled teeth. The average number of decayed, missing or filled teeth discovered among kindergarteners screened in Polk County (3.00 per child) was 38% higher than the mean percentage for WNC (2.18) and 100% higher than the state average (1.50).

Table 52. Dental Screening Results, Kindergarteners (2009)

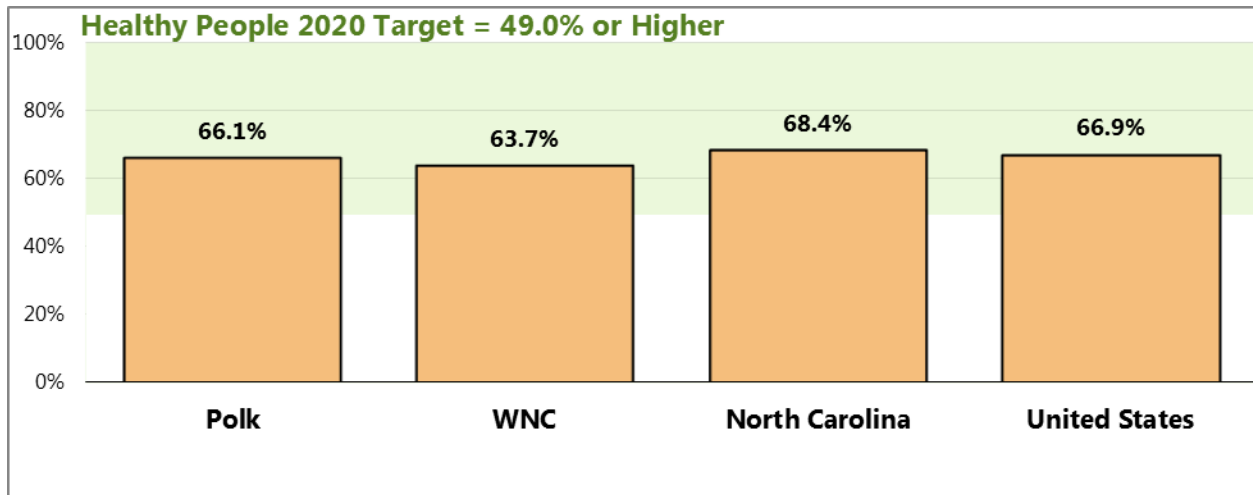
<b>Geography</b>	<b>Average # Decayed, Missing or Filled Teeth</b>

Polk County	3.00
Regional Arithmetic Mean	2.18
State Total	1.50

### *Utilization of Preventive Dental Care*

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

Figure 84. 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 11<sup>th</sup> leading cause of death in the United States, accounting for the deaths of approximately 30,000 Americans each year.

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

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

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

### *Mental Health Service Utilization Trends*

Table 53 presents figures on the numbers of persons receiving services in Area Mental Health Programs in 2006 through 2010. No clear pattern of service utilization is apparent from this data in any of the three jurisdictions. It should be noted that the mental health system in NC is in some disarray, as reform of the recent past is being reconsidered.

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

<b>Geography</b>	<b># Persons Served in Area Mental Health Programs</b>				
	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
Polk County	691	538	370	484	663
Regional Total	30,952	31,271	28,380	24,527	28,453
State Total	322,397	315,338	306,907	309,155	332,796

Table 54 presents figures on the numbers of persons receiving services in NC state alcohol and drug treatment centers. Although the pattern of increase is not straight-line, it appears that increasing numbers of persons in WNC have received services from NC state alcohol and drug treatment centers since 2007. Noteworthy at the regional level was a 23% increase in persons being served between 2009 and 2010. There was no clear pattern discernible in the data for Polk County other than small numbers.





Table 54. Persons Served in NC State Alcohol and Drug Treatment Centers (2006-2010)

<b>Geography</b>	<b># Persons Served in NC Alcohol and Drug Treatment Centers</b>				
	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
Polk County	11	10	4	6	7
Regional Total	664	604	774	751	921
State Total	4,003	3,733	4284	4,812	4,483

Table 55 presents figures on the numbers of persons receiving services in NC state psychiatric hospitals. The number of persons in Polk County utilizing these services fell every year from 2006 to 2010, decreasing by 50% over the period. The number of persons in WNC receiving these services also fell. The number of persons in WNC utilizing state psychiatric hospital services in 2010 (564) was 63% lower than the number utilizing services in 2006 (1,509). The decrease in persons receiving services likely is a reflection of a decreasing availability of state services, rather than a decreasing need for services.

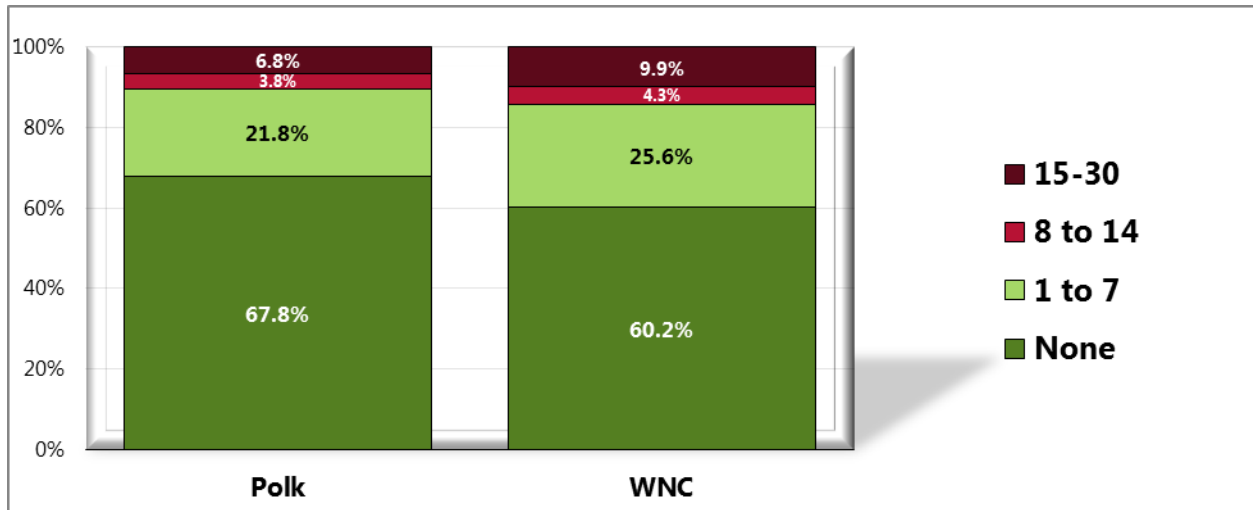
Table 55. Persons Served in NC State Psychiatric Hospitals (2006-2010)

<b>Geography</b>	<b># Persons Served in NC State Psychiatric Hospitals</b>				
	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
Polk County	22	20	14	15	11
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?"

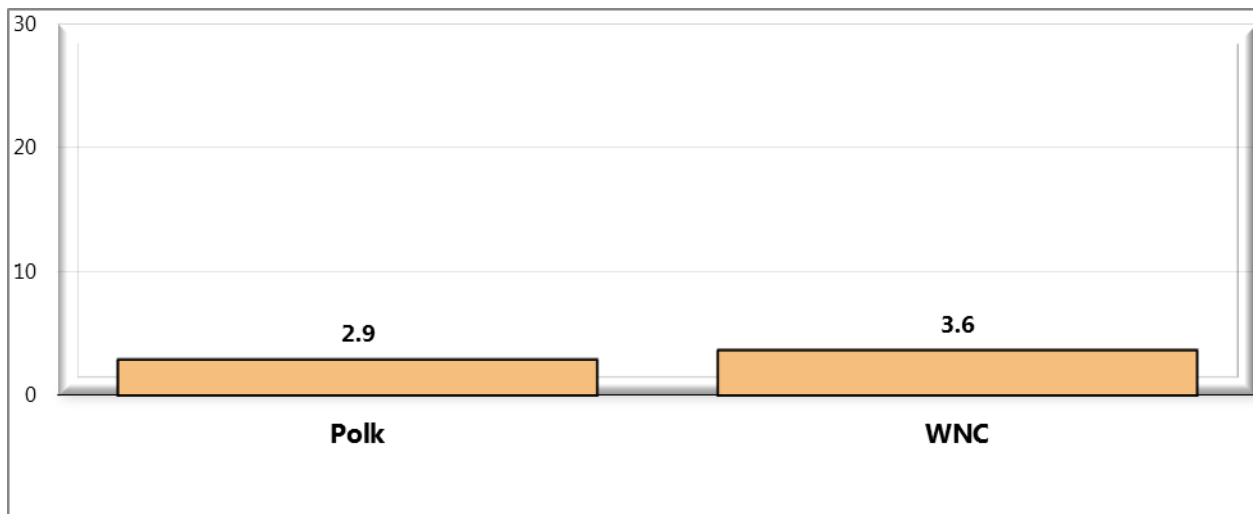
Figure 85. Number of Days in the Past 30 Days on Which Mental Health Was Not Good (WNC Healthy Impact Survey)



Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 64]

Notes: • Asked of all respondents.

Figure 86. 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: •

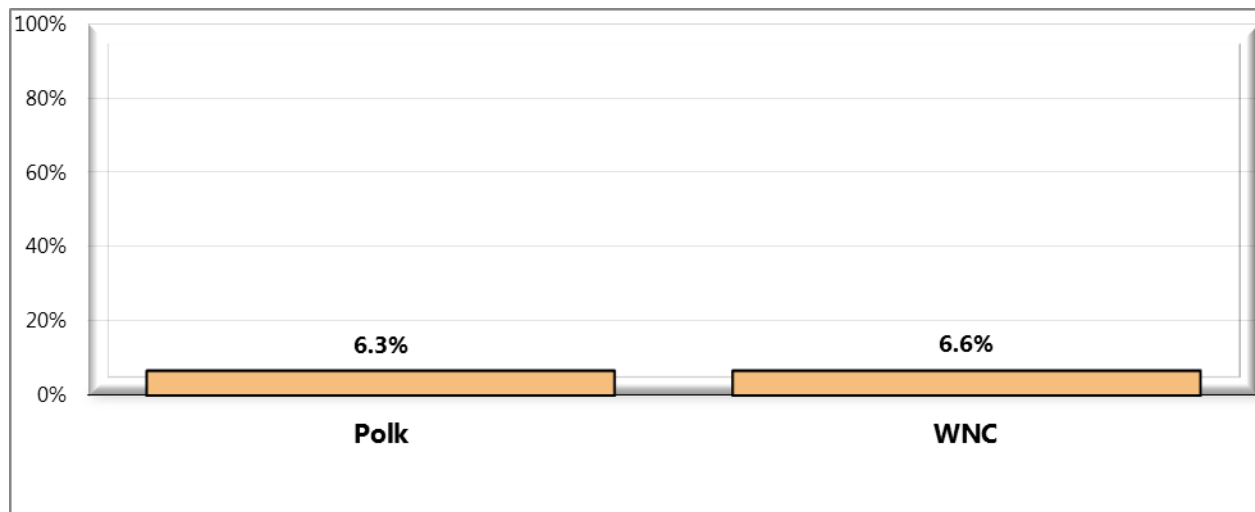
Asked of all respondents.

### *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

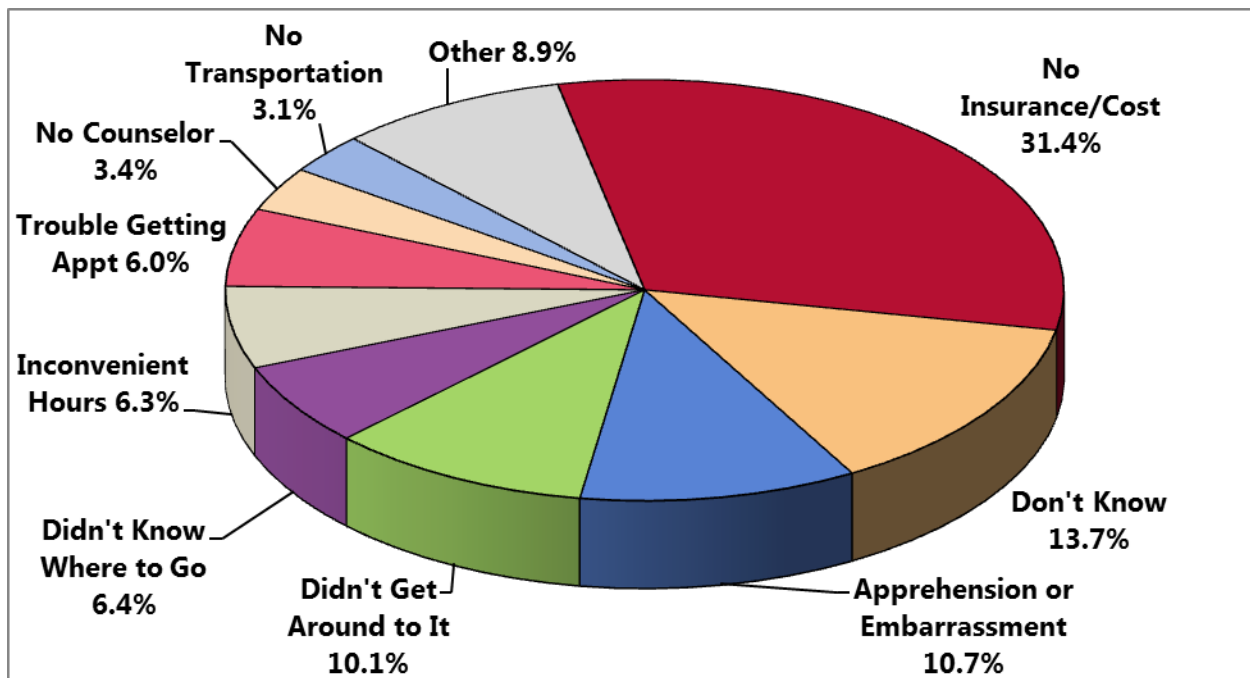
asked to name the main reason they did not get mental health care or counseling. Due to small county-level sample sizes, responses to the latter question are displayed below for the region.

Figure 87. 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 88. Primary Reason for Inability to Access Mental Health Services (WNC Healthy Impact Survey) (Adults Unable to Get Needed Mental Health Care in the Past Year) (Western North Carolina, 2012)

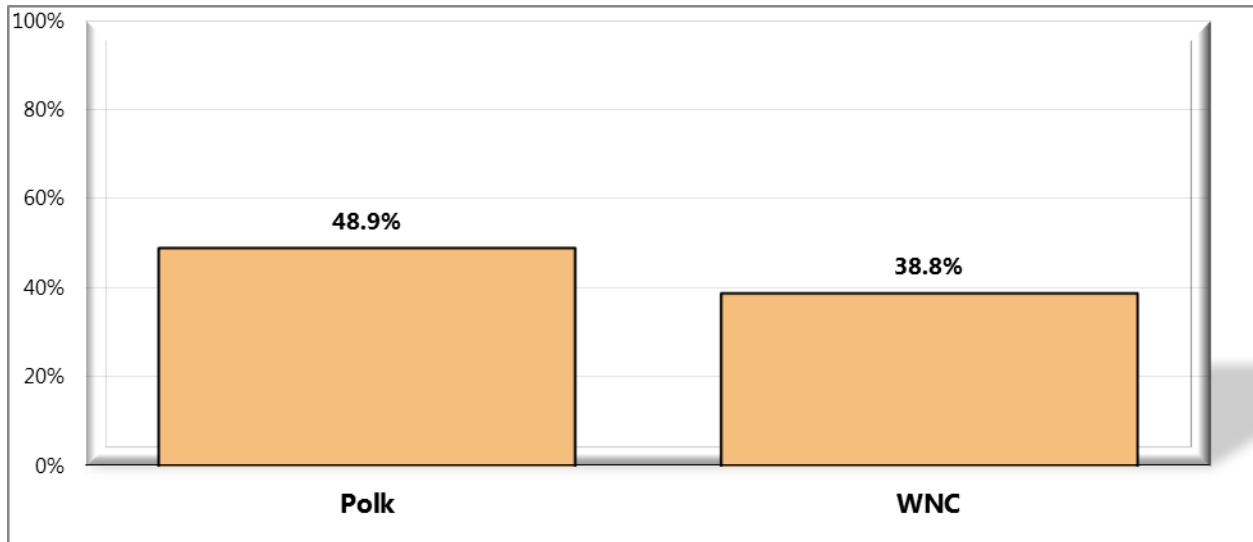


Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 66] Notes: • Asked of those respondents who were unable to get needed mental health care in the past year.

### ***Advance Directives***

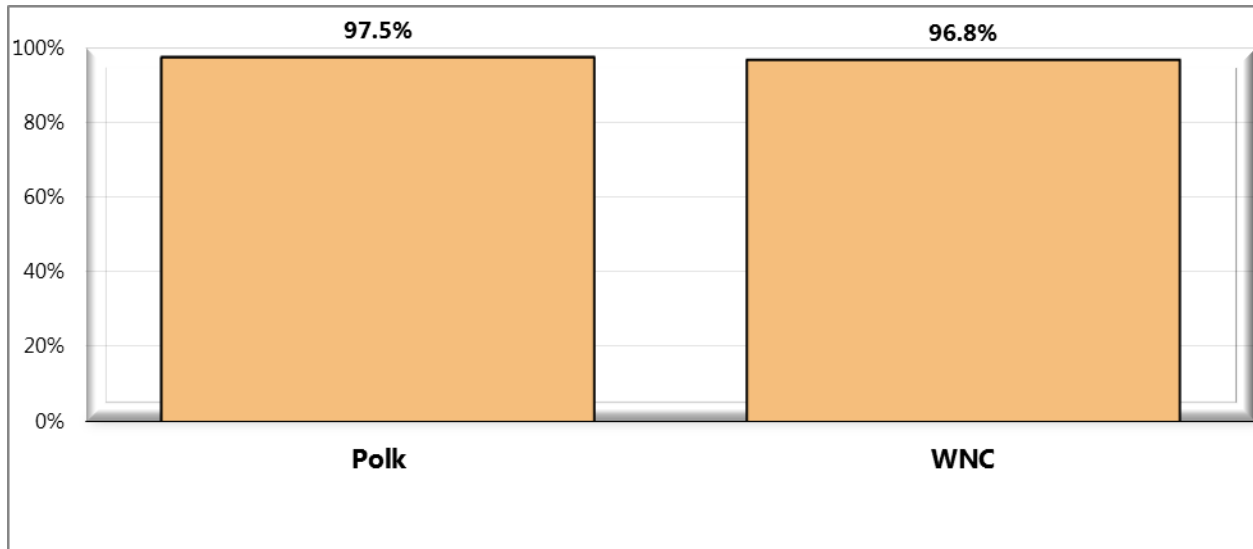
An Advance Directive is a set of directions given about the medical care a person wants if he/she ever loses the ability to make decisions for him/herself. Formal Advance Directives include Living Wills and Healthcare Powers of Attorney. Survey respondents were asked whether they have any completed Advance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

Figure 89. 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 90. Have Communicated Health Care Decisions to Family or Doctor  
(WNC Healthy Impact Survey)  
(Among Respondents with Advance Directive Documents)

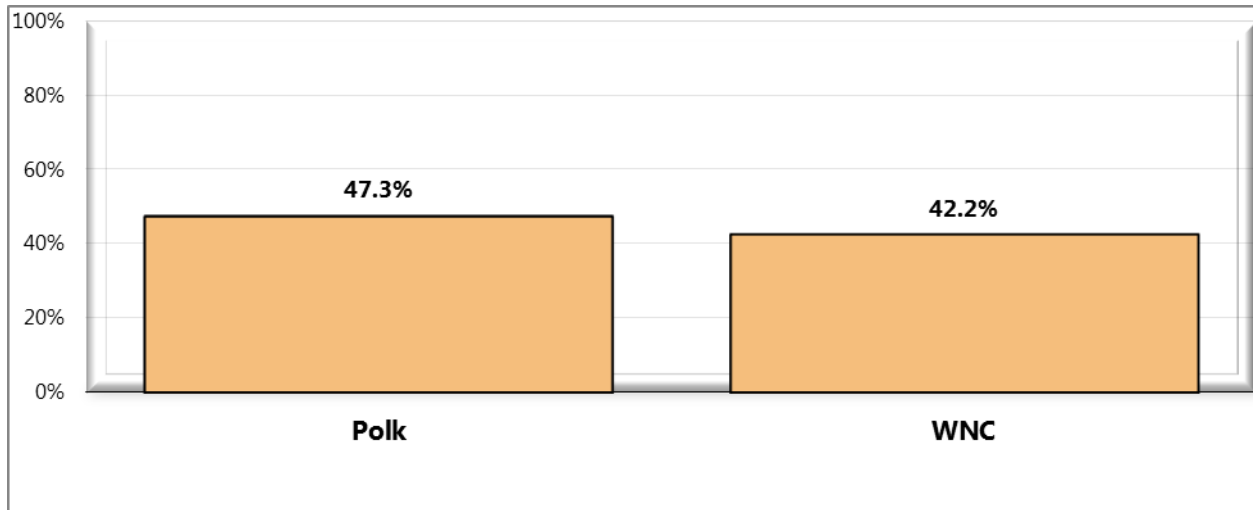


Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 35] Notes: •  
Asked of respondents with completed advance directive documents.

### ***Care-giving***

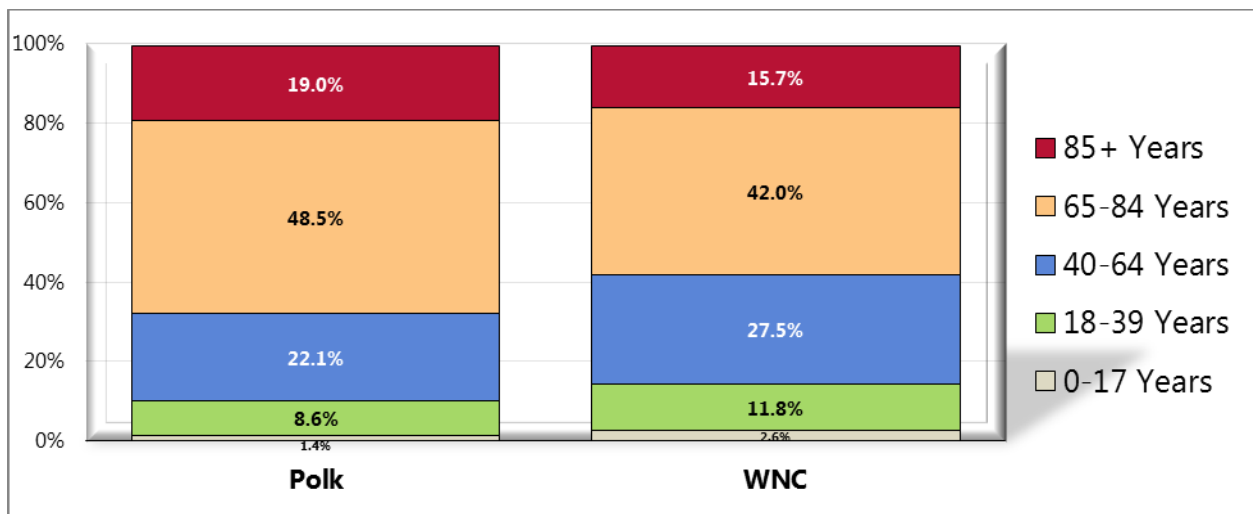
People may provide regular care or assistance to a friend or family member who has a health problem, long-term illness, or disability. Respondents were asked, "During the past month, did you provide any such care or assistance to a friend or family member?" Those who answered, "yes," were asked for the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

Figure 91. 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 92. Age of Person for Whom Respondent Provides Care (WNC Healthy Impact Survey)  
(Among Respondents Acting as a Caregiver for a Friend/Family Member)



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

Table 56. Primary Health Issue of Person for Whom  
Respondent Provides Care (WNC Healthy Impact Survey)  
(Among Respondents Acting as a Caregiver for a Friend/Family Member)

	<b>Aging</b>	<b>Alzheimers /Dementia</b>	<b>Cancer</b>	<b>Diabetes</b>	<b>Emotional/ Mental</b>	<b>Heart Disease</b>	<b>Stroke</b>	<b>Other (Each &lt;4%)</b>	<b>Don't Know/Not Sure</b>
Polk	10.2%	10.9%	7.7%	8.0%	0.0%	9.2%	3.9%	38.5%	11.6%
WNC	7.9%	8.4%	8.6%	4.3%	4.8%	7.4%	4.9%	46.3%	7.4%

Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc.  
[Item 71]

Notes: • Asked of respondents acting as a caregiver for a friend or family member.

Table 57. Primary Type of Assistance Needed by  
Person for Whom Respondent Provides Care (WNC Healthy Impact Survey)  
(Among Respondents Acting as a Caregiver for a Friend/Family Member)

	<b>Other (Each &lt;2%)</b>	<b>Learning/ Remembering</b>	<b>Communi- cating</b>	<b>Moving Around the Home</b>	<b>Taking Care of Living Space</b>	<b>Taking Care of Self</b>	<b>Help with Anxiety/ Depression</b>	<b>Transportation Outside Home</b>
Polk	0.0%	6.8%	2.5%	3.6%	20.3%	9.2%	23.1%	34.5%
WNC	2.0%	3.8%	3.9%	6.3%	18.5%	20.1%	20.9%	24.5%

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



## Chapter 6 – Physical Environment

### ***Air Quality***

#### *Outdoor Air Quality*

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

The EPA categorizes outdoor air pollutants as “criteria air pollutants” (CAPs) and “hazardous air pollutants” (HAPs). Criteria air pollutants (CAPS), which are covered in this report, are six chemicals that can injure human health, harm the environment, or cause property damage: carbon monoxide, lead, nitrogen oxides, particulate matter, ozone, and sulfur dioxide. The EPA has established National Ambient Air Quality Standards (NAAQS) that define the maximum legally allowable concentration for each CAP, above which human health may suffer adverse effects (US Environmental Protection Agency, 2012).

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

The AQI is an information tool to advise the public. The AQI describes the general health effects associated with different pollution levels, and public AQI alerts (often heard as part of local weather reports) include precautionary steps that may be necessary for certain segments of the population when air pollution levels rise into the unhealthy range. The AQI measures concentrations of five of the six criteria air pollutants and converts the measures to a number on a scale of 0-500, with 100 representing the NAAQS standard. An AQI level in excess of 100 on a given day means that a pollutant is in the unhealthy range that day; an AQI level at or below 100 means a pollutant is in the “satisfactory” range (AIRNow, 2011). Table 58 defines the AQI levels.

Table 58. General Health Effects and Cautionary Statements, Air Quality Index

Index Value	Descriptor	Color Code	Meaning
Up to 50	Good	Green	Air quality is satisfactory, and air pollution poses little or no risk.
51 to 100	Moderate	Yellow	Air quality is acceptable; however, for some pollutants there may be a moderate health 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 Polk County is not among the monitored counties. The WNC figures presented in Tables 59 and 60 below represent the arithmetic means of the values for those nine counties. Data in Table 59 shows that there were no days rated “very unhealthy” or “unhealthy” in 2011, and only one day was rated “unhealthy for sensitive groups”. Of the 2011 mean of 275 days in WNC with an assigned AQI, 227 had “good” air quality and 47 had “moderate” air quality.

Table 59. Air Quality Index Summary, WNC (2011)

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

Table 60 lists the pollutants causing the air quality deficiencies. This data shows that in WNC in 2011 the primary air pollutants were ozone (O<sub>3</sub>) and small particulate matter (PM<sub>2.5</sub>).

Ozone, the major component of smog, is not usually emitted directly but rather formed through chemical reactions in the atmosphere. Peak O<sub>3</sub> levels typically occur during the warmer and sunnier times of the day and year. The potential health effects of ozone include damage to lung tissues, reduction of lung function and sensitization of lungs to other irritants (Scorecard, 2011).

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

Table 60. CAPs Causing Air Quality Problems, WNC (2011)

Geography	No. Days with AQI	Number of Days When Air Pollutant Was:					
		CO	NO <sub>2</sub>	O <sub>3</sub>	SO <sub>2</sub>	PM <sub>2.5</sub>	PM <sub>10</sub>
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 21<sup>st</sup>.) The Data Workbook presents detail on toxic chemical releases in all 16 WNC counties.

### *Indoor Air Quality*

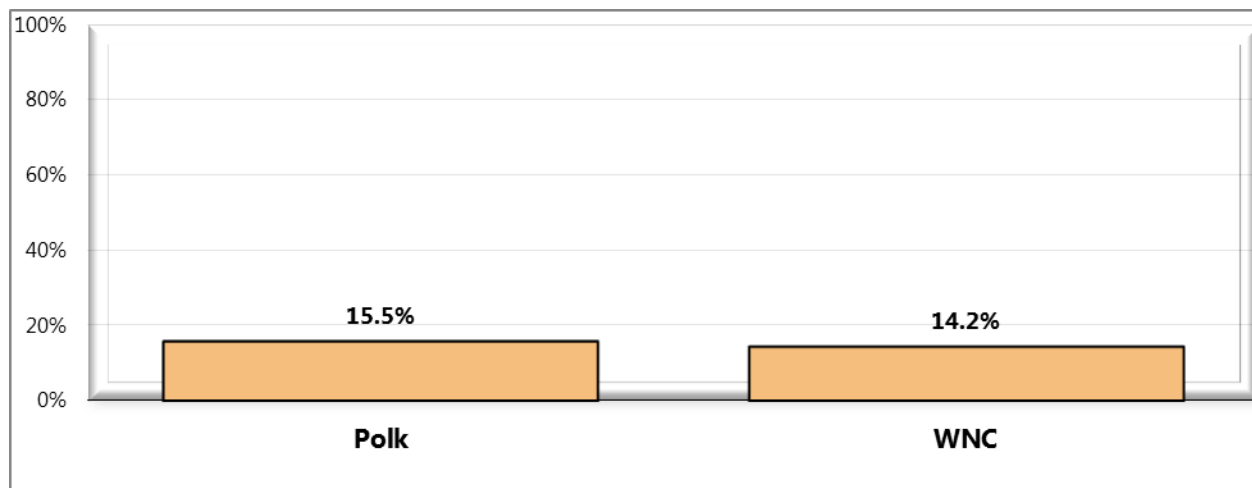
### *Environmental tobacco smoke*

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."

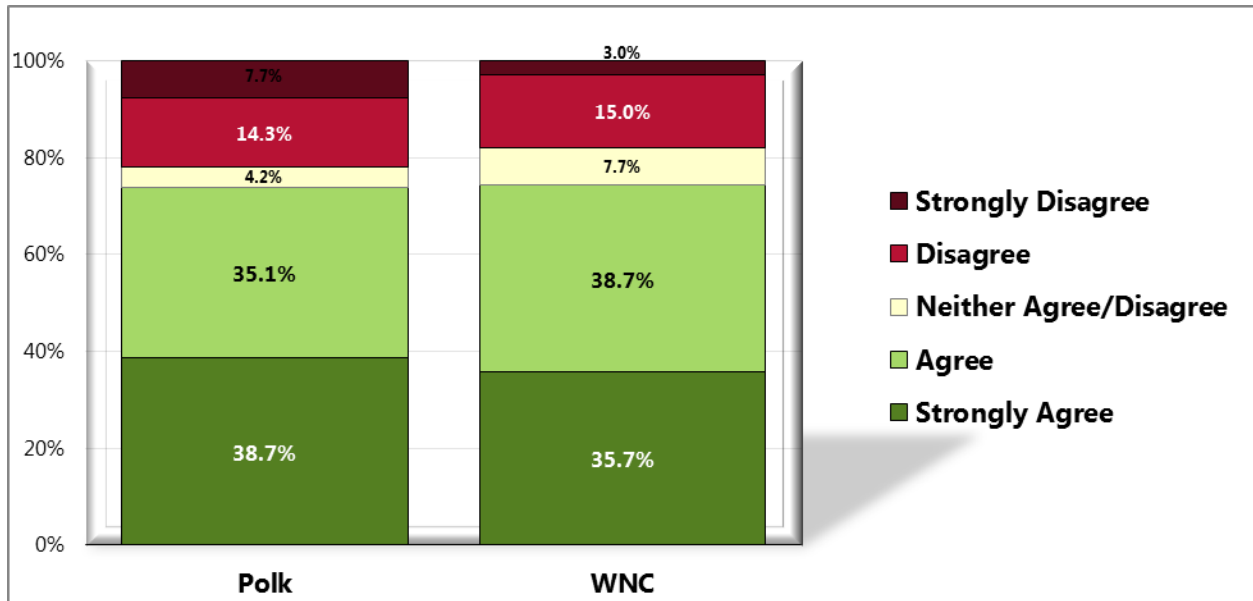
Figure 93. Have Breathed Someone Else's  
Cigarette Smoke at Work in the Past Week (WNC Healthy Impact Survey)  
(Among Employed Respondents)



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

Notes: • Asked of employed respondents.

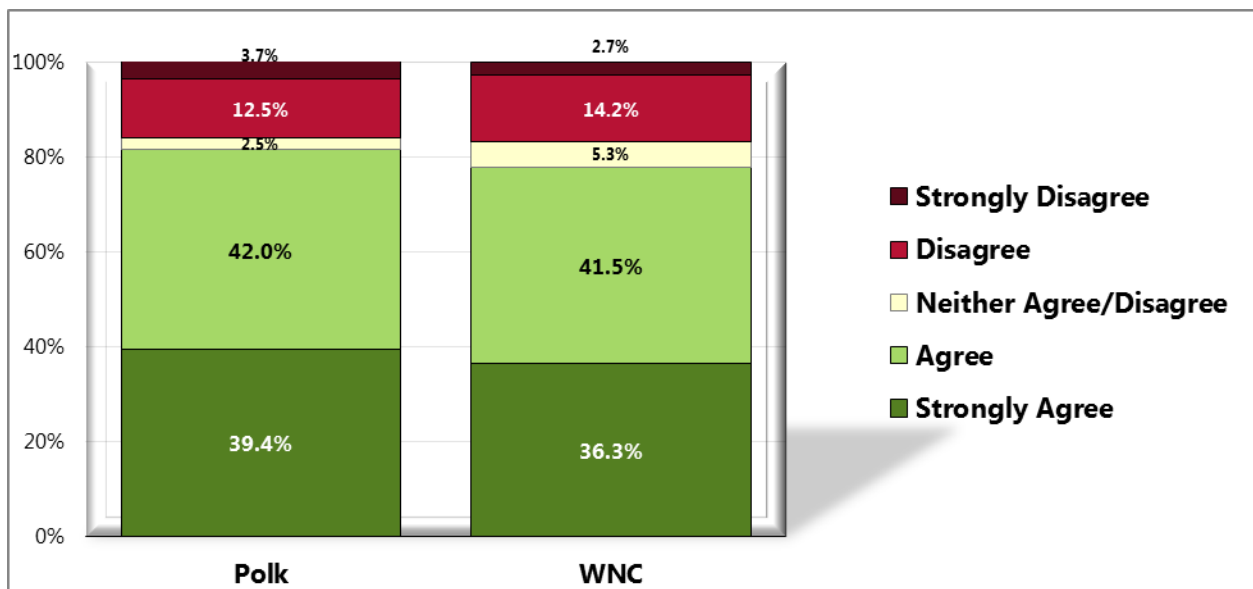
Figure 94. "I believe it is important for universities and colleges to be 100% tobacco-free"  
(WNC Healthy Impact Survey)



Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 45]

Notes: • Asked of all respondents.

Figure 95. "I believe it is important for government buildings and grounds to be 100% tobacco-free"  
(WNC Healthy Impact Survey)

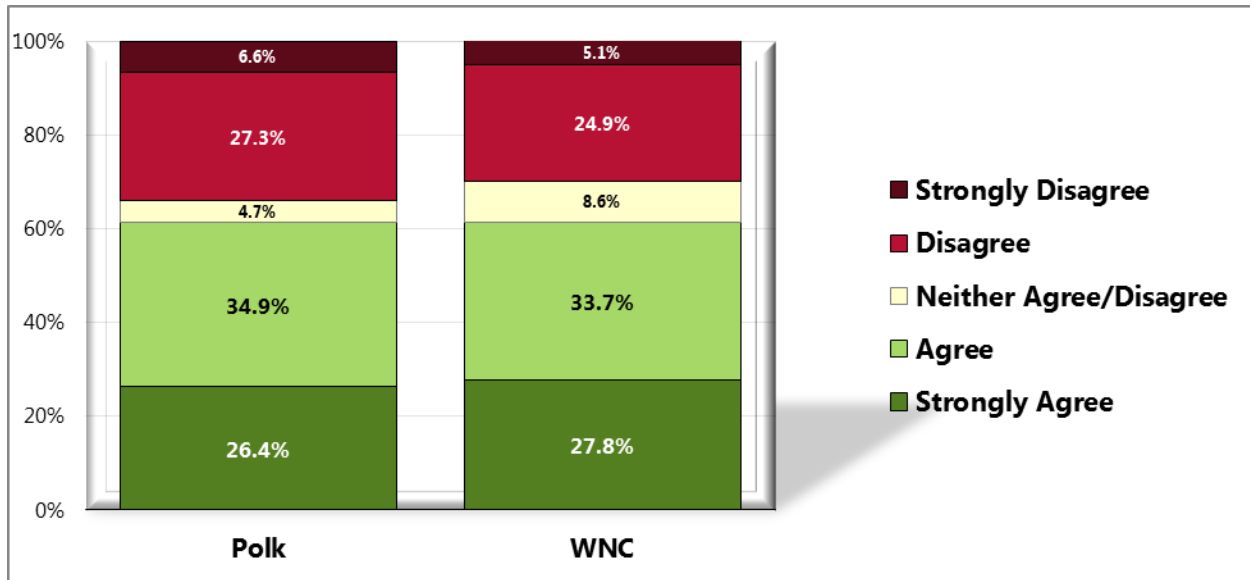


Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 46] Notes: •

Asked of all respondents.



Figure 96. "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 Polk County, 8,895 of 20,510 county residents, or 43.4%, were being served by community water systems in February of 2012. Presumably the remaining 56.6% 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 Polk County was 3.8 pCi/L, almost three times the national indoor radon level (Data Workbook).

### *Built Environment*

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

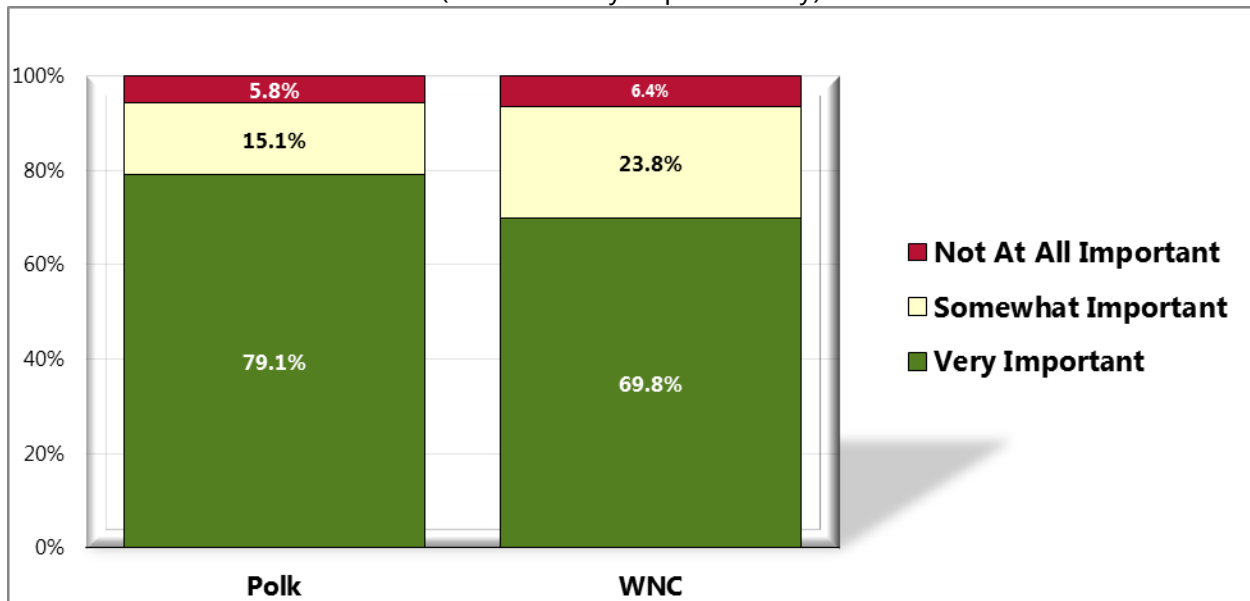
#### Access to Farmers’ Markets and Grocery Stores

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 Polk County there were three farmers’ markets in 2009 and six 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 shrunk by 4, to a total of 154, in 2009, a decrease of 2%. In Polk County the number of grocery stores was five in both 2007 and 2009 (Data Workbook).

Survey respondents were asked, “How important do you feel it is for your community to make it easier for people to access farmer’s markets, including mobile farmer’s markets and tailgate markets?”

Figure 97. 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 Polk County the number of fast food restaurants fell from 10 to 9 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)

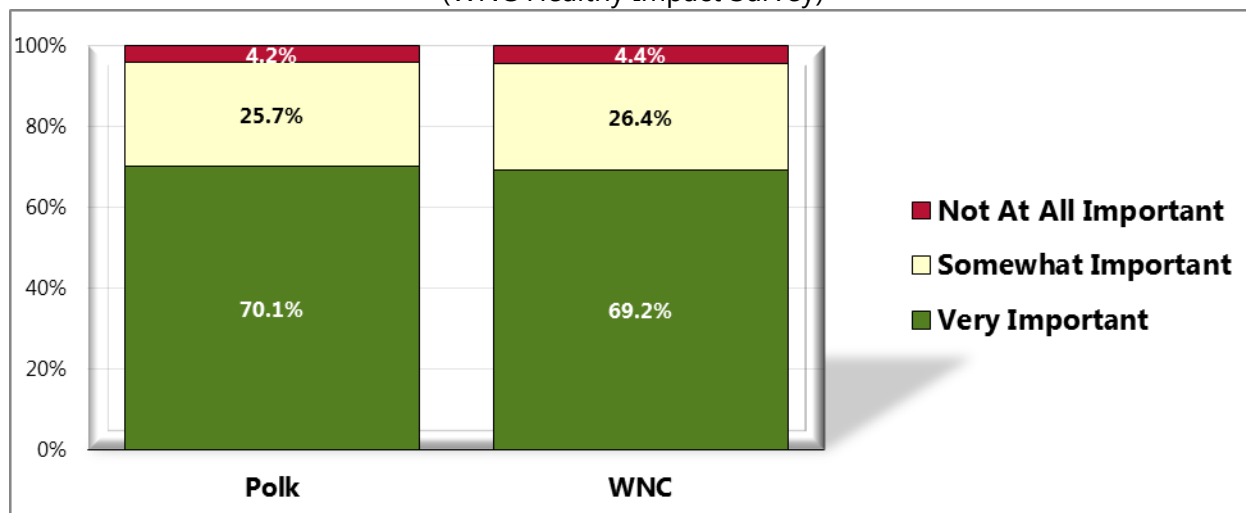
### *Access to Recreational Facilities*

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 Polk County there were two recreational and fitness facilities in both 2007 and 2009 (Data Workbook).

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

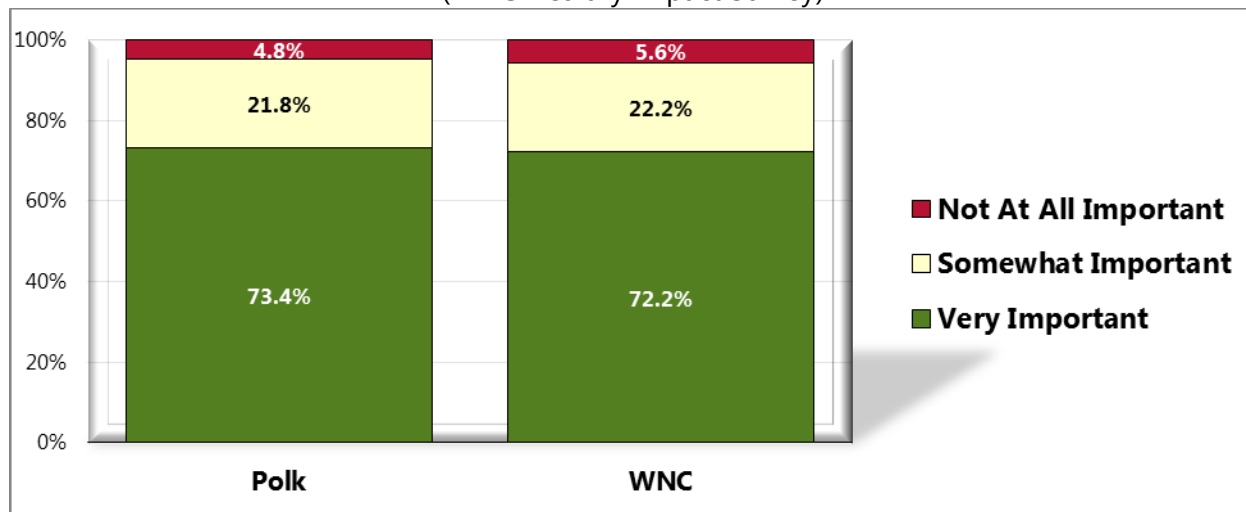
Survey respondents in Polk County were also asked about the availability of recreational options for children and youth to be physically active.

Figure 98. Importance That Community Organizations Make Physical Activity Spaces Available for Public Use After Hours  
(WNC Healthy Impact Survey)



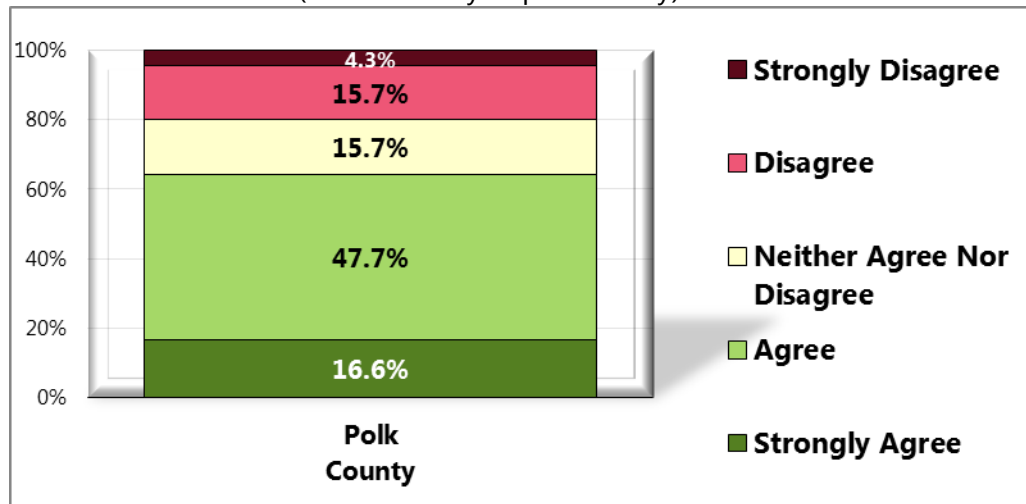
Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 60] Notes: • Asked of all respondents.

Figure 99. Importance That Communities Improve Access to Trails, Parks, and Greenways  
(WNC Healthy Impact Survey)



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

Figure 100. "I believe my county provides the facilities and programs needed for children and youth to be physically active throughout the year."  
(WNC Healthy Impact Survey)



Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 118]

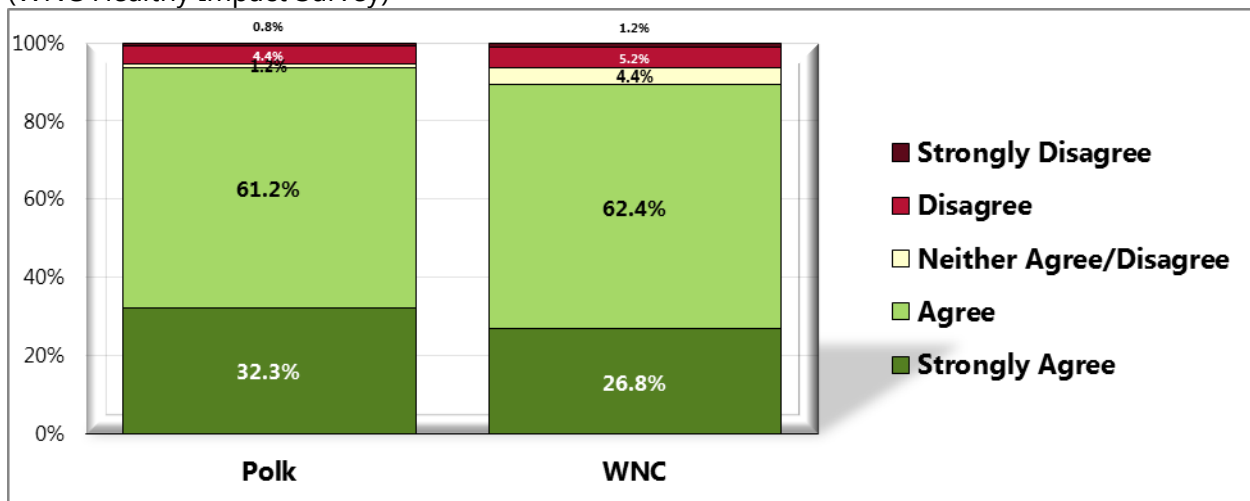
Notes: • Asked of all respondents.

## Chapter 7 – Quality of Life

### Perception of County

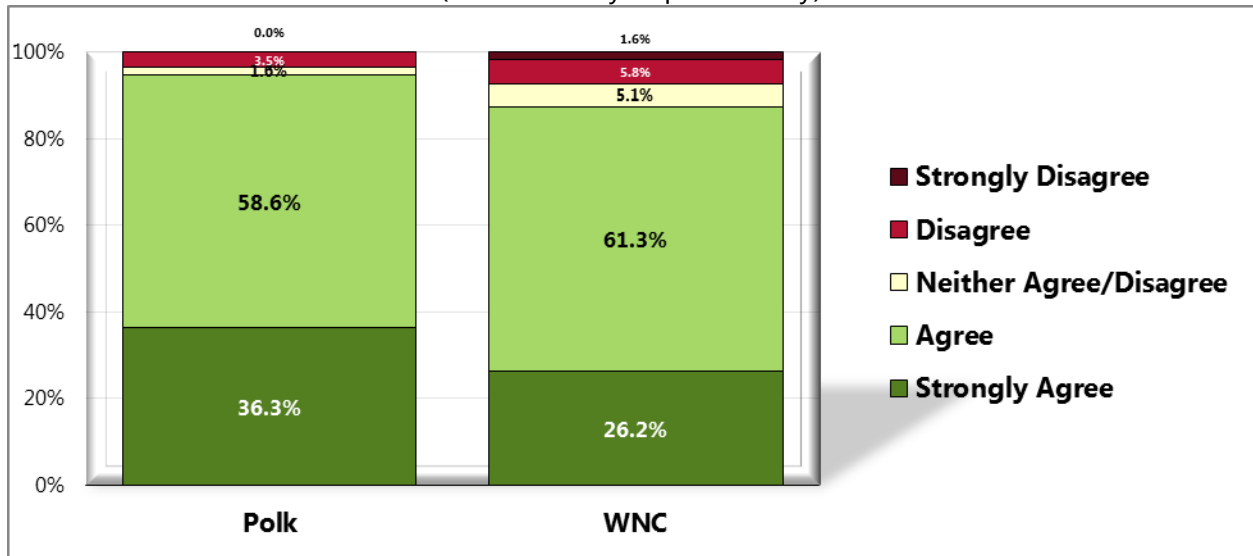
In order to evaluate community members' perceptions about the quality of life in western North Carolina (WNC), survey respondents were given a series of three statements regarding life in their county (my county is a good place to raise children, my county is a good place to grow old, and there is plenty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

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



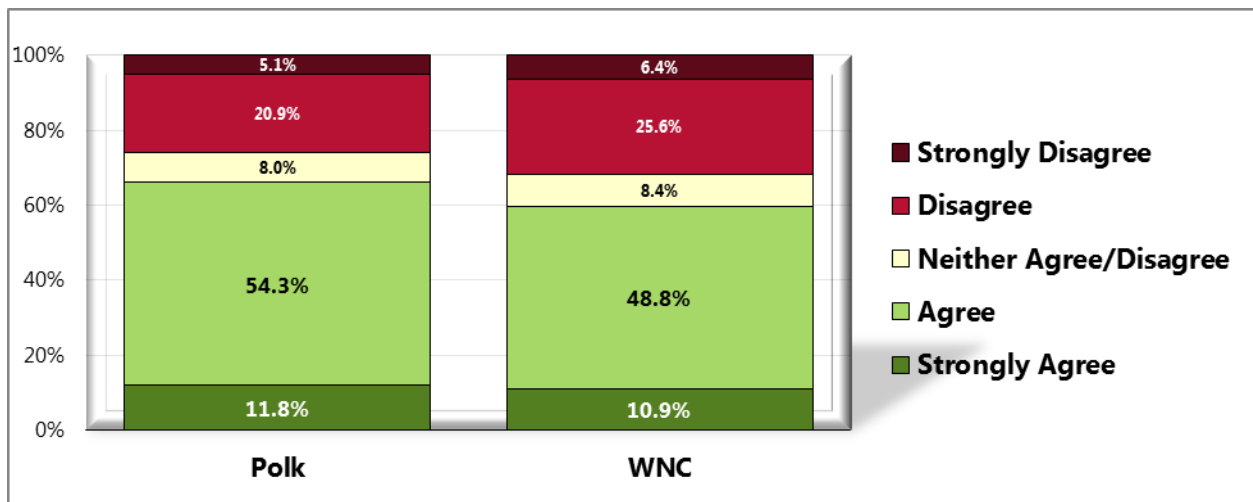
Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 5] Notes: •  
Asked of all respondents.

Figure 102. "My county is a good place to grow old."  
(WNC Healthy Impact Survey)



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

Figure 103. "There is plenty of help for  
people during times of need in my county."  
(WNC Healthy Impact Survey)



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

Table 61. Top Three County Issues Perceived as Having the Most Negative Impact on Quality of Life (WNC Healthy Impact Survey)

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

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

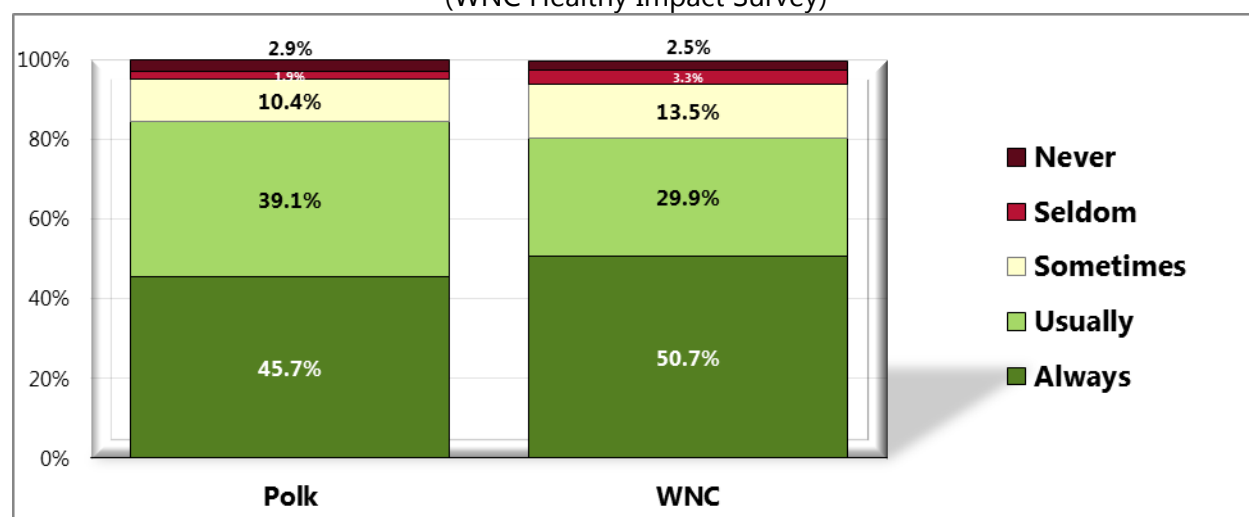
Table 62. Top Three Neighborhood/Community Issues Perceived as in Most Need of Improvement (WNC Healthy Impact Survey)

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

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

## Social and Emotional Support

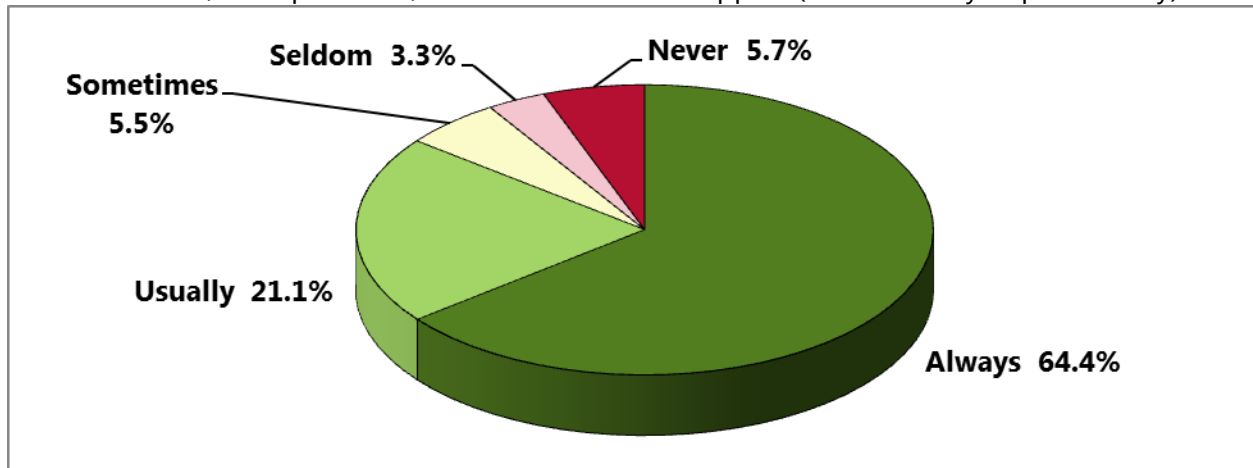
Figure 104. Frequency of Getting Needed Social/Emotional Support (WNC Healthy Impact Survey)



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



Figure 105. Frequency of Having Someone to Rely on to Help With Things Like Food, Transportation, Child Care or Other Support (WNC Healthy Impact Survey)

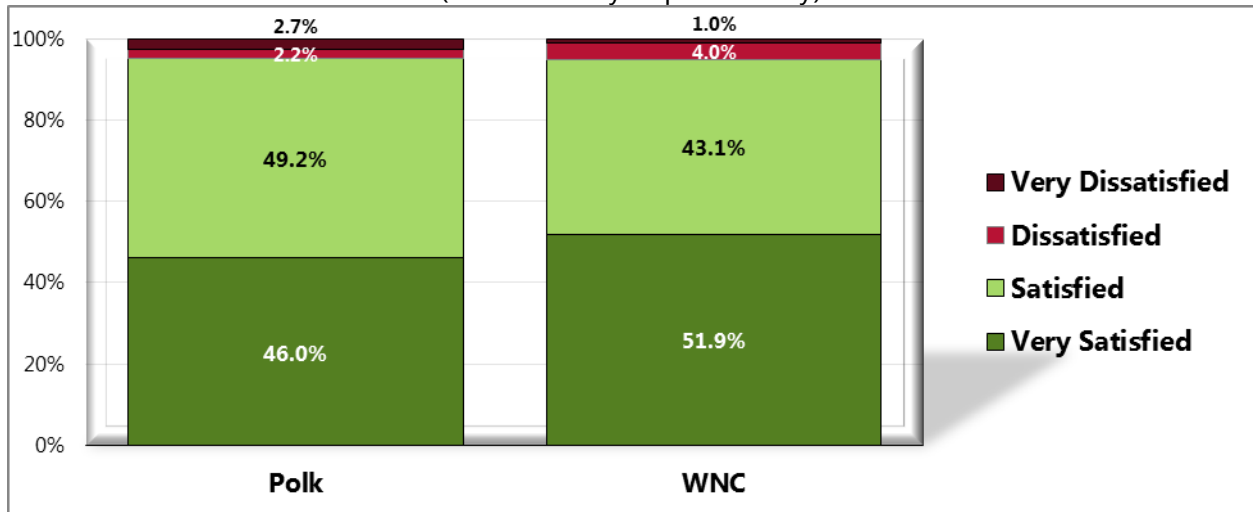


Sources: • 2012 PRC Community Health Survey, Professional Research Consultants, Inc. [Item 119]

Notes: • Asked of all respondents.

### *Satisfaction with Life*

Figure 106. Satisfaction with Life (WNC Healthy Impact Survey)



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

## Chapter 8 - Healthcare & Health Promotion Resources

### *Health Resources*

Polk County does not currently have access to the 2-1-1 First Call for Help Resource. However, efforts are underway to gain access to 2-1-1.

A General Health Resource Directory is available (Appendix C).

### *Community Transformation Grant Program*

Polk County is part of the NC Community Transformation Grant Project (CTGP). This project aims to reduce chronic diseases, promote healthier lifestyles, reduce health disparities and control health care spending in North Carolina. Mary Smith is the Regional Coordinator for CTGP and she has been working closely with the McDowell Health Coalition.

Some early strategies of the Community Transformation Grant Project include increasing tobacco free environments and increasing physical activity through joint use agreements. Enhancing Farmers Markets and access to fresh fruits and vegetable is another key strategy that will be used to reduce chronic disease.

See [Appendix A](#) for a description of the data collection methods use to gather this information.

See [Appendix C](#) for a general list of the healthcare and health promotion resources and facilities available in Polk County to respond to the health needs of the community. [Locals: clarify if this is general list for the county, or those to respond to specific identified needs. Also, if 2-1-1 data was used in your process, you can include mention of that here.]

### **Resource Gaps**

In July 2012, Polk County lost its Health Educator due to funding cut-backs in the North Carolina Department of Public Health. At the time of this writing, there are no paid staff support people in place to assist with achieving set outcomes for health improvement. The local Health Coalition is 100% volunteer led. The lack of staff support represents a significant gap in needed Human Resources to achieve sustainable health improvement outcomes.

## ***Chapter 9 - Health Priorities & Next Steps***

### ***Prioritization Process & Criteria***

A Community Health Forum was held at Isothermal Community College, Polk Campus, on January 17, 2013. The Polk County Community at large was presented with the CHA information contained in this report. Breakout sessions were held to get community input in the following areas:

Chronic Disease including: High Blood Pressure, Obesity, Diabetes, High Cholesterol, Healthy Eating and Active Living, Substance Abuse including Tobacco, Economy and Health.

### ***Priority Health Issues***

In 2008, the Priority Health Issues were:

- 1) Access to mental health and substance abuse services
- 2) Access to healthcare for the uninsured
- 3) Prevention
- 4) Obesity
- 5) Education

## ***Next Steps***

Collaborative implementation planning with St.Luke's Hospital, Rutherford Polk McDowell District Health Department and other community partners is well underway and will continue through the monthly meetings of the Polk County Health Coalition (PF3).

## References

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

US Environmental Protection Agency. (2012, January) Toxics release inventory (TRI) fact sheet. Retrieved July 15, 2012, from Toxics Release Inventory (TRI) Program website:  
[http://www.epa.gov/tri/triprogram/TRI\\_Factsheet\\_Jan\\_2012.pdf](http://www.epa.gov/tri/triprogram/TRI_Factsheet_Jan_2012.pdf)

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

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

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

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

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

## Appendices

Appendix A – Data Collection Methods & Limitations

Appendix B – On-line Survey (Additional Local Perceptions Data)

Appendix C – WNC Healthy Impact Survey Instrument

Appendix D – Health Resource Inventory



## Appendix A - Data Collection Methods & Limitations

### Secondary Data

#### Secondary Data Methodology

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

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

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

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

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

### Data Definitions

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

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

### Error

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

### Age-adjusting

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

### Rates

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

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

#### Regional arithmetic mean

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

#### Describing difference and change

Fifthly, in describing differences in data of the same type from two populations or locations, or changes over time in the same kind of data from one population or location—both of which appear frequently in this report—it is useful to apply the concept of percent difference or change. While it is always possible to describe difference or change by the simple subtraction of a smaller number from a larger number, the result often is inadequate for describing and understanding the scope or significance of the difference or change. Converting the amount of difference or change to a percent takes into account the relative size of the numbers that are changing in a way that simple subtraction does not, and makes it easier to grasp the meaning of the change. For example, there may be a rate of for a type of event (e.g., death) that is one number one year and another number five years later. Suppose the earlier figure is 12.0 and the latter figure is 18.0. The simple mathematical difference between these rates is 6.0. Suppose also there is another set of rates that are 212.0 in one year and 218.0 five years later. The simple mathematical difference between these rates also is 6.0. But are these same simple numerical differences really of the same significance in both instances? In the first example, converting the 6 point difference to a percent yields a relative change factor of 50%; that is, the smaller number

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

#### Data limitations

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

#### Gaps in Available Information

[Insert a general statement of any relevant information gaps that you feel limits the county's ability to assess the community's health needs. **Note:** Where stratification is limited within secondary data sections for some counties in the report, mention of relevant health disparities within other geographic area (region, state, or nation) is often included.]

### WNC Healthy Impact Survey (Primary Data)

#### Survey Methodology

##### Survey Instrument

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

**Professional Research Consultants, Inc.**



The geographic area for the regional survey effort included 16 counties: Buncombe, Cherokee, Clay, Graham, Haywood, Henderson, Jackson, Macon, Madison, McDowell, Mitchell, Polk, Rutherford, Swain, Transylvania and Yancey counties.

#### Sample Approach & Design

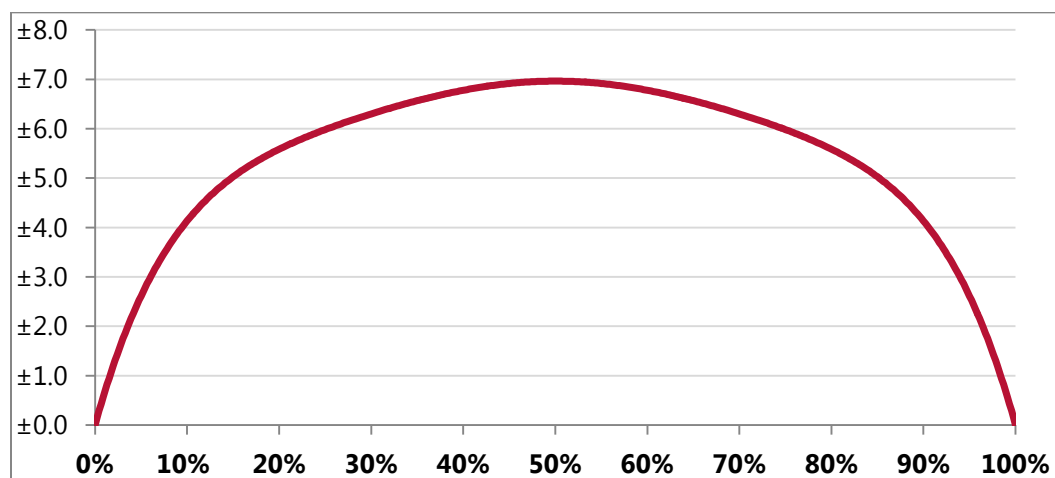
To ensure the best representation of the population surveyed, a telephone interview methodology (one that incorporates both landline and cell phone interviews) was employed. The primary advantages of telephone interviewing are timeliness, efficiency and random-selection capabilities.

The sample design used for this regional effort consisted of a stratified random sample of 3,300 individuals age 18 and older in Western North Carolina. Our county's sample size was 200. All administration of the surveys, data collection and data analysis was conducted by Professional Research Consultants, Inc. (PRC). The interviews were conducted in either English or Spanish, as preferred by respondents.

#### Sampling Error

For our county-level findings, the maximum error rate is  $\pm 6.9\%$ .

#### 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% ( $10\% \pm 4.2\%$ ) of the total population would offer this response.
- If 50% of respondents said "yes," one could be certain with a 95 percent level of confidence that between 43.1%

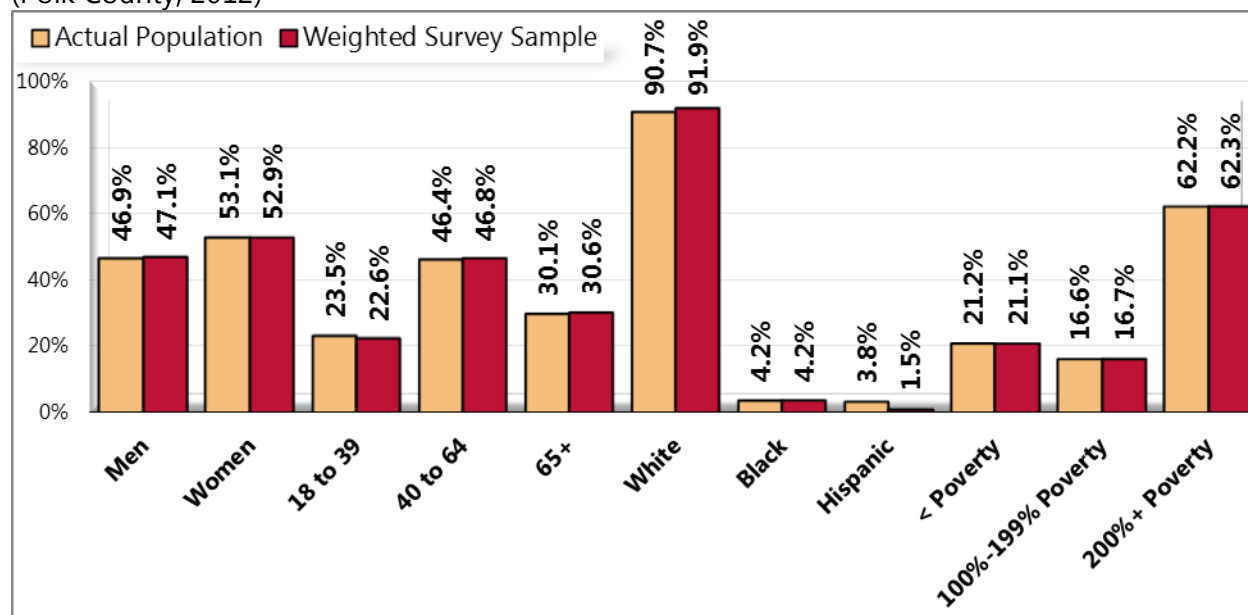
and 56.9% (50% ± 6.9%) of the total population would respond "yes" if asked this question.

### Sample Characteristics

To accurately represent the population studied, PRC worked to minimize bias through application of a proven telephone methodology and random-selection techniques. And, while this random sampling of the population produces a highly representative sample, it is a common and preferred practice to "weight" the raw data to improve this representativeness even further. This is accomplished by adjusting the results of a random sample to match the geographic distribution and demographic characteristics of the population surveyed (poststratification), so as to eliminate any naturally occurring bias. Specifically, once the raw data are gathered, respondents are examined by key demographic characteristics (namely gender, age, race, ethnicity, and poverty status) and a statistical application package applies weighting variables that produce a sample which more closely matches the population for these characteristics. Thus, while the integrity of each individual's responses is maintained, one respondent's responses may contribute to the whole the same weight as, for example, 1.1 respondents. Another respondent, whose demographic characteristics may have been slightly oversampled, may contribute the same weight as 0.9 respondents. In order to determine WNC regional estimates, county responses were weighted in proportion to the actual population distribution so as to appropriately represent Western North Carolina as a whole.

The following chart outlines the characteristics of the survey sample for our county by key demographic variables, compared to actual population characteristics revealed in census data. Note that the sample consisted solely of area residents age 18 and older.

Population & Sample Characteristics  
(Polk County, 2012)



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

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

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

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

## Benchmark Data

### North Carolina Risk Factor Data

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

### Nationwide Risk Factor Data

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

### Healthy People 2020

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

Encourage collaborations across sectors.

Guide individuals toward making informed health decisions.

Measure the impact of prevention activities.



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

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

#### Survey Administration

##### Pilot Testing & Quality Assurance

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

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

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

##### Random-Digit Dialing

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

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

##### Rules of Replacement

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

##### Minimizing Potential Error



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

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

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

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

#### Information Gaps

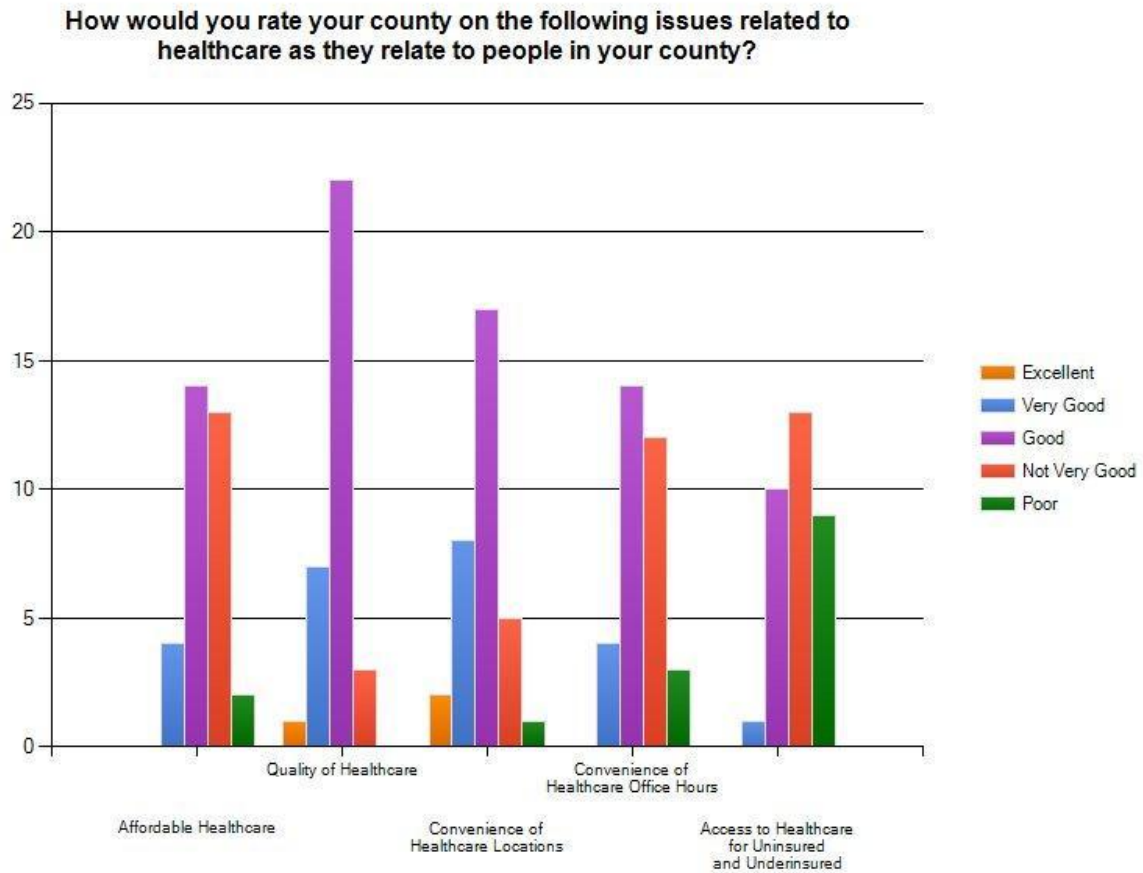
While this assessment is quite comprehensive, it cannot measure all possible aspects of health in the community, nor can it adequately represent all possible populations of interest. It must be recognized that these information gaps might in some ways limit the ability to assess all of the community's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

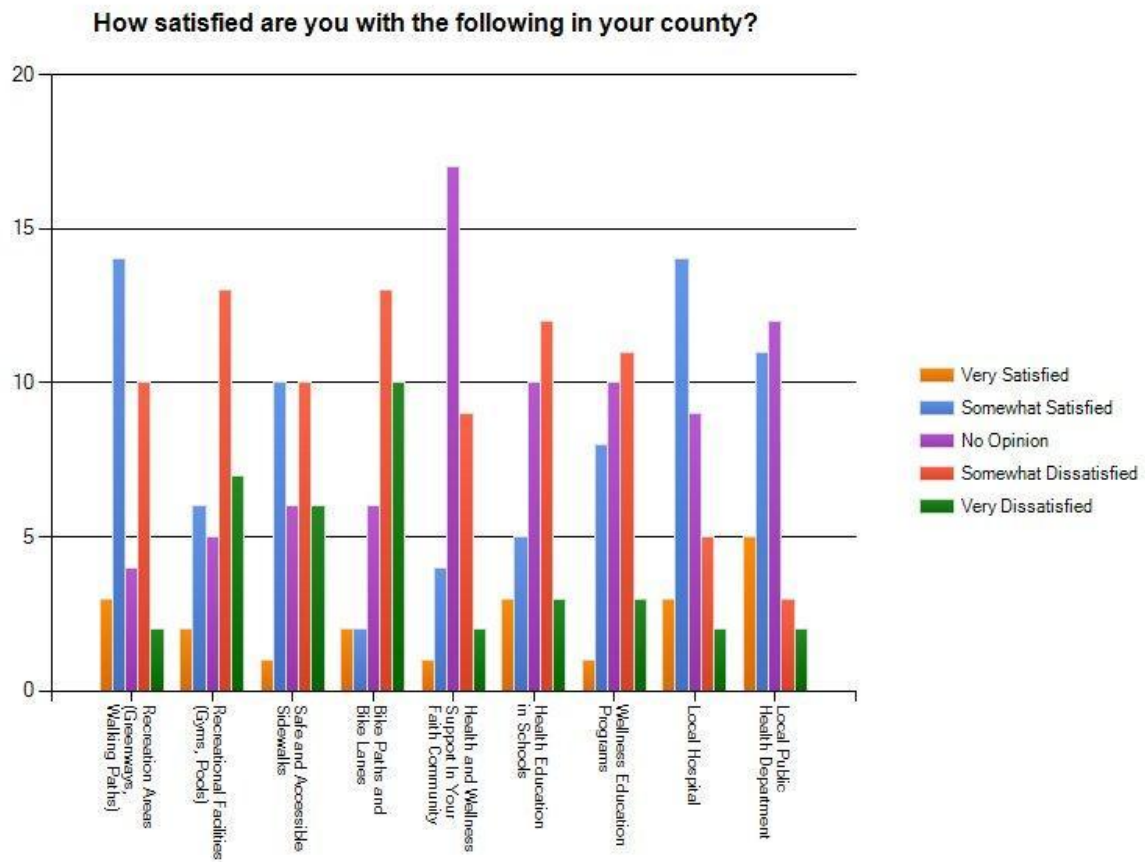
For example, certain population groups (such as the homeless, institutionalized persons, or those who only speak a language other than English or Spanish) are not represented in the survey data. Other population groups (for example, pregnant women, lesbian/gay/bisexual/transgender residents, undocumented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

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

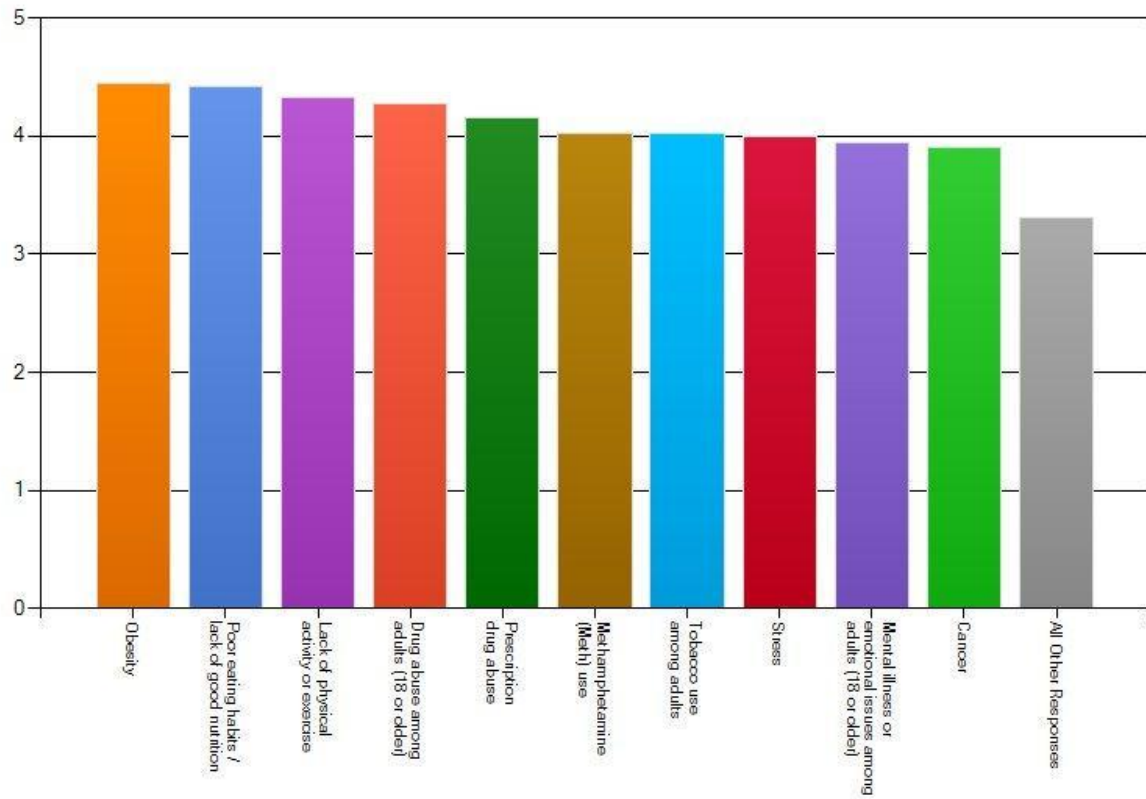
## Appendix B – On-line Survey Data (Additional Primary Data)

Additional primary data collected at the local level includes an online survey.

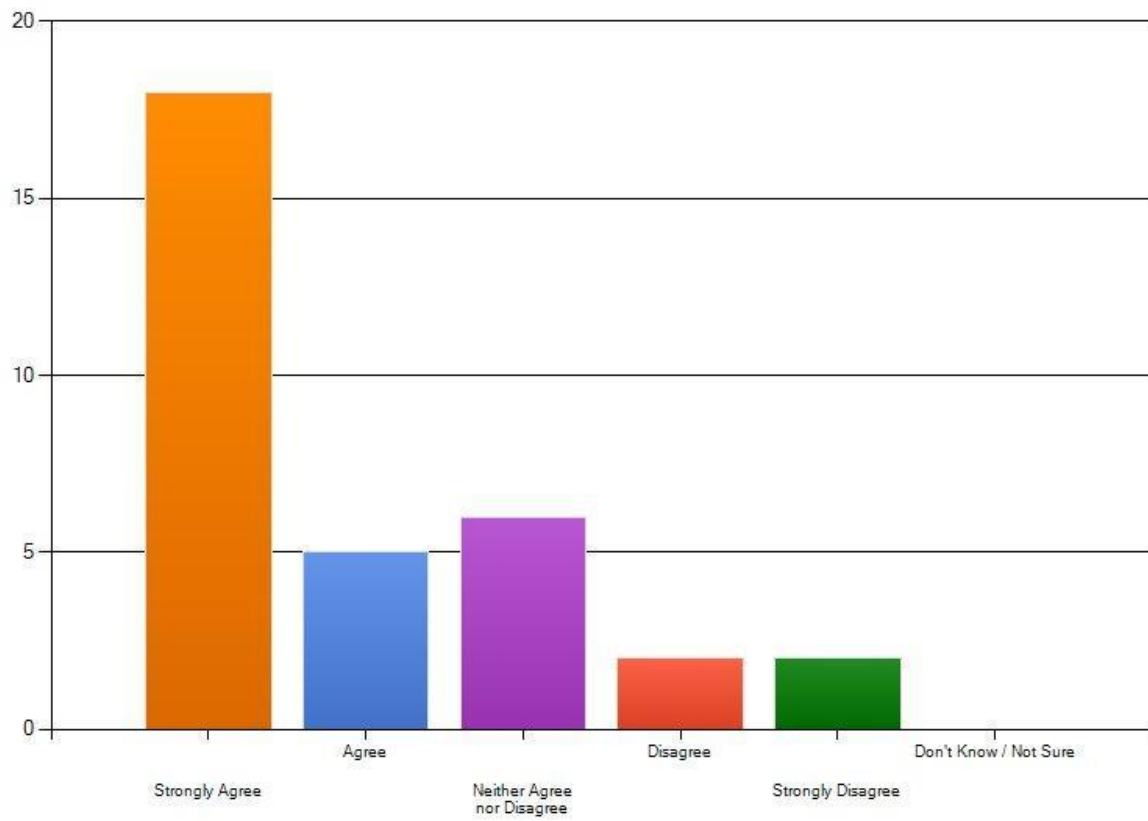




Please rate each of the following health issues as they relate to people in your county:



**I believe it is important for ALL PUBLIC PLACES to be 100% tobacco free.**



## Appendix C - 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.\*



Interviewed by \_\_\_\_\_ Date \_\_\_\_\_ ID# \_\_\_\_\_

2012-0615-02

### WESTERN NORTH CAROLINA 2012 Community Health Needs Assessment MASTER Asheville, North Carolina

Hello, this is \_\_\_\_\_ with Professional Research Consultants. We are conducting a survey to study ways to improve the health of your community.

(IF NECESSARY, READ:) Your number has been chosen randomly to be included in the study, and we'd like to ask some questions about things people do which may affect their health. Your answers will be kept completely confidential.

(IF Respondent seems suspicious, READ:) Some people we call want to know more before they answer the survey. If you would like more information regarding this research study, you can call '+chaname+' at '+chanumb+' during regular business hours.

*\*\*Note that this survey is for processing & reports only. It is not to be used for interviewing in its current form. The notes in this survey do not have supporting logic, and this survey did not receive the review that the individual child surveys received from quality assurance.\*\**

## Appendix D - Health Resource Inventory

This health and wellness guide may be viewed online at:

[http://www.rpmhd.org/new/health\\_res/index.htm](http://www.rpmhd.org/new/health_res/index.htm)

### Your Role in Preventative Care

You are responsible, in large part, for managing your own preventive care. Your primary-care practitioner should be your partner.

There are other important preventive measures —the kind of commonsense steps that could save millions of medical dollars and prevent injury, illness, disability, and premature death.

Here's a checklist:

- Don't smoke, and avoid secondhand smoke.
- Maintain a healthy weight.
- Get regular exercise. Brisk walking for just half an hour every day can be a big factor in weight control and in staying healthy.
- Choose a diet low in animal fat and sodium, and rich in fruits, vegetables, whole grains, and low-fat or nonfat dairy products. Eat at least two servings of fish a week.
- Keep alcohol consumption moderate: no more than one drink daily for a woman, two drinks for a man. If you are a heavy drinker, seek counseling, and cut back or quit.
- Do self-exams of your breasts or testes, as well as skin.
- Fasten seat belts, see that kids ride in proper restraints, and obey the law. Drive sober and defensively.
- Brush and floss to prevent dental disease.

Medical experts may disagree about a lot of things, but they all agree that good health depends on improved access to and increased use of preventive services

### PHYSICAL ACTIVITY

Physical activity improves health and well-being. It reduces stress, strengthens the heart and lungs, increases energy levels, helps you maintain and achieve a healthy body weight and it improves your outlook on life.

Research shows that physical inactivity can cause premature death, chronic disease and disability. Health Canada encourages Canadians to integrate physical activity into their everyday life; at home, at school, at work, at play and on the way ... that's active living!

For children, regular physical activity is essential for healthy growth and development. For adults, it allows daily tasks to be accomplished with greater ease and comfort and with less fatigue.

For seniors, weight-bearing physical activity reduces the rate of bone loss associated with osteoporosis. Regular physical activity also maintains strength, flexibility, balance, and coordination, and can help reduce the risk of falls.

Being physically active not only strengthens your body, it also makes you feel good about yourself.

## PLACES TO GO FOR FUN AND PHYSICAL ACTIVITY

### Harmon Field

1 Harmon Field Rd., Tryon, NC 28782

Phone: 828-859-5784

Harmon Field is a public park of approximately 45 acres dedicated to sports and recreation. There are paved walking trails, covered picnic tables, a fenced Tiny Tot playground, baseball fields, soccer fields, tennis courts and a seven-hole putting green. Walk the trails and listen to the river or find an old log cabin.

Directions: From I-26, take exit 67, NC 108 west toward Tryon. When the road makes a Y, follow the signs to US 176, toward Saluda, to the right onto Harmon Field Rd. Harmon Field will be on your right.

### Raymond Fitness Trail

Hospital Dr., Columbus, NC 28722

Located behind St. Luke's Hospital on Highway 108, the foot path features fitness stations as well as an attractive hardwood forest setting. The trail can be accessed via the back parking lot of the hospital from the Polk County Public Library.

### Weaverbarton Shuford Memorial Wildlife Sanctuary

Commune with nature and the inner self in this mixed hardwood forest which provides excellent habitat for birds and other wildlife. The 85-acre tract of land is protected by the Pacolet Area Conservancy. Three interconnecting loops allow you to design your own walk as the trail connects to the St. Luke's Tom Raymond Fitness Trail and the Isothermal Community College Trail. Directions: From I-26, go west on Highway 108 for approximately 1/4 mile. Take a left on Shuford Rd. Look to your right for the parking area and trail sign. For more information contact the Pacolet Area Conservancy at 828-859-5060.

Woodland Park is approximately 10 acres of natural park located just off Chestnut Street in Tryon. There are wonderful rustic natural trails for short hikes and benches so you can sit next to a meandering stream. For more information contact the Town of Tryon at 828-859-6656

### Rogers Park

West Howard St., Tryon

Phone: 828-859-6655

Town park features a 250-seat amphitheater made of stone and a reception/gathering area. A small creek and short trails meander through the park. The two acre facility is located on West Howard Street behind Tryon Town Hall. It can be reserved for private functions.

### Tryon Youth Center

2969 Hwy 176 N

Tryon, NC 28782



Phone: 828-859-3192

The Tryon Youth Center-a place for fun for the entire family-located in the Pacolet Valley.

#### Gibson Park

Park St., Columbus, NC 28722

This park features a pool (late May to August), a baseball diamond, an unpaved volleyball court and a small playground.

#### Stearns Park

E Mills St/Hwy 108, Columbus, NC 28722

Phone: 828-894-8236

Located in the heart of downtown Columbus with a breathtaking view of the mountains on one side and the Historic Polk County Courthouse on the other. There is lots of room for the kids to run and play, with a gazebo, walking track and picnic area as well. Dogs must be leashed.

#### McCreery Park

Main St., Saluda

Phone: 828-749-2581

McCreery Park features playground equipment and a covered picnic area. Restrooms are available year round. The covered picnic area may be reserved for group gatherings.

#### Saluda School Tennis Courts and Playground

214 E Main St., Saluda, NC 28773

There are two public tennis courts, one outdoor basketball goal and a baseball field for use by the public when school is not in session, primarily on weekends and summer months. The facilities are located near downtown Saluda.

#### Pearson's Falls - <http://www.pearsonsfalls.org>

2748 Pearson Falls Rd

Saluda, NC 28733

Phone: 828-749-3031

Beautiful Pearson's Falls is comprised of 268 acres of virgin forest, spring-fed streams and a 90 ft. waterfall.

Spring & Summer Hours - March 1 through October 31

Open Monday through Saturday 10 am to 6 pm (gates close at 5:00 pm)

Sunday noon to 6 pm (gates close at 5:00 pm)

Winter Hours - November 1 through February 28

Open Monday through Saturday 10:00am to 5:00 pm (gates close at 4:00 pm)

Sunday Noon to 5:00 pm (gates close at 4:00 pm)

Closed Thanksgiving, Christmas, New Year's Day and all of January

Admission \$5

Ages 6-12 \$1

Under 6 free

When visiting Pearson's Falls, please remember

the following rules: No Alcohol, No Fires, No Pets (except service and assistance dogs)  
No Wading or Swimming

Trails of the Green River Game Lands  
Green River Cove Rd  
Big Hungry Rd., Saluda, NC 28773  
Phone: 1-800-440-7848

The Trails of the Green River Game Lands are a rugged tract of more than 10,000 acres located along the Green River in Henderson and Polk Counties. Owned by the state, the primary purpose of NC Game Lands is wildlife conservation and management--hunting, fishing, trapping are allowed. The Trails in this unique area are maintained to encourage and facilitate foot travel only. There are 16 miles of trails, with access in Polk County at Green River Cove. A map of the hiking trails is available at the First Peak Visitor Center.

#### Searcy Field

Located along Highway 108 near the Mill Spring cross road, Searcy Field features two baseball fields and limited parking.

#### Ball Fields at Polk Middle School

321 Wolverine Trail, Mill Spring, NC 28756

This County park offers three baseball fields, a small playground, two tennis courts, a fishing pond with a wooden dock and a hiking trail. For details contact the Polk County Recreation Department at 828-894-8199.

#### Bike Tours

Biking in rural Polk County provides gentle hills and steep grades where you will encounter mountain vistas, river gorges, and horse farms. Below are a few possibilities from the easy to the highly challenging.

Easy Loops: Warrior Drive - 4 mile loop. Starting at Harmon Field Rd., turn right on US 176, right on Warrior Dr., right on Howard Gap Rd. and return to Harmon Field. Lake Lanier - 4.99 mile loop around Lake Lanier, in and out of NC and SC.

Challenges: Saluda Grade Club - 8 miles from Tryon to Saluda along Scenic Highway/US 176 (900 foot climb).

#### Fishing in Polk County

Hatchery supported trout waters are stocked with thousands of catchable-size brook, brown and rainbow on a monthly basis from March to August. There's a daily limit of seven trout per day, with no minimum size limit or bait restrictions.

#### Polk County Hatchery Supported Trout Waters

North Pacolet River from Pacolet Falls to Hwy 108 bridge

Fork Creek Church on SR 1100 to N. Pacolet River

Big Fall Creek portion above water supply reservoir

Green River Henderson County line to mouth of Bright's Creek  
Little Cove Creek

Big Fall Creek-portion below water supply reservoir

Cove Creek Camp Creek-Henderson County line Green River

Laughter Pond is stocked with catfish. Located off Highway 108, it can be accessed through the Polk County Recreation Complex at Polk County Middle School. There are no size restrictions on catfish and the daily limit is six catfish per licensed person.

Lake Adger, located in Mill Spring off Silver Creek Rd., has been stocked with Muskellunge (Muskie) as part of the North Carolina Wildlife Resources fish stocking program. The Muskies are raised at the Table Rock State Fish Hatchery and the juvenile fish are released into Lake Adger in October. The average size fish released is 8" to 18' in length. Boating: Public boat ramp. Personal boat needed to access lake.

Consult The Regulations Digest for North Carolina Inland Fishing, Hunting and Trapping for guidelines on fishing. The book and licenses are available at Columbus Hardware 828-894-8985, Silver Creek Campground, Mill Spring 828-894-2331, Curtis Wright Outfitters, Saluda 828-749-3444, Green River Adventures, Saluda 828-749-2800, Jack Scruggs and Son, Green Creek 828-863-2691.

Gibson Park Pool

236 Park St.

Columbus, NC 28722

Phone: 828-894-2646

Public swimming pool. Summer hours: Tuesday through Saturday 12 noon to 5 pm. Sunday, 1:00 to 5 pm. Fee for pool use. Annual pass available.

Green River Cove Tubing— [www.greenrivercove tubing.com](http://www.greenrivercove tubing.com)

5200 Green River Cove Road, Saluda, NC 28773

Green River Cove

Green River Cove Rd., Saluda, NC 28773

Phone: 828-894-2324

North Carolina game lands with two access areas to the Green River--Fish Top and Big Rock offering kayaking, tubing, hiking and other outdoor activities. However, swimming is not allowed. Hiking trail map available through First Peak Visitor Center.

Note: Swimming is illegal (a misdemeanor) at any wildlife access area.

FENCE - Foothills Equestrian Nature Center

<http://www.fence.org>

3381 Hunting Country Rd

Tryon, NC 28782

Phone: 828-859-9021

On this 390-acre nature preserve, find hiking and horseback-riding trails, nature center, pond, boardwalk, and picnic area. FENCE and the Pacolet Area Conservancy Saturday hikes throughout

the year. Also, check the calendar for equestrian events, bird walks, concerts, and more. Free and open to the public. Lodge is available for private gatherings with reservation and rental fee. DIRECTIONS: From I-26, East or West - Take S.C. Exit #1 from I-26, toward Landrum, S.C. Go 1.5 miles, then turn right onto Bomar Road (look for the Land Mart on the corner). Go one short block and turn right onto Prince Road. After 1.7 miles, turn left onto Hunting Country Road, just before the I-26 bridge. Go .6 mile to the FENCE entrance on the right.

#### HEALTH & FITNESS CENTERS IN POLK COUNTY

Adawehi Institute & Healing Center <http://www.adawehi.com>

93 Adawehi Lane

Columbus, NC 28722

Phone: 828-894-0124 ext. 1 or 828-894-5260

Healing must happen on all four levels of a person's being – physical, emotional, mental, and spiritual. Adawehi offers healing in whichever of these four areas you need support.

Healing Services at Adawehi include:

Chiropractic Care, Massage Therapy, Nutrition Counseling, Colon Hydrotherapy, Acupressure with Color and Sound, Life Counseling, and Music Imagery for children are all provided by healing practitioners who excel in their arts.

Ongoing Wellness Classes offered at Adawehi include:

- Personal Growth Classes Blocked expression can lead to illness. Through these classes you can learn how to express more of the real you.
- Iyengar Yoga Allow your body to gently stretch, tone, and release with respect for where you are. Peacefully build strength and flexibility.
- Chair Yoga Gently improve posture, release tension, and increase core strength with a series of poses using an ordinary straight back chair.
- T'ai Chi Experience your own "moving meditation" and greatly enhance your energy flow and relaxation.
- Healthy Cooking Learn to prepare healthy recipes using seasonings and herbs instead of fat, sugar, and salt.
- African Drumming Experiencing different rhythms through drumming helps you to expand your physical awareness of life's natural pace.
- Orff Music for Children Children take on the stress that surrounds them. Support that release by allowing your child to explore and create music, using rhymes, rhythms, movement, songs, mallet and unpitched percussion instruments.
- Toning/Abs Experience gentle yet effective exercises that build strength in your abdominal area while providing overall body toning. Improve your body awareness, flexibility, posture and grace!
- Trinity Workout No nonsense self-defense at a heart pumping cardio pace. Every move is broken down into 3 easy steps without punches or risky high kicks. Fun fitness for ages 12-90.

Adawehi Fitness Facility

93 Adawehi Lane

Columbus, NC 28722

Phone: 828-894-5260

<http://www.adawehi.com>

This is not your typical gym. The Adawehi Fitness Gym is a warm and inviting place where local folks come to exercise at their own pace. Our equipment is state-of-the-art and extremely well maintained. If you are looking for a place to grow your physical health, check it out. Your body will thank you!

Foothills Wellness Center  
10 N Trade St, Tryon, NC 28782  
Phone: (828) 859-5004  
Chiropractic, alternative internal health, and sports medicine

Healthy Balance Yoga  
104 Palmer St  
Tryon, NC 28782  
Phone: 828-817-1064  
Creating a peaceful, healthy haven for balance, personal growth and loving renewal also teach NIA, a form of movement and dance for stress relief

Pro Physical Therapy - <http://www.prophysicaltherapy.com>  
60 Shuford Rd  
Columbus, NC 28722  
Phone: 828-894-0277  
Offering physical fitness and massage therapies. Nautilus, Pilates, spinning and yoga classes, fitness & weight loss programs, personal trainers and physical therapists on site.

Tryon Health and Fitness Club  
66 Academy St  
Tryon, NC 28782  
Phone: 828-859-5935  
Don't abandon your fitness routine just because you are on vacation. Join us for yoga, Pilates, mobility balancing, agility, step aerobics, urban rebounding, body sculpting. Personal trainers available. Various classes offered.

ALCOHOL AND ADDICTION TREATMENT & MENTAL HEALTH SERVICES  
For Immediate Help call 1-800-951-3792 to guide you through the process and help find an appropriate provider of services.

Addiction Recovery Institute  
92 Pacolet Street  
Tryon, NC  
828-859-2277  
<http://addictionrecoveryinstitute.org/index.htm>

A non-profit corporation providing leadership training and professional development services to the mental health and substance abuse fields. Established in 2002, ARI utilizes a faculty made up of leading authorities in the field to offer state-of-the-art training designed to improve the professional competence and private lives of participants. It also provides research, consulting, referral and educational services to public and private organizations and individuals.

Provides Comprehensive Intervention Services to Families:

Planning, Execution, Follow-up

Addiction Recover Institute Provides Faith-based Services:

To educate ministers, staff and lay leaders on addiction issues so as to increase their knowledge, awareness and understanding in ways that enhance their ministry, and to explain the vital role faith communities can (must) play in Recovery Oriented Communities of Care

To prepare participants for an effective SBIRT (Screening, Brief Intervention, Referral to Treatment) program in their churches

To offer ongoing training and dialogue on related issues such as:

Spiritual dimension of the 12 Steps

Mental health and substance abuse recovery awareness and support services

Community resources

How/when/where to refer

Adult Children of Alcoholics & Dysfunctional Families (ACA)

World Service Organization

PO Box 3216

Torrance, CA 90512

(310) 534-1815

[info@adultchildren.org](mailto:info@adultchildren.org)

[www.adultchildren.org](http://www.adultchildren.org)

ACA is a program for men and women who have grown up in alcoholic or otherwise dysfunctional homes. In the mutually respectful, safe environment of ACA meetings, they learn how to free themselves from the past and improve their lives today. The Asheville group listed below is the only ACA group in the western part of the state.

If you would like to start a group, the ACA may be able to help you find other people in your area with the same idea. The organization's New Meeting Packet contains material for starting a group and literature samples. For information contact [litteraure@adultchildren.org](mailto:litteraure@adultchildren.org).

Al-Anon Family Groups

World Service Office

1600 Corporate Landing Parkway

Virginia Beach, Virginia 23454-5617

(757) 563-1600 Tel

(757) 563-1655 Fax

wso@al-anon.org  
www.al-anon.alateen.org  
(800) 286-1326 District One (WNC)  
(888) 425-2666 Face-to-face support groups  
(919) 787-1653 Literature (NC)

The problems of each individual with alcoholism are said to affect at least four other people—alcoholism is truly a family disease. Al-Anon Family Groups, which includes Alateen for younger members, helps families and friends recover from the effects of living with the disease. Al-Anon has no dues—the groups are supported through voluntary contributions from members.

- E-mail “meetings.” Probably the easiest way to participate in online Al-Anon is to access its e-mail support meetings—open to anyone who can send and receive e-mail. Typically, a member e-mails a message to an address on the group’s list. There, it is automatically forwarded to all other members on the list, who may send their responses in a similar way. Meetings are conducted in six languages—English, French, German, Japanese, Portuguese, and Spanish.
- Chat rooms. In these “meetings,” participants “talk” with one another on their computer screens in real time. Message typed on a member’s keyboard appears instantly on the screens of all others in the “room” at the time.
- Lone members. For people who cannot attend face-to-face meetings because of travel distance (25 miles or more to get to a meeting), physical impairment, or illness, Al-Anon has a lone member service. These members receive support via written correspondence with members who attend regular meetings. For more information, call 1(757) 563-1600.

ARP Addiction Recovery & Prevention  
828-254-2700  
Toll-free: 877-678-2696  
Fax: 828-254-1524  
Email: info@arpnc.org  
www.arpnc.org

Referral Information for:

- Substance Abuse & Mental Health Assessments
- Adult & Youth Substance Abuse treatment
- DWI Assessments, Education & Treatment
- Integrated Mental Health & Substance Abuse Counseling
- Family and Marriage Counseling
- Medication Management - Psychiatric
- Residential Treatment for Pregnant Women & Mothers - Mary Benson House
- Science-based Prevention & Education Programs
- Methamphetamine and Crack Cocaine Treatment
- Workplace Substance Abuse Assessments & Treatment

#### Co-Dependents Anonymous (CoDa)

World Service Organization

[www.coda.org](http://www.coda.org) International

CoDa helps adults who have grown up in alcoholic and other types of dysfunctional homes develop fulfilling relationships. It helps them build a sense of self-worth, which, typically, failed to be developed during their chaotic upbringing and the lack of which now hinders them in developing lasting relationships.

#### Cooperriis

101 Healing Farm Lane

Mill Spring NC 28756

Phone: 828-894-5557

<http://www.cooperriis.org/>

CooperRiis is a healing community whose mission is to enable individuals, whose lives are impeded by mental illness or emotional distress, to develop their capabilities for creativity, wholeness, relationship and optimal health, so that they can achieve their highest levels of fulfillment and functioning and respond productively to their future challenges and opportunities for growth.

#### Family Preservation Services

330 Carolina Drive

Tryon, NC 28782

Business: (828) 859-6661

Fax: (828) 859-9487

Individual, family and group therapy, community based professional and paraprofessional services.

#### Patricia Komorous, Ph.D.

Licensed Psychologist

Tryon, NC 28782

828-859-0280

[patkomorous@windstream.net](mailto:patkomorous@windstream.net)

<http://www.drpatriciakomorous.org>

#### NAMI Young Families Support

(828) 696-2628

[nami\\_mommy@mchsi.com](mailto:nami_mommy@mchsi.com)

Sponsored by NAMI Four Seasons

Support group for parents and families of children with severe behavior problems and brain disorders meets third Tuesday, 9:30 a.m., in the Isothermal Building, Columbus.

#### The Telephone Network



NAMI North Carolina  
(800) 451-9682

Can't come to support meetings but would like to give and get support?  
NAMI North Carolina's telephone network may be just what you need!  
Made up of consumers and families across the state, the network is coordinated with the NAMI Helpline. For example, if a troubled NC mental health consumer or family member wants to talk with someone who has similar problems, he or she calls the number above and a NAMI staffer matches the caller with a network member for continued phone support. The telephone network is available to all adults involved with mental illness – adult consumers, their families, and the parents of children with mental health problems – whether they are members of NAMI or not!

Pavillon  
241 Pavillon Place  
Mill Spring, NC 28756  
Phone: 800-392-4808  
<http://www.pavillon.org/>  
Residential and Outpatient Drug and Alcohol Treatment Center

Polk County Community Wellness Center  
801 W. Mills St.  
Columbus, NC 28722  
828-894-2222  
An integrated care facility with services for primary care, mental health, addictions and substance use disorders.

Western Highlands Network  
356 Biltmore Ave.  
Asheville, NC 28801  
828-225-2800  
800-951-3792  
[www.westernhighlands.org](http://www.westernhighlands.org)

#### HEALTH CARE SERVICES

Assertive Community Treatment Team (ACT Team)  
668 Withrow Rd.  
Forest City, NC 28043  
Phone: 828-287-9913  
ACT's goal is to give consumers adequate community care and help them have a life that isn't dominated by their mental illness. ACT Teams work with consumers to see which medication works best for them, find housing, apply for food stamps, go back to school, get a job, etc.

CAP Community Alternatives Program for Disabled Adults

St. Luke's Hospital  
101 Hospital Dr.  
Columbus, 28722  
Phone: 828-894-0564 or 828-894-0563  
In home nursing care.

Center for Behavioral Medicine

St. Luke's Hospital  
101 Hospital Dr.  
Columbus, NC 28722  
Phone: 828-894-3311 or 828-429-9492  
Geriatric– Psychiatric Inpatient Care

Color and Sound with Acupressure

Adawehi Institute & Healing Center  
400 Adawehi Court  
Columbus, NC 28722  
Phone: 828-894-0124 ext. 4

[http://www.adawehi.com/healers/color\\_sound\\_accupressure.asp](http://www.adawehi.com/healers/color_sound_accupressure.asp)

This natural healing treatment can clear out energetic blockages, relax tight muscles, improve circulation, reduce stress, and provide a sense of relaxation and rejuvenation. Many find this healing therapy effective for such conditions as arthritis, migraines, colds/flu, back pain, digestive problems, menstrual cramping, and general well being.

Collins Dental Center

158 White Drive  
Columbus, NC  
Phone: 1-866-216-6884

Established to serve children from Polk and Rutherford Counties. Accept Medicaid and Health Choice insurance only, and have a sliding fee scale for uninsured patients.

Community Health Connections

2186 A Lynn Rd.  
Lynn, NC 28750  
Phone: 828-894-3308  
In-home personal nursing aid assistance.

Polk County Health Department

161 Walker Street  
Columbus NC 28722  
Phone: 828-894-8271  
[www.rpmhd.org](http://www.rpmhd.org)

Child health clinic for well child exams, child service coordination, pregnancy testing and referral, WIC nutrition education, children's and adults immunizations, women's preventive health screenings, family planning services for women of child bearing age, Maternal Care Coordination (Baby Love), referrals to OB doctors for pregnant women ,post partum home visits for mother and New Born Screening home visit for infants, Communicable Disease and Sexually Transmitted Disease testing counseling and treatment.

Polk County Home Health Agency

161 Walker Street

Columbus, NC 28722

Phone: 828-894-5395

Home health aide: Registered nurse, physical therapy, speech therapy, occupational therapy, medical social worker; Medicare and Medicaid certified; Private insurance accepted. Accredited by the Commission for Health Care.

Saluda Medical Center, Inc.

86 Greenville St.

Saluda NC 28773

Phone: 828-749-4411

- Primary and continued patient care
- Preventive care/Well Exams
- Pediatric and geriatric services
- Minor surgical procedures
- Disability, employment, and DOT physicals
- Sports physicals
- Immunizations and Flu shots
- Family Planning—Referral to medical specialty

St. Luke's Hospital Outpatient Rehabilitation Center

799 B W. Mills St.

Columbus, NC

Phone: 828-894-8419

Certified physical and occupational speech therapists to treat variety of illnesses and injuries with limited gym membership following discharge.

Tryon Hearing Center

2753 Lynn Road

Tryon, NC 28782

Phone: 828-859-3007

Fax: 828-859-3011

Jim Wiprut, of Tryon Hearing Center, does free hearing screenings for everyone from kindergarten age up. Results are not shared unless the patient requests a copy for their own provider. Jim gladly provides information on organizations and programs that help individuals of limited resources obtain needed telecommunication and other assistive devices. Located off Highway 108 near the Mimosa Inn, Jim may be contacted at 859-3007.

## CHIROPRACTIC CARE

Adawehi Institute & Healing Center

Dr. Bob Lilly

400 Adawehi Court

Columbus, NC 28722

Phone: 828-894-0124 ext. 3

[http://www.adawehi.com/healers/directional\\_non\\_force\\_chiropractic.asp](http://www.adawehi.com/healers/directional_non_force_chiropractic.asp)

Dr. Winn Sams

93 Adawehi Lane

Columbus, NC 28722

Phone: 828-894-5260

[http://www.adawehi.com/healers/activator\\_technique\\_chiropractic.asp](http://www.adawehi.com/healers/activator_technique_chiropractic.asp)

Baker Chiropractic

1053 South Trade Street, Tryon - (828) 859-5055

Carolina Medical Multi-Care

89 East Mills Street, Columbus - (828) 894-0377

Becker, Daniel J DC

104 Palmer Street, Tryon - (828) 817-5524

Macary, April Chiropractor

60 Walker Road, Columbus, NC 28722 - Phone: (828) 894-0233

Rindge, Fred H DC

54 South Trade Street, Tryon - (828) 859-6976

## LOCAL EYE CENTERS

Accepts Insurance including Medicaid

Smith Optometric Eye Associates, PA

Dr. Rosalind Overton-Smith

30 New Market Rd.

Tryon, NC 28782

(828) 859-5821

Carolina Ophthalmology, PA

1701 Old Village Rd.

Hendersonville, NC  
(828) 693-1773

Looking Glass Eye Center  
215 Thompson St.  
Hendersonville, NC  
(828) 693-4161

Edney Eye Associates  
69 Shuford Rd  
Columbus, NC 28722  
(828) 894-3930

Northside Vision  
2603 Boiling Springs Rd  
Boiling Spring, SC  
(864) 578-3926

Walmart Vision Center  
250 Highlands Square Dr  
Hendersonville, NC  
(828) 696-7850  
(uses Medicaid on exam only)

Eyeglass Help  
Lions Club  
Patricia Recker  
(828) 894-2615

## MASSAGE THERAPY

Adawehi Institute & Healing Center  
Deep Tissue Massage  
Russell Woods, LMBT (NC License #732)  
400 Adawehi Court  
Columbus, NC 28722  
Phone: 828-894-0124 ext. 2

[http://www.adawehi.com/healers/deep\\_level\\_emotional\\_release\\_massage\\_therapy.asp](http://www.adawehi.com/healers/deep_level_emotional_release_massage_therapy.asp)

Since beginning his practice in 1991, Russell Woods has developed his own unique and innovative approach to bodywork that he calls the Deep Level Emotional Release technique. Using this natural healing approach, Russell is able to access the deeply held, stuck emotions that generate muscular tension and blocked energy flow.

#### Relaxing Massage

Louise Hillenbrand, LMBT (NC License #1608)

93 Adawehi Lane

Columbus, NC 28722

Phone: 828-894-5260

[http://www.adawehi.com/healers/relaxing\\_massage\\_therapy.asp](http://www.adawehi.com/healers/relaxing_massage_therapy.asp)

Louise incorporates a variety of massage techniques in her practice that she has developed in her years of providing natural healing massages including: Hot Stone Massage, Swedish, Deep Tissue, Polarity, and Shiatsu; each designed for ultimate relaxation and nurturing.

#### Color and Sound with Acupressure

Autumn Singleton, LMBT (NC License #9228)

400 Adawehi Court

Columbus, NC 28722

Phone: 828-894-0124 ext. 4

[http://www.adawehi.com/healers/color\\_sound\\_accupressure.asp](http://www.adawehi.com/healers/color_sound_accupressure.asp)

During a healing session with Autumn Singleton, you will receive a head-to-toe front and back treatment of all the acupuncture meridian lines. If you have a specific ailment, Autumn activates acupressure and hand/foot reflex points to promote the natural healing process.

#### OTHER COMMUNITY SERVICES

##### Access II Care

Call Patsy Brock, Health Navigator for an appointment

Phone: 828-899-0194

Help the uninsured find healthcare, mental health, substance abuse and social services.

##### American Red Cross, Polk County Chapter

231 Ward Street

Columbus NC 28722

Phone: 828-894-2700

##### Area Agency on Aging

PO Box 841

111 West Court Street

Rutherfordton, NC 28139

828-287-2281

[www.regionc.org](http://www.regionc.org)

An advocate for Senior Adults

##### Big Brothers Big Sisters of WNC

301 N. Trade St.

Tryon NC 28782

Phone: 828-859-5364

## Youth Services / Mentoring

### DEVELOPMENTAL DISABILITIES

Autism Society of North Carolina Asheville Office  
239 South French Broad Avenue  
Asheville, NC 28801  
(828) 236-1547 X14 Parent advocate  
(828) 236-3675 Fax  
(800) 442-2762 Autism Society of North Carolina  
[www.autismsociety-nc.org](http://www.autismsociety-nc.org)

The Autism Society is a major advocate nationwide for increased options and opportunities for people on the autism spectrum. It provides a variety of services to those affected with the disorder and their families. At the Asheville office, a parent advocate helps parents start support groups throughout the western part of the state. Current local group:

Rutherford/Polk Parent Support Group  
(828) 248-2663  
Second Monday, 7 p.m., choir room of Adaville Baptist Church, 805 Oakland Road, Spindale.

Hearing Loss Association of America (HLAA)  
103 Jackson's Run  
Morganton, NC 28665  
[diattaway@juno.com](mailto:diattaway@juno.com)

Through its programs of support, education, and advocacy, HLA helps open the world of communication for people with hearing loss. Although it has no face-to-face support groups in our area, HLA does offer the following online support programs:

[www.myhearingloss.org](http://www.myhearingloss.org) Chat rooms  
[www.hearingloss.org](http://www.hearingloss.org) Click on "E-newsletter"

If you would like to start a face-to-face support group, you can get help by contacting the state chapter coordinator at number above.

Western Alliance Center for Independent Living (WACIL)  
1070 Tunnel Road, Suite 20  
Asheville, NC 28805  
Kathy Hollingsworth, Associate Director  
[khollingsworth@westernalliance.org](mailto:khollingsworth@westernalliance.org)  
(828) 298-1977 (Voice/TTY)  
(828) 298-0875 Fax  
[www.westernalliance.org](http://www.westernalliance.org)

Western Alliance Center for Independent Living helps person's with disabilities learn the skills needed to live independently. Funded by the US Department of Education, services are offered free of charge to people with all types of disabilities.

In addition to a resource library, WACIL maintains a data base of information on housing, health services, and other topics of interest to consumers. Through its Cyber Pals Program, donated computers with e-mail access are placed into the homes of people with disabilities, enabling them to keep in touch with friends and family. The Center offers free self-help and computer classes as well as a monthly potluck.

JobLink/Employment Security Commission  
Department of Social Services  
330 Carolina Drive  
Tryon, NC 28782  
Phone: 828-859-5825  
At DSS every Tuesday, call for an appointment

Listening Heart Crisis Center  
CALL (877) 344-0669  
Cliff Rubin, Executive Director  
Email at [cliff@listening-heart.org](mailto:cliff@listening-heart.org)  
Website: <http://listeningheartcrisiscenter.org/>  
Provides peer listening and referral to individuals in crisis seeking emotional support;  
Services to reassure the elderly that they are not alone and connect them with the services they need.

Meeting Place Senior Center  
75 Carmel Lane  
Columbus, NC 28722  
Phone: 828-894-0001

Meeting Place Senior Center  
Suite B  
330 Carolina Dr, Tryon - (828) 859-9708  
<http://www.polknc.org/departments/meetingplace/index.php>

Green Creek Family Life Center  
25 Shields Road  
Columbus, NC 28722  
828-863-2795

All three facilities serve seniors 60+ years of age with a broad range of services and activities  
Meals, Congregate served at center  
Home delivered meals, delivered to homebound residents



Senior Health Insurance Information Program (SHIIP) Trained Counselors, to help with questions regarding your Medicare claims  
Health Screenings  
Information and Referral

NC Cooperative Extension Service  
Annex Bldg Gibson and Ward St  
Columbus NC 28722  
PO Box 187

8:30-5:00 Mon-Fri

Phone: (828) 894-8218

Website: <http://polk.ces.ncsu.edu>

Provides research-based information and education to help families and individuals improve quality of life. Programs include nutrition and wellness, parenting and care giving, financial management, safe and healthy environments, and leadership development.

N.C. Vocational Rehabilitation

277 Commercial Dr.

Forest City NC 28043

Phone: 828-245-1223 828-245-1224

Counseling, training, education, transportation, job placement, assistive technology and other support services. These services are provided to people with physical, psychiatric or intellectual disabilities to assist them with living independently and with finding a job and staying on the job.

N.C. Vocational Rehabilitation

277 Commercial Dr.

Forest City NC 28043

Phone: 828-245-1223 828-245-1224

Counseling, training, education, transportation, job placement, assistive technology and other support services. These services are provided to people with physical, psychiatric or intellectual disabilities to assist them with living independently and with finding a job and staying on the job.

Pisgah Legal Services

PO Box 2276

Asheville, NC 28802

828-253-0406

1-800-489-6144

[www.pisgahlegal.org](http://www.pisgahlegal.org)

Polk County Department of Social Services

330 Carolina Drive

Tryon, NC 28782

828-859-5825

Polk County Transportation Authority  
PO Box 308  
Columbus, NC 28722  
828-894-8203  
<http://www.polknc.org/departments/transportation/index.php>  
Transportation services for medical and shopping needs

Polk County Wellness Coalition  
Phone: 828-899-9355  
Community members working together to address health needs related to prevention education, access to care, mental health, substance abuse and obesity. Monthly meetings are held on the 4th Thursday at the Polk Co. Public Library, 1289 W Mills St., Columbus, NC

Polk Vocational Services  
451 Industrial Park Drive  
Columbus, NC 28722  
828-894-3041

Social Security Administration  
205 S. Grove St.  
Hendersonville, NC 28792  
828-692-0534  
1-800-772-1213  
[www.socialsecurity.gov](http://www.socialsecurity.gov)

Steps To Hope, Inc.  
60 Ward Street  
Columbus NC 28722  
Phone: 828-894-2340  
Helps victims of domestic violence and sexual assault and provides support programs designed to prevent and break the generational cycle of violence in our community.

Thermal Belt Habitat For Humanity  
PO Box 626  
Tryon, NC 28782-0626  
Phone: (828) 894-0197

Thermal Belt Outreach  
PO Box 834  
Columbus NC 28722  
Phone: 828-894-2988 828-894-2352  
Helps people out of crisis situations and into self-sufficiency.

Veterans Service Office

330 Carolina Drive

Tryon, NC 28782

828-859-5121

<http://www.mass.gov/?pageID=veteranshomepage&L=1&L0=Home&sid=Eveterans>

Emergency Services

	Columbus	Saluda	Tryon
Police	894-3001	749-2691	859-9195
Fire	894-3001	692-3233	859-9335
Hospital	894-3311	894-3311	894-3311
Ambulance Service	894-3001	894-3001	894-3001
Rescue Squad	894-3001	894-3001	859-9195
Sheriff	894-3001	894-3001	894-3001

Polk County Offices

Animal Control (828) 894-3001

Board of Commissioners (828) 894-3301

Board of Elections (828) 894-8181

Building & Fire Inspections (828) 894-3739

Communications (828) 894-3001

Cooperative Extension (828) 894-8218

County Manager (828) 894-3301

Economic Development (828) 894-2895

EMS and Emergency Services (828) 894-3067

Finance (828) 894-3302

Jail (828) 894-3001

Library (828) 894-8721

Planning and Zoning (828) 894-2732

Public Buildings (828) 894-5350

Recreation (828) 894-8199

Registrar of Deeds (828) 894-8450

Sheriff (828) 894-3001

Social Services (828) 859-5825

Soil and Water (828) 894-8550

Solid Waste (828) 894-3737

Systems Coordinator (828) 894-3001

Tax Assessor and Collector (828) 894-8954

The Meeting Place (828) 894-0001

Transportation (828) 894-8203  
Travel and Tourism (828) 894-2324

DIAL 911 FOR EMERGENCIES

[www.rpmhd.org](http://www.rpmhd.org)

In Polk County:  
161 Walker Street  
Columbus, NC 28722

Health Department 828-894-8271  
Home Health 828-894-5395  
Environmental Health 828-894-3557  
Dental Health 828-287-6018  
WIC (Women, Infants and Children) 828-894-3888

